

Power in Political Thought:

A Comparative Conceptual Morphology

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Abstract

The aim of this thesis is to resurrect interest in the concept of power in political theory by shedding light on some of its relatively unexplored discursive dimensions and developing a fresh approach to its understanding. Particularly, it studies an under-examined theme in the current literature, which, however, forms a crucial aspect determining different definitions of power: in what manner do different ways of thinking about power underpin variable conceptual formulations and theoretical interpretations of this key political concept? What types of cognitive, ideational and conceptual 'micro-processes' shape different ways of thinking about power in political thought?

The thesis suggests novel interpretative possibilities that may be distilled from developing a hermeneutical approach extending across the dimensions of historical time and disciplinary space, by combining methodological insights from the fields of morphology, intellectual history and interdisciplinary study. To that end, it engages perspectives gleaned from historical treatments of power, as well as recent understandings of spatiality and force provided by scientific discourse. The concept of power is explored through the perspectives of (i) cultural historicity and (ii) interdisciplinarity.

Along the axis of cultural historicity, the analysis studies the classical concept of 'dunamis' as the original modality of power in political thought. Along the axis of interdisciplinarity, the examination explores the concept of force in the discourse of physics. It is shown that the exploration of those conceptual modalities can yield a new appreciation of certain diachronic and contingent conceptual features of power, enhance our understanding of the multifaceted discursive processes through which those formulate, including the underpinning 'micro-semantic', linguistic and ideational processes which contribute to the emergence of variable modes of *thinking about* power. In so doing, the thesis aims at illuminating our modern understanding of the concept, moving the scholarly discourse forward towards new horizons of meaning and interpretation.

‘Ουκ εμού αλλά του λόγου ακούσαντας ομολογεί σοφόν εστίν
Εν πάντα είναι’

Ηράκλειτος

‘Listening not me but the logos, it is wise to agree: All is one.’

Heraclitus

‘It is probably true quite generally that in the history of human thinking the most fruitful developments frequently take place at those points where two different lines of thought meet. These lines may have their roots in quite different parts of human culture, in different times or different cultural environments or different religious tradition: hence if they actually meet, that is, if they are at least so much related to each other that a real interaction can take place, then one may hope that new and interesting developments may follow.’

Werner Heisenberg

‘The Master doesn’t try to be powerful;

Thus he is truly powerful.

The ordinary man keeps reaching for power;

Thus he never has enough’

Tao Te Ching

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INTRODUCTION

'A concept', writes Koselleck, 'is not simply indicative of the relations which it covers; it is also a factor within them. Each concept establishes a particular horizon for potential experience and conceivable theory, and in this way sets a limit'.[1] For quite some time now, political theory has been exploring the fascinating power of concepts to act as creative forces in our socio-political realities. Indeed, in recent decades, our field has witnessed a shift from 'the great men' or 'great books' approach, which aimed to construct holistic and comprehensive systems of thought in order to deal with 'antiquated perennial theoretical questions',[2] towards a flourishing of conceptually-oriented studies in political theory, including ideology, morphology, conceptual history and intellectual history.

However, it seems that political theorizing has not yet entirely made full use of the rich insights increasingly arising from these modes of political research. It has not yet fully integrated the significance that conceptual analysis bears not only for enhancing and elucidating our understanding of our political worlds and ideas, but also for our ability to participate constructively in the fabrication of horizons of political experience; and this, not in some form of Marxian quest to change the world through our interpretations, but rather on the grounds of the more modest recognition that 'the pen' always has been and

[1] R. Koselleck, *Futures Past: On the Semantics of Historical Time* (Cambridge Mass.: The MIT Press, 1985), p. 86.

[2] Michael Freeden, 'Ideology and Political Theory', *Journal of Political Ideologies*, vol. 11 (1) (2006), pp. 3-22.

still is 'a mighty sword'.[3] Attesting to this contention is the fact that, despite all calls to appreciate constructively the inherent enmeshing of concepts and facts, as well as the exegetic exigency of addressing political concepts as 'living', active, interactive determinants of political life, some of the most important concepts of political thought still linger in confusion and indeterminacy, and not always of the most productive kind. A prime example of such a concept is power—one of the most cardinal and unremittingly central concepts in the history of political thought.

In line with the above considerations, two core syllogisms have prompted the research theme explored in the present thesis. The first syllogism concerns the somewhat paradoxical status exhibited by the concept of power. Power is indeed an intriguing and puzzling case of a concept for political theorists. On the one hand, it is unarguably one of the most crucial concepts in political thought, perhaps politics' most emblematic notion and the most *quintessentially political* amongst the features delineating an activity or thought practice *as* political.[4] The idea that power and politics are tightly interwoven, to the point that disentangling them would amount either to a mutual conceptual impoverishment or some odd exegetical *reductio ad absurdum*, is of course a very old one, dating back to the very beginnings of political theorising. The notion of politics has been perennially conceived through the teleological prism of governance, while governance has been primarily understood through the practical perspective of its function as organisation and implementation of power. This has led various thinkers throughout the history of political thought to 'crown' power as the *sine que non* of politics.

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[3] Quentin Skinner, *Visions of Politics Volume I: Regarding Method* (Cambridge: Cambridge University Press, 2002), p. 7.

[4] Michael Freeden, *Ideology: A Very Short Introduction* (Oxford: Oxford University Press, 2003), pp. 18-9.

Nevertheless, on the other hand, the discourse on power is to our day bristling with aporias. In the first place, the discourse has reached a standstill in the past few years, since its examination has been somewhat lagging behind the progresses marked in the evolution of our political epistemologies. Moreover, like the notions of 'the political' and 'ideology', power and what it stands for is similarly suffering from severe reputational and indefinability problems. A major reason has been the lack of scholarly consensus over a shared, rigorous, efficient, adequately descriptive and working definition of that which political theory considers as one of its most cardinal concepts. Another reason can be traced in the old parochial tendency (even amongst some of the most philosophically astute theorists) of deducing 'power' to some inherent psychological urge, impulse,[5] instinct or pathology of human nature.[6] Unfortunately, more often than not, this interpretive proclivity has served to foreshadow more intricate, sophisticated and detailed explorations into the factual but also conceptual nature of power.

As a result, notwithstanding the 'power-centricism' dominant in the field, power remains 'a peculiarly problematic concept',[7] 'the most abused word in our language of politics',[8] 'ambiguous', still mostly 'intuitive',[9] and indubitably, one of the 'most essentially contested concepts'[10] in our political vocabularies. Ironically, it is the very ubiquity of the *phenomenon* and *discursivity* of power that partially conduces to the lack of a universally accepted definition,[11] since its immanence, immediacy and all-

5 Bertrand Russell, *Power: A New Social Analysis* (London: Allen & Unwin, 1938), p. 3.

6 Carl Gustav Jung, *Nietzsche's Zarathustra*, Volume 1 (New Jersey: Princeton University Press, 1988), p. 1214.

7 Terence Ball, "Power", in R.E. Goodin and P. Pettit (eds.), *A Companion To Contemporary Political Philosophy* (Oxford: Blackwell, 1998).

8 Michael J. Oakeshott, *Rationalism in Politics* (Liberty Press, 1991), p. 447.

9 R.A. Dahl, 'The Concept of Power', *Behavioral Science*, 2:3 (1957), pp. 201-215.

10 Steven Lukes, *Power: A Radical View* (London: Verso, 2005), p. 1.

11 Sarah Joseph, *Political Theory and Power* (Leiden: Brill, 1988), pp. 8-10.

pervasiveness in all aspects and dimensions of socio-political life almost invites definitional attempts which proceed from a view of the particular, and which are hence inexorably embedded in specific historical, social and hermeneutic contexts. Consequently, 'the concept is assigned different meanings in different theories, different historical eras and different contexts'.[12] The lens of particularity has often prompted an asymmetric favouring of conceptually or empirically contingent approaches to power and, thus, the loss of a more general and generic scope of examination.

Examining some of the conceptual factors behind the lack of a widely agreed upon definition of power, we observe a variety of intellectual and semantic attitudes, which have given rise to what we can refer to as 'semantic inflation'. The factors which contribute to the 'uses and abuses' of the term include: (a) its loosely-defined appropriations by a wide variety of epistemic discourses, vernacular usages and activities; (b) its historical burden resulting from numerous interpretations of the term accumulating over hundreds of years of systematic human theorising; and (c) its empirical overloading.

Semantic inflation arises out of the extensive use of the same word for describing a wide variety of phenomena, which nevertheless, pertain to substantially diverse fields of human activity. We therefore speak of political power, but we also speak of will power, the power of love, the power of mind and the power of silence; we speak of executive, legal and judicial powers, sovereign power, legitimate power, as we also speak of natural powers, mechanical, electromagnetic and nuclear powers, the power of technology but also supernatural powers. There is labour power and biopower, national power and gender power. There is state power, economic power and communal power, but there is also the power of ideas, the power of positive thinking, as well as the power of forgiveness, the

[12] Ibid.

power of now and the power of two. Discourses truly present us with an extraordinary variety of aspects, kinds, types and genres of power.

But are all these different kinds power the one and same 'power', infinitely diversified and successively divided according to contingency? Or do they refer to genuinely distinct phenomena, which only out of some implicit linguistic convention we habitually call by the same name? Does this rich palette of powers—dynamic and ever expanding in proportion to the growth of our practices and ideas—refer to a singular conception of power that, as if Proteus-like, takes on a different form according to the specificities of the field in question and the nature of its particular manifestation? Or are we simply using the same word to talk about a different thing each time, assuming that contingency is enough to account for conceptual diversification, despite the indiscriminate linguistic usage of the term?

This brings us to the second core syllogism underpinning the present thesis. A way to address the problematic of power's semantic inflation is, first of all, to clarify that the way the term 'power' is conceptualised, even across different discursive spaces, should not be conflated with the question of 'what power is'. An exploration into power's 'ontology', its presumably objective nature or empirically validated 'faces', is not adequate for exposing and explaining certain deeper, subtler and more elusive *discursive* features and processes involved in the way power is semantically assembled and conceptually decontested in political thought.

Indeed, the endeavour to gain a clearer understanding into the nature of power is a research task quite prone to diverting into some idealistic quest to uncover an essential, perennial meaning, an objective nature or a fixed ontology, an overarching definition or even a universal 'unit idea' under which all phenomena of power could be perfectly classified. However appealing such a project may appear, especially to a researcher driven

by the quest for finality and the desire of decontestation (both of which undeniably function as crucial engines of political thought),[13] nevertheless, this kind of approach does not align with the aims and epistemic view of the present thesis. The present examination does not abide by the idea of redeeming the objective 'faces' of power, nor does it uphold the plausibility of the correlated task of uncovering its putatively 'absolute' perennial meaning. Its aim is not to provide a comprehensive definition or an accurate description of power through attempting to delimit the range of concrete features demarcating an event, a relation, a structure or a state *as* a 'fact' of power. The reason for this is, quite simply, that speaking of power as an objective 'factual reality' which, through our theoretical formulations, we attempt to pin down and contain into a set of discrete quantifiable, reductionist parameters, would only serve to reinforce and thus perpetuate power's existing reification. Approaching an 'ontology of power' in this fashion would amount to insisting on founding our research upon an uninformed and somewhat antiquated epistemological vantage point that fails to recognise and take on board the insights of 'the most powerful voices in recent philosophy', which have questioned whether there are 'any indisputable facts to be acquired' and which have shown, as Skinner pithily quotes, that 'facts alone are wanted in life'.[14]

Contemporary and presently powerful currents in the theory of knowledge, but also the history of ideas,[15] theory of meaning,[16] linguistics,[17] ideology and political theory[18] have endorsed the epistemological assail against the old empiricist belief that there is a

[13] Michael Freeden, *Ideologies and Political Theory*: *A Conceptual Approach* (Oxford: Clarendon Press, 1996).

[14] Skinner, *Visions of Politics, Vol. 1*, p. 1

[15] Arthur Lovejoy, *Essays in the History of Ideas* (Baltimore: Johns Hopkins Press, 1948).

[16] Ludwig J. J. Wittgenstein, *Philosophical Investigations* (f.p. 1952) (Oxford: Wiley-Blackwell, 2009).

[17] Pierre Bourdieu, *Language and Symbolic Power*, John B. Thomson (ed.), Gino Raymond and Matthew Adamson (transl.) (Cambridge: Polity, 1991).

[18] Freeden, *Ideologies and Political Theory*.

world of facts that exists independently of our perception and judgements of it; or, at any rate, that if such a world exists, it is not the one which we normally assume we have access to, since all experience is intrinsically interwoven with cognition, and cognition is always a function of meanings, concepts, evaluations and judgements. Indeed, 'there is no experience without concepts, and no concepts without experience'.[19] The empiricist dogma has been largely discarded by now in the social sciences and the humanities, giving way to the emergence of a new epistemological foundation for political theory, since 'scarcely anyone nowadays believes in the possibility of building up structures of factual knowledge on foundations purporting to be wholly independent of our judgements'.[20] This understanding, where it has not derailed into radical forms of scepticism, has culminated in novel styles of orienting political theorising, where the study of concepts, semantics, ideas and intellectual history has gradually advanced from merely an auxiliary or secondary tool in the study of some purportedly theory-free factual political reality, to a primary exegetical framework for understanding the crucial ways in which 'factual political realities' are integrally *conceptually* constituted.

Similarly, the concept of power 'relates both to actions in which, say, coercion actually takes place *and to the thought-events* that identify particular actions *as* coercive and that contribute to the formation of ordinary language usage, creating what Taylor has called "common terms of references"'.[21] However, at the moment when cognition and interpretation begin, 'all references stand apart from, are attached to, and are transformed into their referents'.[22] This is because cognition inherently entails some level of abstraction. As Weiss argues, 'we do abstract from what we initially encounter. This,

[19] Jan-Werner Muller, 'On Conceptual History', p. 6

[20] Skinner, *Visions of Politics, Vol. 1*, p. 1

[21] Freeden, *Ideologies and Political Theory*, p. 51.

[22] Paul Weiss, 'The Dunamis', *Review of Metaphysics*, 40 (4) (1987), pp. 657–674; p. 313.

though, has no beginning or ending, real distinctions, or separated items acting in opposition and in consonance, where neither subjects nor objects are to be found. What is primary for us, where all our inquiries initially begin, and to which they eventually return, is the familiar world of daily life'.[23] However, the boundaries between 'the familiar world of daily life' and our perception of that world as *both* a coherent 'world' *and*, moreover, a 'familiar one', and so similarly in our case, the boundaries between the reality of power and our interpretation of reality *as* an instance of power, are not that easily discernible; in fact, they tend to vanish as distinguishable, or merge in conflation, once one attempts to conceptualise the phenomenon. All facts are, unavoidably, though at variable gradations and degrees, theory-laden. Likewise, the concept of power, as all political concepts, derives 'from an interplay between thought and the facts of the external world'.[24]

When it comes to the study of power, then, the problem with developing a purely factual, pristinely descriptive or empirically-based approach to its research is that we never get to observe or experience 'power' *as such*, but in fact, we conceptually abstract it from experience, both as a notion and as a presence. Its conceptual abstraction occurs through pre-given models, preconceptions, correlated thought-practices, language and patterns of thinking according to which we get to 'classify the unfamiliar in terms of the familiar'.[25] Yet, and that is where the perplexing conundrum around the study of power stems, all those linguistic, cognitive, semantic, conceptual and ideational means we employ to abstract power from reality *are themselves* parts, products and inputs of that which we are trying to analytically comprehend and theoretically redeem. Perhaps this is the very subtlety upon which the mystification of power has been enabled to self-perpetuate in the context of academia. For we, as theorists, are already embedded in practices of power,

[23] Ibid.

[24] Freeden, *Ideologies and Political Theory*, p. 51.

[25] Skinner, *Visions of Politics, Vol. 1*, p. 7

both enabled and constrained by them, 'but those practices owe their dominance in part to the power of our normative language to hold them in place, and it is always open to us to employ the resources of our language to undermine as well as to underpin those practices'.[26] To forget the integral significance that *thinking about* power bears on the very *experience* of power as an event contributes to power's parochial reification and, ultimately, fatally hampers the possibility of its theoretical elucidation.

The case of power thus evidently presents an exigent instance of the intricate enmeshing of notional and factual factors which requires very cautious theoretical handling, precisely because power's recognised ubiquity and peculiarly elusive nature makes it easy for theorists to 'miss it' right in the midst of their efforts to reveal it. Exactly because power mechanisms operate and substantiate via norms, language, perceptions (and particularly through their internalization into our very cognitive, linguistic, ideological and normative structures), the distinction between the study and the experience of power, the 'interior and exterior life' of power,[27] as well as the 'internal' (cognitive) and 'external' (social) aspects involved in the fabrication of power, becomes rather blurred, if not itself an object necessitating careful rigorous scrutiny. If we recognize that, to some degree, all our perceptions are conditioned by the mechanisms of power, then power itself, it would seem, always remains to some extent masked from us, precluding a clear view of our object.

The opportunity should be seized at this point to remark that this was precisely the decisive subtlety where the battle for theoretical consistency was lost for the last great theorist of power in our times—Michel Foucault. It is somewhat paradoxical that although

[26] Ibid.

[27] Judith Butler, *The Psychic Life of Power: Theories of Subjection* (Stanford: Stanford University Press 1997), p. 19.

Foucault's most notable contribution to our understanding of power consisted exactly in uncovering and meticulously exposing power's discursive nature and the multifariousness of the ideational and normative dimensions of power mechanisms, he himself did not avoid lapsing into the very exegetical and interpretative pitfall which his own theory had anticipated. His understanding of 'capillary power' stressed that power mechanisms manifest through practical and discursive constitutions of selfhood and the fabrication of the self *as* subject. Norms and ideas, he argued, become psychically and physically internalised through various forms of interpellation or discursive productivity. 'Capillary power, like the air we breathe is the place into which the subject is thrown. Because it is always there, the subject cannot be outside governmentality. We are always interpellated into being, such that the critical principle to maintain at all times is to discern the degree of 'nonconsensuality' at work in the power relations that hail us forth'.[28] With all caution against projecting anachronistic demands upon a thinker of the past, it appears fairly surprising, as much as unduly contradictory, that Foucault did not consider reflecting upon the following obvious and rather predictable hypothesis—which apropos was the major objection levelled by his critics: the possibility that his own theory was itself a manifestation or product of those capillary power mechanisms which he so polemically sought to expose, and not in some way by default externalised, immunised and impervious to them. What lacked in Foucault's case was quite evidently not the awareness that power is constituted cognitively and ideologically, nor the commitment to study the relevant discursive processes; rather, what lacked was a clearer, deeper and more systematic self-reflection upon the manners and ideological micro-processes through which thinking *about power* is constituted at a deeper semantic-conceptual level, both at the level of collective worldviews and the political thought of individual authors. As the case of

[28] Bregham Dalgliesh, *Critique as Critical History* (Tokyo: Palgrave Macmillan, 2017), p. 174.

Foucault clearly demonstrates, the perpetual danger involved in common approaches to power, its ontology and definition, is precisely the inattentiveness to its crucial yet subtler ideational, conceptual and semantic dimensions, and thus the incongruous omission of an equally weighted study of the semantics, conceptual presuppositions and patterns of thinking involved in the construction of power as a socio-political phenomenon and, even more so, as a core concept of political thought.

Surely, the recognition of the inherently ideational nature of power does not necessitate nor forestall the adumbration of a broad-sweeping contextualist or a radically sceptical approach to its study, which would deny the existence of some core family resemblances broadly marking different experiences, events and theoretical articulations of power. Power may indeed be a kind of abstraction which, when identified with only one or a few of the multitudinous particular forms, modes of exercise or modalities it may assume (e.g. with coercion, domination, authority, subjugation, et cetera), can be turned into some kind of fiction (much like the concept of the 'state'[29]); or, likewise, it can be unreflectively projected as an objective exogenous reality supposedly bearing a concrete or entirely material existence—which, exegetically, amounts to its reification. From the perspective of discourse, power can also be productively regarded as a sort of key metaphor, in the sense of a conceptual cross-domain mapping unifying diverse experiential, linguistic and ideological manifestations into enduring empirical and knowledge structures.[30] This, however, should not be taken to imply that patterns of 'activities' identified *as* phenomena of power do not exhibit at least some common

[29] Quentin Skinner, 'A Genealogy of the Modern State', *Proceedings of the British Academy*, 162 (2009), pp. 325-370.

[30] Gerard Steen, 'Three Kinds of Metaphor in Discourse: A Linguistic Taxonomy', in Musolff A. & Zinken J. (eds), *Metaphor and Discourse* (Palgrave Macmillan, London, 2009), pp. 25-39. Michael Freeden, 'Political Thinking as Power', in Keith Dowding (ed.), *Encyclopedia of Power* (London: Sage, 2011), pp. 492-496.

features, and hence that their referent umbrella-concept of 'power' does not consist of some recurrent core conceptual features. As Skinner notes in a relevant example, 'it is in fact the truth and not the absurdity of the claim that all [such] activities must have some characteristic concepts which seems to be the same source of confusion. For if there must be at least some family resemblances connecting all instances of any such activity, which we need first of all to apprehend in order to recognise the activity itself, it becomes impossible to consider any such activity, or any instance of it, without having some preconception of what we expect to find. (…) The resulting dilemma may be stated (…) in the form of the proposition that the models and preconceptions in terms of which we unavoidably organise and adjust our perceptions and thoughts will themselves tend to act as determinants of what we think and perceive'.[31]

This thesis endeavors to capitalise on this powerful conceptually-oriented current in political theory, and especially some of the latest methodological approaches to the study of concepts, by extending its methods and insights to the study of power. The investigation explores power from the perspective of *conceptual* analysis. It approaches power primarily as *a concept*—i.e. a consolidated, patterned cluster of meanings arising from a multitude of cognitive, syllogistic and abstractive processes—rather than an empirical practice, reality or phenomenon. Nevertheless, quite unavoidably, the examination shall continually remain oriented in reference to the various practical realities or facts to which the concept has been interpreted to correspond.

The study places the center of its exegetical gravity on a comparative examination, across historical and disciplinary axes, of some of the underlying preconceptions, ideological assumptions, tropes, patterns and modalities of thinking, including the core and peripheral conceptual components, which have underpinned different ways of *thinking*

[31] Skinner, *Visions of Politics, Vol. 1*, p 58.

about power in political thought. Given our alignment with the post-empiricist epistemological view, our comprehension of those cognitive, semantic and conceptual 'micro-processes' is deemed not merely tangential but, in fact, indispensable to understanding power's concrete formal consolidations and macroscopic sociopolitical manifestations. This is because, as we saw, the 'micro-processes' involved in the various ways power is cognised, re-cognised, and perceived—i.e. our perception of *what power is*—form integral features of *what* is experienced *as power*, across different historico-political contexts.

However, discerning those patterns and attempting to extract from our study certain recurrent conceptual and semantic features and patterns of thinking in the history of the concept, does not amount to seeking to expose some hidden timeless definition or some inherent perennial meaning of power. Rather, the insistence here is that there has been an exaggerated asymmetry between, on the one hand, attempts to reflect upon what power '*really*' is and provide a 'right' or comprehensive definition which could descriptively encapsulate the phenomenon with adequate accuracy, and on the other hand, the relatively underplayed task of attempting to understand what factors affect the *ways we come to reflect upon* the question of what power is and how power is experienced. One of the principal aspirations of this thesis, then, is to point to the relevance and importance of studying the various modes of *thinking* underpinning different discursive articulations of power. It is one of its main contentions, at once epistemological and theoretical, that exploring some of the 'microscopic' discursive, semantic and cognitive processes, as well as the underpinning worldviews and philosophical syllogisms, which contribute to different construals of power across historical time and epistemic spaces, is a research task of hermeneutic exigency which thus deserves examination it its own right. Appreciating those 'micro-processes' as important forms and components of political thought can

expand our interpretative grasp of certain underlying semantic-conceptual subtleties involved in the hermeneutics of power, and consequently also of its factual manifestations qua compounds of 'form' and 'meaning'. Furthermore, this hermeneutical approach can provide renewed insights into the nature and underpinning dynamics of conceptual change in political theory.

As a conceptual analytical study, our examination does not take the concept of power as a fixed subject or entity, but rather seeks to observe and reflect upon how its meanings are discursively, historically and interdisciplinarily constituted. In assembling its conceptual hermeneutical examination, this thesis methodologically capitalises on three distinct, yet intimately related, methods which are currently predominant in the study of concepts and political thinking. The analysis employs a hybrid methodological research framework which synthesizes methods coming from: (i) Freeden's conceptual-morphological approach, as informed by (ii) insights from intellectual history; and (iii) recent findings born in the context of cutting-edge research in the history of concepts, which places particular emphasis on the transdisciplinary character of political concepts and studies the ways in which the configuration of political semantics results from 'boundary-crossing processes of semantic transfers, metaphorisations, and shifts of meaning between the semantics of disciplines'.[32] All three methods are used jointly, and sometimes interchangeably, in the context of this thesis.

Freeden's conceptual-morphological approach to the study of concepts and ideology serves as the central methodological pillar of our examination. According to this approach, ideologies are viewed as 'sets of ideas, beliefs and attitudes that reflect and shape

[32] Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', *Contributions to the History of Concepts*, Vol. 6 (2) (Winter 2011), pp. 42-44.

understandings of the social and political world',[33] and specifically, as particular arrangements or 'patterned clusters and configurations of political concepts', where the latter obtain decontested meanings.[34] Those clusters exhibit a tripartite structure, composing of three layers of conceptual stratification: (i) core conceptual features, (ii) their adjacent semantic components and (iii) their semantic periphery. All three layers together delineate the 'ideational environment' or 'universe of meanings' encapsulated by a particular ideology.[35] This interpretative approach is premised upon the recognition of the essential contestability of concepts. Accordingly, conceptual change is traced at once as a product and a cause of the variable processes of competition and decontestation over legitimate meanings of concepts and their structural recombination 'by prioritising some over others and by creating distinctive patterns of proximities between them'.[36]

Likewise, compound concepts, or in Connolly's words, 'cluster concepts', such as power, can be viewed and thus studied as 'systems of meaning (….) [as] social phenomena and the product of human conduct, namely thought-behaviour with respect to political issues'.[37] The same tripartite structure identified above at the level of ideologies can also be traced at the 'micro' level of individual conceptual structuration, such that any individual concept can be seen as composed of a similarly patterned cluster of 'sub-conceptions and meanings' ascertaining its semantic identity. Accordingly, concepts are 'patterned semantic compounds', however, those compounds are mutable and evolving,

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[33] Michael Freeden, *Notes for MPhil Core Theory of Politics Class 2009*, Department of Politics & IR, University of Oxford.

[34] Michael Freeden, *Ideologies and Political Theory: A Conceptual Approach* (Oxford: Clarendon, 1996), p. 54.

[35] Ibid. Chapter 2.

[36] Freeden, 2009.

[37] Freeden, 2006, pp. 60-62.

exhibiting 'multiformity, overlap, divergence, inconsistency, obliquity and change'[38] as their characteristic intrinsic features. Structure, history and genealogy suggest that, just like ideologies, core political concepts 'are neither pure in their boundaries nor linear in their descent', nor do they 'exist in isolation from one another'.[39] As ideologies are treated by Freeden as 'multi-conceptual constructs' or 'conceptual configurations', so individual concepts can be viewed as 'multi-semantic constructs' or 'semantic configurations' that develop and change over time.

In line with the above epistemological strand, our analysis treats the concept of power as a multi-semantic, 'internally complex' concept, with open, mutable and evolving connections to other political concepts,[40] whose conceptual evolution designates an autonomous field of research. Can we trace a common core or denominator of this cluster concept? How and by means of which discursive processes does the content, hierarchy and pattern of power's sub-semantic components change over time and space? What is it that entitles us to use the term 'power' across all those different instances of its discursive articulation? In exploring the above questions, our study places emphasis on power's evolving structural morphology through discerning the content and transformation of its core, adjacent and peripheral subcomponents. In parallel, as a work of interpretative political theory, this thesis explores the interpretative repercussions and hermeneutic possibilities stemming from a conscious and creative reflection upon the findings of our morphological analysis.

Informed by the field of intellectual and conceptual history, the analysis imports crucial insights for studying the underlying processes of semantic and ideational change

[38] Rachel S. Turner, *Neo-Liberal Ideology: History, Concepts and Policies* (Edinburgh: Edinburgh University Press, 2008), pp. 12-17.

[39] Ibid.

[40] Freeden, 1996, pp. 60-1.

underpinning evolving notions of power in political thought in a plausible and productive manner. As we saw, the particularly elusive nature of power poses a number of intriguing challenges to the theoretical endeavour of cutting through its normative investments and socially-embedded nuances in the attempt to anatomise its semantic structure with as much self-reflective detachment and normative sobriety as can be possible for a social scientist. Our main access to concepts comes through language, but since language is itself a form of social power, analysing the language of power becomes a logically odd double-barrelled challenge. Therefore, in entering the tricky business of examining power conceptually, our examination stays alert to the multiple possible pitfalls, and so proceeds cautiously, grounded in the lessons of past generations of scholars. It recognises, in line with Skinner, that the vision of a dispassionate analyst standing above the 'battle' of social embeddedness and semantic and normative decontestation is difficult to uphold; for as the historical record strongly suggests, 'no one is above the battle, because the battle is all there is'.[41] At the same time, however, this study appreciates that *some* level of detachment from synchronic meanings and embedded commitments *is* possible. In the context of this thesis, this possibility is enabled by importing appropriate mapping-tools from intellectual history which can facilitate the plea for rigour and clarity. Indeed, as Skinner puts it,

> As we analyse and reflect on our normative concepts, it is easy to become bewitched into believing that the ways of thinking about them bequeathed to us by the mainstream of our intellectual traditions must be *the* ways of thinking about them. Given this situation, one of the contributions that historians can make is to offer us a kind of exorcism. If we approach the past with a willingness to listen, with a commitment to trying to see things their way, we

[41] Skinner, p. 7.

> can hope to prevent ourselves from becoming too readily bewitched. An understanding of the past can help us to appreciate how far the values embodied in our present way of life, and our present way of thinking about those values, reflect a series of choices made at different times between different possible worlds. This awareness can help to liberate us from the grip of any one hegemonal account of those values and how they should be interpreted and understood. Equipped with a broader sense of possibility, we can stand back from intellectual commitments we have inherited and ask ourselves in a new spirit of enquiry what we should think of them.[42]

This form of 'exorcism', or liberation of our understanding of political concepts from hegemonal synchronic accounts, has been one of the main aims of intellectual history. There are two main fundamental features which have epistemologically underpinned the field of intellectual history since its emergence as a separate area of study in the 1930s: (i) historicity-interculturality and (ii) interdisciplinarity.

Indeed, historical interculturality and interdisciplinarity have been regarded as deeply entrenched aspects of conceptual analysis. In the first place, studying the evolution of a concept or idea along the axis of historical time has been widely recognised as a key conceptual-historical method. The expansion of our historical grasping and awareness of concepts entails a powerful 'ground-clearing' effect, which serves to reveal the socio-historical embeddedness of our ways of thinking about concepts, thereby de-normalising features previously deemed as perennial or 'essential'. It serves to deconstruct the 'hegemonal grip' of historically dominant readings and thus delegitimise the purported monopoly of meaning and definitions fashioned by historically and culturally specific

[42] Ibid. 6.

discursive regimes, whilst, in this way, broadening the interpretative scope of our concepts and ideas.

The task then of the conceptual historian or the student of political concepts is 'to attempt to map the minefield, as it were, by examining the various historical turning-points or watersheds in the history of the concepts constituting modern political discourse'.[43] In line with Koselleck's *Begriffsgeschichte*, historical concepts are seen through the lens of semantic analysis, in a manner which discloses and thus restores their synchronic meanings, instead of anachronistically imposing our own contemporary meanings upon past uses of the same term.[44] The adoption of a cultural-historical perspective is 'absolutely constructive, in that such a perspective transcends the conceptual-semantic self-image of an epoch'.[45] Looking across historical periods most frequently amounts to gaining insight across different cultures, and so in this way, conceptual history 'supplies us with the distant mirror of past practices and beliefs that seem strange and alien to our modern (or perhaps post-modern) eyes'. This practice, however, is hermeneutically pregnant for our own present readings and understanding, since 'to encounter and attempt to understand these beliefs and practices in all their strangeness requires the stretching of our own concepts and categories. The conceptual historian aims to address this sense of strangeness, of difference: not to make it less strange or different, but make it more comprehensive. The aim is to shed light on past practices and beliefs, and in so doing to stretch the linguistic limits of present-day discourse'.[46]

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43 Terence Ball, 'Political Theory and Conceptual Change', in Andrew Vincent (ed.), *Political Theory: Tradition and Diversity* (Cambridge: Cambridge University Press, 1997), p. 36.

44 Ibid.

45 Muller, op. cit., p. 45.

46 Ball, op. cit. p. 43.

The element of interdisciplinarity is the second key feature of intellectual history, because it is an indispensable mechanism driving conceptual change and evolution. From the very first efforts of its systematic articulation as a distinct epistemological methodology, represented by Arthur Lovejoy's 'History of Ideas Club' in the 1930s, until our present day, intellectual history has generally been considered as intrinsically interdisciplinary. Indeed, 'very few intellectual historians would maintain that the objects of their study exist outside of innumerable exchanges with political, social, and cultural objects and vectors of force. The basic postulate that there is no pristine realm of thought is a given'.[47] Seeing all 'provinces of history' as inescapably interrelated, interdisciplinary conceptual analysis serves as a useful 'bridge between discrete disciplines' with the aim of disclosing the multifarious ways in which 'conceptual change is brought about by concepts that transgress and leak across discursive boundaries'.[48]

Particularly, intellectual historians have paid special attention to the crucial impact that concepts and thought-patterns coming from the natural sciences bear upon the formulation of our political vocabularies, and even our political theories. In fact, the work of the first generation of historical epistemologists, including leading figures such as Ludwick Fleck, Gaston Bachelard and Georges Canguilhem, focused on raising a systematic critique against the post-18th century epistemological narratives that had institutionalised the rigidified compartmentalisation of knowledge and the clear-cut separation between epistemic areas in the form of discrete 'disciplines'. Instead, the new currents sought to demonstrate the importance of scientific thought in the formulation of

[47] Warren Breckman, 'Intellectual History and the Interdisciplinary Ideal', in Darrin M. McMahon and Samuel Moyn (eds.), *Rethinking Modern European Intellectual History* (Oxford: Oxford University Press, 2014), p. 288. Also, Dominick LaCapra, *Rethinking Intellectual History: Texts, Contexts, Language* (Ithaca, NY: Cornell University Press, 1983).

[48] Ball quoted in Turner, op. cit., 12.

political semantics. They stressed that science is inherently politicised and that the formulation of political semantics is 'a process that cannot be conceptualised independently of the technical, social, cultural and political conditions in which it [takes] place'.[49] Interdisciplinarity has also been acknowledged as an immanent possibility of Koselleck's theory, for 'in relation to the historicity of their semantics, the semantics of the natural sciences is not to be treated any differently than linguistic objects of the humanities'. All those insights have pointed to the epistemological thrust that 'the methodological dualism of the natural sciences and the humanities should be circumvented', and in this way, we can 'work our way out of the legacy of the separation of human and natural sciences and the problem of the so-called two cultures'.[50]

This thesis draws upon those two key epistemological orientations and uses them accordingly in organising the structure of this thesis into two parts. The first part of the thesis explores the concept of power through the perspective of its *cultural historicity*. The deconstruction and reconstruction of different articulations and discursive construals of power can be fruitfully addressed by tracing key aspects or moments of power's conceptual history.[51] Moreover, this mode of study can help 'break the spell of our own intellectual heritage' and equip us with a wider sense of possibility of interpretation. The analysis explores the historicity of power with the aim of gaining constructive insights into the various possibilities of its conceptualisation. At the same time, the exploration aspires to broaden our interpretative horizons in a manner that can enable us to approach the hermeneutics of power in a new spirit.

[49] Muller, op. cit., p. 46.

[50] Ibid. 45.

[51] Turner, 2016, p. 1.

The first part of this thesis (Chapters I-III) begins with acknowledging that our understanding of power qua concept can be enriched by pursuing an exploration into its classical predecessor 'root concept' of dunamis. This acknowledgment is found on the assumption that the configuration of a concept's synchronic semantic content is largely influenced by its past historical meanings and usages—in short, the concept's history. However, in engaging in such historical investigation, our analysis stays alert against the following epistemological dangers. First, acknowledging the exegetical significance of a concept's history does not amount to purporting that this historical development is necessarily linear, coherent, uninterrupted or impervious to exogenous influences, nor that there inevitably exists any consistent continuity or logical congruence between past, present and future understandings of key political notions. Accordingly, second, there appears to be a thin line between, on the one hand, conducting a conceptual investigation into the conceptual evolution of some core political notion, endeavouring to flesh out and chart the points of continuity, but also the points of mutation and deviation, between past and present meanings making up the concept's semantic 'bulk'; and, on the other hand, implicitly yielding into a Skinnerian type of 'mythology of coherence' by aspiring to arrive at a 'unified interpretation' of a concept by means of mistaking scattered or incidental conceptual features of a term as bearing linear or even teleological ties to present readings.[52]

Unfortunately, in the name of conceptual history, one could conveniently lapse into the exegetical pitfall of imagining an essential teleological connection between past and present conceptualisations of core concepts by assuming that all previous hermeneutical versions must, should and *de facto* do culminate into our latest historical paradigm of interpretation, in a more or less linear, gradual and consistent fashion. It would not be far-

[52] Skinner, op. cit., Chapter 4.

fetched to argue that such hermeneutical attitude would entertain, as hinted above, a kind of 'mythology of coherence' tailored to concepts (instead of authors), since it would involve the assumptions that: (i) the genealogy of a concept is marked by an indispensable coherency; and that (ii) it is the task of the student of ideology (or the researcher of conceptual history) to successfully extract this lineage of 'maximum coherence', and with it, perhaps reveal the possibility of an essential and universal definition.

Third, pertinent to the above, is the ever imminent temptation of parochialism, which involves misleadingly projecting our own conceptual and normative prejudices onto past conceptualisations of core terms. For instance, by supposing that a concept (and the 'realities' it purportedly signifies and encapsulates) exhibited the same normative load and nuances in past discourses as it does today; or that it has been equally important to previous generations as it is to us; or, likewise, that it has diachronically carried the same discursive centrality and significatory gravity in past discourses as in does in ours. It thus appears that conducting conceptual historical research runs very similar dangers (if not the same) as conducting historical research proper.

In order to avoid the above pitfalls, our analysis deems it methodologically safer to retain a certain degree of caution and alertness against the danger of anachronistically projecting present meanings and synchronic interpretations of power onto its past usages. It also guards itself against the idealistic allure of attempting to redeem some irrevocable teleology involved in the conceptual evolution of this rather complex, intricate and normatively loaded concept. Taking on board and attending to the above methodological cautions, the historically informed morphological approach to dunamis does not seek to trace a uniform and uninterrupted genealogy of power from classical to modern times, neither concoct, and then set out to enunciate, an unequivocal continuity tying different discursive 'hypostases' of power across different historical eras. The discussion is not

embedded in neither a teleological nor a 'universalist' vector, but rather on the much plainer understanding that power's long historical evolution has in various crucial—yet unarguably complex, indirect and often opaque—ways shaped aspects of its present significatory content, including certain directions of its ideological appropriations; as well as that, becoming aware of the various 'morphologies' that the concept has been assigned across different historical and cultural settings can elucidate certain of its stable core features, as it can also greatly benefit our understanding of the concept today by making us more aware of its synchronic and discursively contingent features.

Accordingly, Chapter I explores the concept of 'dunamis' in classical discourse, and particularly Aristotle's version, tracing its core, adjacent and peripheral features, including the patterns of thinking underlying its understanding in classical culture. Subsequently, Chapter II turns to a discussion of hermeneutics. It creatively explores some useful interpretative potentials arising from a critical reflection on the concept of dunamis, with the purpose of elucidating current readings of the term and opening up new possibilities of meaning and thinking about power in our contemporary discourses. Finally, Chapter III studies how the generic formulation of dunamis is adapted in the context of classical psychological, sociological and ethical inquiry, paying particular attention to its understanding as a psychic quality. The analysis reflects constructively on those features by decoding some of their possible hermeneutical implications in reference to contemporary readings of power, and particularly the interpretation of power as a psychic phenomenon, which we also encounter in certain Foucauldian and feminist readings.

The second part of the thesis (Chapters IV-VI) turns to the exploration of power from the perspective of *interdisciplinarity*. This part is devoted to a painstaking, rigorous substantiation of one of the core arguments expounded in this thesis (which forms a minor parallel epistemological thesis): namely, that the range of 'micro-processes' of semantic

and ideational alterations and conceptual modifications, as well as the turning points and 'watersheds' involved in the evolution of the concept of power in political thought, do not only take place within what we putatively recognise as constituting the appropriate 'designated' area of political discourse; rather, they also obtain *transdisciplinarily*, by being in crucial ways shaped by the worldviews, 'material cosmologies' and the various semantics circulating between the natural and the social sciences.

Chapter IV begins with laying the necessary epistemological foundations upon which the in-depth exploration of this argument is pursued more analytically in the following chapters. It elaborates on the assertion that physical concepts and discursive insights penetrate our social semantics, the patterns of collective thinking and thus, eventually, the ways in which we think about political matters too, including our conceptualisations of power.

At this point, our analysis brings forth the third methodological strand informing this thesis: namely, state-of-the-art research on ideology and the history of concepts currently focusing on demonstrating the indispensable interdisciplinarity of conceptual analysis, and particularly the unattainability of the hitherto putative boundaries between political-social language and concepts in natural sciences.[53] In line with this approach, our analysis takes on board the methodological thesis that the boundaries between politics and science, and particularly physics (which serves here as our core case study), are constantly being transgressed in the historical formulation of key concepts, such as power. In their circulation between different epistemic areas, key concepts acquire hybrid conceptual forms, thus attesting to the fictitiousness of detaching conceptual developments in one

[53] The Center for Literary and Cultural Research in Berlin is particularly focusing on the examination of interdisciplinarity in intellectual history, and particularly the forms of overlapping between political and scientific concepts. See http://www.zfl.gwz-berlin.de/forschung/kulturgeschichte-des-wissens/begriffsgeschichte/.

field from those in the other. Particularly, the conceptual communication between the fields of politics and physics, which are here viewed as mutually-influenced discursive spaces, is mediated through the social construction of scientific concepts; semantic and linguistic exchanges; as well as the interactions occurring between collective social worldviews and scientific knowledge via embedded philosophical and cosmological presuppositions. 'Material cosmologies set the stage for cultural contacts' and political practices.[54] They also partially set the background conditions of intelligibility and influence the content of unarticulated assumptions which underlie the articulations of political concepts—including the concept of 'the political' itself.

Extending the historical cord unfolded in the first three chapters of the thesis, and substantively connecting it to the present examination, the exploration undertaken in Chapter V presents a short genealogical overview of 'force' in physics, tracing the concept's origins back to the classical notion of 'dunamis'. The analysis studies key moments of continuity and discontinuity, alteration and transformation, through which the concept of 'dunamis' unfolded and evolved hermeneutically in the discourse of physics, *in relation to* its parallel development as a concept of political and psychological relevance, when the disciplinary barriers between the two modes of analysis were still rather faint. The examination proceeds with the more specific task of exploring the key morphologies and core conceptual features of power in physical thought. Finally, Chapter VI gathers the insights gained in the previous two chapters and proceeds to explore the ways in which key worldviews and readings of power in physical discourse serve as important discursive factors influencing the manners in which the concept has been, *and can be,* cognitively, semantically and theoretically approached in different key paradigms in political thought.

[54] John Tresch, 'Cosmologies Materialized: History of Science and History of Ideas', in Darrin M. McMahon and Samuel Moyn (eds.), *Rethinking Modern European Intellectual History* (Oxford: Oxford University Press, 2014), p. 166

The chapter also examines how those 'political paradigms' have partially shaped the various underlying interpretative procedures pertaining to the decontestation, selection, assembling and organisation of political concepts, and particularly the concept of power, including our interpretations and evaluations of the nature of the political on the whole.

Overall, it is the aspiration of this work that appreciating the rich variety of tangents and dimensions involved in the 'micro-processes' of power's conceptual construal can unleash a threefold exegetic-hermeneutical potential. First, the analysis can help us gain a profounder insight into the mechanisms and cognitive inputs through which the conceptual construction of power is performed at a *micro-ideational* level, while expanding our awareness regarding the transdisciplinary nature of some of those inputs. Particularly, it draws attention to the cultural-historical, as well as the previously largely unacknowledged interdisciplinary sources contributing to the formation of conceptual articulations of power in political thought. Second, in so doing, this study can assist us in 'denormalising' or, in Skinner's words, 'breaking the spell' of our own intellectual-ideological heritage, while productively questioning and stretching the limits of hitherto conceivable renderings of power. This allows us to gain a clearer, more expanded, and thus enhanced, understanding of the necessary and contingent features of power. Finally, it is aspired that this innovative approach to the interpretative-conceptual study of power can be a source of inspiration for new possibilities regarding *how* the concept can be alternatively perceived, and thus also alternatively experienced. This is because, as we saw, our thoughts impact reality, and reality cannot be experienced outside of our intelligible perception. Therefore, our interpretation of concepts can establish particular horizons for potential experience and conceivable theory, but along with this, it can also introduce novel horizons for conceivable experience and potential theory.



CHAPTER I.

THE CLASSICAL UNDERSTANDING OF POWER: THE ARISTOTELIAN CONCEPT OF DUNAMIS

> *'The prevalence of a particular political term that covers ostensibly different meanings and relates to a range of observable phenomena is an indication of an understood similarity that merits, at the very least, to be taken seriously'.*
>
> (Michael Freeden*, 'Ideologies and Political Theory*)[1]

Power is by no means a monolithic or a straightforward concept; quite the opposite, it is complex, multifaceted and variably employed in almost all discourses and areas of human activity, thereby exhibiting multiple semantic dimensions and a wide range of interpretative and normative nuances. This complex hermeneutical status partly accounts for the essential contestability of the concept, as well as the various conceptual and semantic particularities it demonstrates—factors which are immediately relevant to the difficulties encountered by political theorists in reaching a consensus over its definition and core conceptual attributes. As part of the broader purpose of offering a morphological account of key conceptual features of power, and the more particular aim of shedding light upon some of the relatively uncharted discursive 'landmarks' in its conceptual evolutionary process, including aspects of its conceptualisation which have been generally overlooked in the current literature, our investigation starts with an in-depth examination

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[1] Michael Freeden, *Ideologies and Political Theory*: *A Conceptual Approach* (Oxford: Clarendon Press, 1996), p. 61.

of the concept of dunamis, which is identified as the original modality of power in the history of political thought.

The chapter begins with acknowledging that our understanding of power qua concept can be enriched in potentially beneficial ways by pursuing an exploration into its classical predecessor 'root concept' of dunamis. Staying alert to the hermeneutical pitfalls of misconstruing a deterministic 'mythology of coherence'[2] around the history of the concept or seeking to trace a universal meaning of power *à la* Lovejoy (as elaborated in the Introduction), the present analysis contently limits the range of its hermeneutical assumption to a more modest claim: namely that, although not teleologically bound, different key discursive-conceptual 'variants' of power, or, put differently, different key 'moments' in power's conceptual evolution, *do* play a role in the manner in which the concept has nowadays become hypostatised into its modern conceptual morphology. The configuration of a concept's synchronic semantic content is largely influenced by its past historical meanings and usages—or, in short, the concept's history; and so our understanding of the former can be satisfactorily advanced (even if not exegetically exhausted) by a clearer understanding of the latter.

Similarly, in the case of 'power', the concept's long historical evolution has in various crucial—though complex, indirect and often opaque—ways shaped its present significatory content, as well as the directions of its ideological appropriations.[3] Becoming aware of the various 'morphologies' that the concept has been assigned across different historical and cultural settings can elucidate certain of its stable core features, as it can also

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[2] Quentin Skinner, *Visions of Politics, Vol. I: Regarding Method*, Chapter 4: 'Meaning and Understanding in the History of Ideas' (Cambridge: Cambridge University Press, 2002), pp. 64-71.

[3] Michael Freeden, 'Ideology and Political Theory', in Michael Freeden (ed.), *The Meaning of Ideology: Cross-disciplinary Perspectives* (Oxford: Routledge, 2007), pp. 12-16.

greatly benefit our understanding of the concept today by making us more aware of its synchronic and discursively contingent features.

Dunamis is nowadays generally perceived as the equivalent of the modern term 'power' in classical discourse. This chapter traces and studies dunamis' main meanings and core conceptual features, including some of the most important underlying theoretical premises that structure its conceptualisation in classical thought. It conducts an in-depth conceptual investigation of the manner in which *thinking about* power proceeded in classical discourse. Our analysis focuses particularly on Aristotle's conceptualisation of dunamis as the most representative account of this key concept in antiquity.

The chapter explores the hypothesis that despite their purported semantic correspondence, entailed by the fact of their inter-discursive translatability, the classical concept of dunamis and the modern concept of power present important conceptual dissimilarities. Those differences, however, are not simply owed to the standard problems involved in translation. Surely, there is always something lost in translation; but to the thinker of politics, and particularly the student of concepts, semantic deviations are not merely regarded as issues of linguistic concern nor as matter primarily concerning the status and effectiveness of translation per se. Further to the question of whether the two conceptual modalities—'dunamis' and 'power'—refer to the same idea or meaning (i.e. whether the two 'lexical forms' encompass or encapsulate the same 'conceptual content'), a more critical issue at stake concerns how behind different conceptual modalities we can trace the dwelling of different *ways of thinking* about certain core notions; and particularly, in this case, how the very *thinking about* power—i.e. what power *is*, how it is wielded, held or shared, how it configured, shaped or lost, what are its origins and its possible agents, what are its purposes and its significance in private and public life—changes over time and space, especially in light of the notable historical, socio-political,

economic, cultural and discursive differences between the respective contexts in which those discursive processes and hermeneutical approaches manifest. Therefore, since the morphology of a concept serves to –at least partly- reveal the underlying patterns of thinking underpinning its formulation, the present problematic also touches upon a deeper issue concerning the *implicit understandings or assumptions* involved in various patterns of thinking *about* power. It invokes the question of *how* we come to think about power in politics—for example, by means of which discursive processes do we formulate our understandings of power? What conceptual 'building blocks' (including conceptions, implicit conceptual relations, etc.) and theoretical premises do we employ in structuring our patterns of thinking, which, in their turn, underpin, and even give rise to, particular kinds of political discourses?

It becomes obvious that, notwithstanding its appealing pertinence to intellectual history, the problematic addressed in this chapter also constitutes fundamentally an issue of ideological study, in the sense that 'political thought in its ideological manifestations can more fruitfully be regarded as a conflation of form and meaning, of the patterns that political thinking displays as a crucial facet of the interpretation and elucidation of its concepts. Those patterns are to be found in the thought-processes that produce political thinking, in its historical instances, in its cultural representations, and to a lesser extent in its internal logical relations'.[4] As a conflation of diachronic and synchronic study, the subsequent examination attempts to explore an alternative—and admittedly under-examined—way in which thinking about power has proceeded in a more remote, yet still influential, historical discourse.

To that end, the investigation in this and the following chapter studies dunamis' conceptual morphology with the purpose of (i) exposing the semantic particularities of this

[4] Freeden, *Ideologies and Political Theory*, pp. 4-5.

landmark concept in the course of power's conceptual evolution, including its main senses and core conceptual features; (ii) investigating its relationship with some of our dominant contemporary ways of thinking about power—particularly identifying useful and interesting ways in which dunamis is distinct from them; (iii) discussing key ensuing conceptual implications, which can be fruitfully applied in reflecting upon our contemporary conceptual approaches; and, finally, (iv) exploring the conceptual possibilities of alternative understandings of power which arise from constructively appropriating some of the implications that stem from a critical engagement with Aristotle's account of dunamis. Particular attention is given to the possible interpretations of those attributes which have played a crucial role in the assembling of modern conceptualisations of power, such as capacity, exercise, field and agency.

Finally, it is important to note that the aim of these chapters is neither to say something with which the historical person Aristotle would agree, nor to put forward a theory of power which either builds strictly upon his theoretical premises or which follows directly from his theory of dunamis. Rather, their purpose is to explore a distinct way of thinking about power in a discourse that appears considerably different to our own; as well as, subsequently, to reflect upon, interpret and attempt to reframe constructively some of the conceptual inferences arising from a critical reading of this account, with the goal of becoming more conscious of the conceptual elements and implicit understandings which have shaped—and still underpin—our modern conceptualisations.

I. A Short Account of a Long Semantic Journey

Dunamis (*δύναμις*) is the Ancient Greek term that, throughout the history of political thought, has generally been interpreted as the conceptual equivalent of the concept of

power. Indeed, this is how the term gets usually translated from Greek into English.[5] Nevertheless, dunamis is a richly polysemic concept. It encompasses a broad variety of meanings and a family of modal concepts, most of which relate to notions which have traditionally been associated with the broader idea of power—such as 'capacity', 'ability', 'possibility', 'faculty', 'potentiality', but also 'strength', 'force', 'domination', and so forth. Likewise, in its adjectival form, the word 'dunaton' (*δνατόν*) also signifies the 'possible', the 'capable' or the 'strengthy'.

Historically, the classical concept of dunamis and the modern concept of power do not meet directly in historical time. Rather, the two concepts interrelate via the mediation of the Latin concept of 'potere', and its noun form 'potentia', from which the English term 'potential' derives. The two terms, dunamis and power, are thus only indirectly associated through their mutual translatability into potentia, which serves as the semantic passage mediating them. Subsequently, during early modern times, we observe scholars of political and philosophical thought, including key thinkers who would play a decisive role in the development of modern political thought, such as Thomas Hobbes and John Locke, translating 'potentia' into modern English as power,[6] thereby establishing a semantic continuity between these three key terms.

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[5] The translation is historically prevalent in all eras and all epistemic subjects, from the translation of the Bible, to metaphysics, rhetoric, politics, and forth. A few examples include, Paul Weiss, *Privacy* (Carbondale: Southern Illinois University Press, 1983), p. 21; Ekaterina Jaskins, 'On the term "Dunamis" in Aristotle's Definition of Rhetoric', *Philosophy and Rhetoric*, Vol. 46 (2), 2013, pp. 234-240. Richard Ned Lebow, 'The Ancient Greeks and Modern Realism: Ethics, Persuasion and Power' in Duncan Bell (ed.), *Political Thought and International Relations: Variations on a Realist Theme* (Oxford: Oxford University Press, 2009), pp. 26-40.

[6] In Thomas Hobbes' *De Homine* of 1658, Cap. X: 'Scientia potentia est, sed parva; quia scientia egregia rara est, nec proinde apparens nisi paucissimis, et in paucis rebus. Scientiae enim ea natura est, ut esse intelligi non possit, nisi ab illis qui sunt scientia praediti'. This was translated as 'the sciences, are small power; because not eminent; and therefore, not acknowledged in any man; nor are at all, but in a few, and in them, but of a few things. For science is of that nature, as none can understand it to be, but such

In setting out to explore dunamis, through tracing and examining the key conceptual attributes and semantic implications outlining its conceptual morphology, we are directly led to Aristotle as the most representative scholar of dunamis in classical discourse. Of course, Aristotle did not invent the term, nor was he the first thinker who ever employed it or systematically deliberated on its meaning. On the contrary, this key figure of classical scholarship inherited an already considerably developed discursive tradition on dunamis, mainly from his teachers, Plato and Socrates, but also from certain pre-Socratic thinkers, such as Anaximander, Heraclitus and Parmenides. Nevertheless, although Aristotle did draw significantly from this pre-existing tradition, using it as a foundation for his study, his own conceptualisation of dunamis (which he developed throughout the course of his life) departed from previous accounts by adding new crucial interpretative dimensions. In this way, his account offered a unique contribution which marked a novel turn in the philosophical discourse on dunamis, which, according to scholars, raised the concept to a new philosophical level, thereby rendering it as his own philosophical discovery.[7] Indeed, Aristotle enhanced, enriched, expanded and, most importantly, systematised the conceptualisation of dunamis by analysing it in far greater rigour and originality than any other theorist before him.

Aristotle explicitly pursued the systematisation of the discourse on dunamis by undertaking the rigorous analytical task of identifying and classifying the features and nuances assigned to the term during classical times. This classification—which was not solely descriptive but also constructively explanatory—*reflected* as well as *determined* the

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as in a good measure have attained it', in Thomas Hobbes, *The English Works*, vol. III (Leviathan) (f.p. 1651). John Locke also rendered potentia as power in *An Essay Concerning Human Understating*, (f.p. 1689), book III, Ch. IV, Paragraph 8, where he translated the expression 'actus entis in potential quatenus in potentia' as 'the act of being in power, as far forth as in power'.

[7] Walter A. Brogan, *Heidegger and Aristotle: The Twofoldness of Being* (Albany: State University of New York, 2005), p. 112.

configuration of dunamis' conceptual morphology in the classical world. It is important to note from the outset that, in the context of classical thought, dunamis is not strictly, nor *primarily*, a political concept[8]: it is a generic concept pertinent to most epistemes and germane to all aspects of philosophical reflection, which *also* acquires a political nuance when appropriated to the field of social affairs. Hence, its specific political version represents only a subset of its generic articulation. Although Aristotle did concern himself with the issue of political dunamis in some parts of his ethical and political treatises,[9] his examination in those cases did not offer a rigorous *conceptual* classification and analysis of the term, but rather employed it as part of a broader descriptive and normative study of contemporaneous political systems. A possible reason accounting for this is that, as shall become clearer as we move along the analysis, the political articulation of dunamis represents a particularised appropriation of its generic ontological formulation; hence the former is largely founded upon the morphological structure of the latter.

At any rate, by systematising the study of dunamis, Aristotle placed the issue of 'what is power' at the heart of the philosophical discourse of his time—which reflected the centrality that the concept was assigned in the context of his own philosophy. As such, it may plausibly be argued that his thinking on dunamis shaped the history of the concept and influenced in decisive ways the future of its conceptual evolution in subsequent discourses. This justifiably makes Aristotle the most representative classical thinker of dunamis and his thought the pinnacle of the classical discourse on power.

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[8] The same can be said about the concept of power in contemporary discourse: the term appears in all epistemic fields and all aspects of human life and intellectual activity, while people employ it in the vernacular to express various sorts of meanings, as well as for many different purposes.

[9] For example, Aristotle, *Politics*, esp. books III, IV, V and VII.

II. Semantic Complexities Along the Journey of Power's Conceptual Evolution

Given its importance in Aristotelian thought, it is no surprise that dunamis has occupied an analogously central position in Aristotelian scholarship. Its meaning, as well as its theoretical repercussions, have been the subject of long-winded debates and rather fervent theoretical contestations throughout Hellenistic, Medieval and modern times. And so in seeking to examine the Aristotelian conceptualisation of dunamis as part of our effort to explore this first major landmark in the history of power, two major problematics arise.

The first problematic relates to an issue—at once conceptual and semantic in nature—concerning the meaning that dunamis has acquired in *our* times. The fact that dunamis and power have been historically translated into each other at first justifiably creates the impression that the two terms must also refer to the same—or more or less similar—semantic content; there is an assumed continuity of meaning between the two terms presupposed on the grounds of the inter-translatability of their different linguistic forms. Of course, it would be hard to repudiate that there *is* something obviously important about the fact that dunamis has been interpreted as, and made to correspond to, power, which, surely, cannot be ignored.[10] Yet, this semantic correlation has somewhat misleadingly furthermore precipitated the implicit postulation that there must also be some form of *conceptual conformity* characterising these different stages in the historical-conceptual journey of power, which, in reality, can only be validated or rejected by being put to the test of critical intellectual scrutiny.

On the one hand, as our subsequent analysis shall explore in greater detail, Aristotle developed a very distinct conceptualisation, which, although portraying dunamis as a

[10] For a more extensive analysis regarding the importance of conceptual interrelations between different terms across variant discursive contexts—or, ideologies, see Michael Freeden, *Ideologies and Political Theory: A Conceptual Approach* (Oxford: Clarendon Press, 1996), p. 63.

relatively broad cluster of variable meanings, laid out a rather specific interpretation of the term. On the other hand, given that this interpretation has been filtered through numerous generations of scholars and a plethora of translations, the original meaning of the term has gradually been distorted, such that its modern 'equivalent' of 'power' falls shorts in conveying the totality of meanings, senses and conceptual subtleties originally encapsulated under the classical term.

This issue touches upon a more general problematic which constitutes a commonly observed phenomenon in the field of intellectual history (*Begriffsgeschichte*).[11] This concerns the crucial distinction between semiology, terminology and onomatology (or, signs, concepts and semantic contents), to which one should always keep vigilant. As *Begriffsgeschichte* highlights, it is often the case that the *concepts* associated with a given *term* change over time yet those changes do not become reflected in the particular linguistic forms employed to encapsulate them, i.e. in the *words* (*signs*) serving as the 'capsules of meaning'. This means that the variety of containing meanings—the semantic and referent contents—may evolve while the 'capsule' employed to embody them remains unchanged; or, likewise, that two words which are postulated as linguistic synonyms across different discursive contexts in reality encompass a rather divergent conceptual content, each of which evolves at variable speeds, in diverse directions, as well as in relation to different structures and events. In our case, the semantic passages occurring between one term used to describe the broader idea of power to the other (i.e., dunamis - potentia - power) exhibit important 'semantic leaps' and thus provide an example of the latter discursive phenomenon in the sense that they do not entirely succeed in transferring the synchronic *conceptual* contents of the previous versions into the subsequently

[11] See R. Koselleck, *Futures Past: On the Semantics of Historical Time* (Cambridge Mass.: The MIT Press, 1985), esp. pp. 73–91.

developed terminological modalities. For example, as we saw, the Romans translated dunamis into potentia, but to what extent did the introduction of this new term capture and accurately pass on the senses and particular conceptual specificities which the understanding of dunamis encompassed in classical discourse? Equally, to what extent could it be plausibly maintained that the term power is an accurate translation of potentia—in terms of its effectiveness and accuracy in disseminating the synchronic signification of potentia in the context of Latin semantics?

This line of reasoning leads us straight to the question concerning the relationship between dunamis and power, especially in light of their degree of separation in historical time. In our times, the general trend has been to identify dunamis with power, even though other English translations of dunamis do exist (for example, the term is also sometimes translated as potency, potentiality, strength, capacity and so forth).[12] Noteworthy is the fact that the inconsistency in the use and translations of dunamis occurs not only across different authors and discourses, but often, also within the work of individual scholars. Even within the corpus of one translator (or, to that effect, theorist), the same word is sometimes rendered as power while others as strength, domination, potential,[13] et cetera. The lack of a homogeneous use of terms has been one of the major causes of confusion regarding the conceptual status of dunamis.

This brings us to the second problematic which concerns a subtler conceptual issue involved in the evolution of the concept of power. Following its introduction as the equivalent term of dunamis, power gradually developed its own distinct course of

[12] This is more common in translations of Aristotle's political texts rather than with his ontological or metaphysical writings.

[13] A characteristic example is W. D. Ross' famous translations of Aristotle. Although his translations are considered an authority in the field, and despite their historical significance, nonetheless, they are still subject to the semantical problems outlined in this section.

conceptual formation, which was more or less independent from prior meanings pertaining to the original concept—including older cultural experiences underpinning those meanings. By the time the concept 'reached' later modernity, it had thus acquired a substantially different meaning *notwithstanding*—and this is a crucial point—that the interpretative act of translating 'dunamis' into 'power' nonetheless still persisted.

This phenomenon, which we may refer to as a form of 'conceptual mutation', entailed the consequence that dunamis' *original* meanings became aberrant in subsequent discourses. Therefore, it would be an overstatement that the concept of dunamis did not really survive in modern times, since it was, via and in tandem to the above underpinning semantic and linguistic processes, gradually dislodged from modern political thought. Consequently, a great part of its meanings and correlated patterns of thinking have not only been literally 'lost in translation', but moreover, they have been conceptually usurped throughout the course of multiple processes of conceptual fermentation and ideological mutation. The upshot of this has been that no substantial *conceptual* translation of dunamis exists in our modern political and philosophical vocabulary, as well as that any attempt to relate modern theories of power to their classical counterparts (let alone found the former upon the latter) is almost bound to lapse into inescapable anachronism. The semantic gap developed between the signifier ('power') and the signified ('dunamis') has caused a historical vacuum of meaning which, to this day, has not been reclaimed.

Nevertheless, diagnosing these intricate discursive phenomena does not necessarily suggest that modern uses of the term power bear no relation whatsoever to some of dunamis' original meanings. On the contrary, as this discussion shall seek to demonstrate, these two concepts share features across cultures and historical periods. Studying the conceptual similarities and discrepancies, the points of synchronic changes but also diachronic persistence, offers us a constructive basis for transforming the terminological

confusion involved in the historical correlation between dunamis and power into a positive entry point for reflecting upon the different intellectual treatments that the general issue of 'potency'[14] has received in the respective historical contexts of antiquity and modernity. Since political concepts are 'neither arbitrary, nor simply stipulative, models (…) but constructs that reflect social and historical usage',[15] this conceptual juxtaposition may moreover elucidate certain deeper underlying issues involved in these different ways of thinking about power, including embedded social and historical assumptions regarding the nature of *the political*. The analysis seeks to offer a set of helpful heuristics as well as a fresh perspective for studying, clarifying and unveiling some of our own contemporary implicit understandings which underpin our modern conception of power.

The following parts of the chapter accordingly proceed with the exploration of the key questions: What is meant by dunamis in the work of Aristotle? What are its core conceptual features as well as the deeper theoretical assumptions underlying them? What particular patterns of thinking about the issue of potency characteristic to that historical context do those features reflect, reveal and prescribe? What has been lost from dunamis' original meaning in the process of its conceptual evolution, and which of its aspects can

[14] On a note of clarification, from now on we shall refer to the common conceptual scope and wide field of signification pertaining to the ideas of dunamis, power, force, influence, domination, etc., and all their relevant conceptual variants and permutations as the general idea or topic of potency. Assisting in the structuring of our investigation, this term will serve to denote the common conceptual denominator which, more as a conceptual *sense* rather than as a systematised structure of meanings, enables the comparison, juxtaposition and grouping of those variable meanings under a common general question, subject or theme.

[15] As Koselleck points out, 'semantical changes in the use of concepts are indicators of structural change, so they become an integral part of social history'. Terminology contains and registers the temporal status—e.g. 'the moments of duration, change and futurity'—of the social situations in question, as 'the historical clarification of past conceptual usage must refer not only to the history of language, but also to socio-historical data, for every semantic has its link to non-linguistic content'. *Begriffsgeschichte and Social History*, in *Futures Past*, 1985, pp. 80-81.

still be shown as helpful to us for clarifying and enhancing our understanding of the complex and multifaceted concept of power?

III. The Key Senses and Core Features of Dunamis in Aristotle's Thought

Aristotle's conceptualisation of dunamis[16] is developed mainly in his *Metaphysics*, in parts of book Δ and in book Θ. The latter is entirely devoted to a detailed and highly sophisticated discussion of the different senses in which dunamis 'is spoken about', including an analysis of the different synchronic uses of the term in classical philosophical discourse. Nevertheless, references to the concept and additional analyses are scattered all across his work, most notably in *De Anima* (*Περί Ψυχής*, especially book B), *Physics* (*Φυσική Ακρόασις,* especially books Γ and Θ), *On Coming-to-Be and Passing-Away* (*Περί Γενέσεως και Φθοράς*); as well as his ethical treatises, especially in *Nicomachean Ethics* (*Ηθικά Νικομάχεια*), where the concept of dunamis is applied to the fields of anthropology, politics and ethics by extending the rationally-derived ontological and physical conclusions of his preceding treatises on his analysis of human conduct.

Based on the discussions of dunamis in these key Aristotelian texts, we can overall identify three main 'senses'[17] in which dunamis is spoken about in classical discourse.

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[16] For reasons which have hopefully become evident from the discussion above, the subsequent analysis will maintain the original term when discussing Aristotle's account, in order to avoid the semantic problems identified earlier, as well as to clarify some aspects of dunamis' original meaning which are not successfully conveyed in any of its available translations.

[17] I borrow the phrase 'senses of dunamis' from a very useful article on the Aristotelian notion of dunamis by A. Anagnostopoulos ('Senses of Dunamis and the Structure of Aristotle's Metaphysics Θ', *Phronesis*, 56, 2011, pp. 388-425). This phrase is preferred here since it is a term which remains neutral as to whether what we are talking about is 'kinds of δύναμις [dunamis], meanings of the term δύναμις [dunamis], uses of the term, or some combination of these' (Anagnostopoulos, p. 389). Attempting to specify this would necessarily involve a different kind of discussion, which would partly require an examination into Aristotle's intentions and intended meanings—a task which, although challenging, does not presently fall within the scope of this analysis.

First, dunamis is broadly conceptualised as an active principle of change and a source or origin of alteration. Second, it is conceptualised in an ontological sense, i.e. as an ontological state (a state of becoming or 'coming-to-be') pertinent to all physical processes. Finally, dunamis acquires an anthropological and political dimension which makes it intimately relevant to the individual, the formulation of her character as well as her conduct as a 'political animal'. The latter sense is further explored in Chapter II. The second and third senses of dunamis jointly encompass what we generally refer to as 'capacities' or 'faculties' of human beings (dunam*ei*s—standing for the plural of dunamis), or powers as faculties. It is in these two latter senses that the notion of dunamis is most perceptibly related to the domain—and the question—of the political, as its political formulation is largely based upon its ontological signification. This is the reason why the political meaning and standing of dunamis in Aristotle's thought cannot be sufficiently examined without reference to his ontological account. On the one hand, its political dimension is clearly ontologically derived, driven and nuanced, both epistemically and substantially, while, on the other hand, the ontological account of dunamis only becomes complete with its sociological articulation and epistemic transposition to the realm of political significance.

It is important to note from the outset that these three senses in which dunamis is understood in Aristotle, although to some extent analytically separable, are not considered to be independent from one another *in practice*. In reality, these aspects are regarded as interwoven, overlapping and intersecting in multiple ways. It is for this reason that Aristotle did not draw a clear separation between them, but rather, distinguished them only insofar as his attempt to rationally classify them necessitated.[18] A useful way of interpreting them would be to view each as representing a different 'moment' of dunamis.

[18] See Aristotle, *Metaphysics*, book Θ.

These ‘moments of dunamis’ work both parallel to, and in conjunction with, each other in any manifestation of life, thereby jointly composing all kinds of instances of dunamis.

Along with these three broad senses, this thesis further identifies seven key features characterising Aristotle’s conceptualisation of dunamis, which pertain to all aforementioned senses of dunamis. These can be summarised as follows:

A) *Origin of Change and Causality*

B) *Motion*

Γ) *Potentiality and Actuality*

Δ) *Intelligibility*

E) *Capacity*

Z) *Becoming*

H) *Passive and Active Agency*

IV. The Main (‘ΚΥΡΙΟΣ’) Sense of Dunamis

A) First Feature: Origin of Change and Causality

In *Metaphysics*, book Δ, 12, and at the beginning of book Θ, Aristotle specifies the principal sense of the term dunamis, i.e. what dunamis ‘is mostly said to be’. The definition reads as follows:

> Dunamis is called the source (arche, principle or origin) of change or alteration in something else or [in itself] *qua* other.[19]
>
> [Another possible translation is: ‘we call a dunamis what originates a change or alteration either in another thing or *qua* other’[20]]

[19] *Metaphysics*, Θ 1019a15.

[20] Aristotle, *Metaphysics*, *books Γ, Δ, E*, C. Kirwan (transl.) (Oxford: Clarendon Press, 1971), p. 46. The idea of ‘oneself qua other’ can be elucidated by borrowing a useful expression from modern philosophy, particularly from the work of Paul Ricoeur. Ricoeur described the process of identity ascription as an act

According to Aristotle, the main sense in which dunamis is understood in classical discourse is that of an active principle of change: it signifies the source or origin of *alteration* brought about by one thing or agent upon another. Dunamis is either the source of change caused onto something or someone else or, equally possibly, caused by an agent upon herself—in which case, it refers to a relation to one's own self which exhibits a self-transformative function.

Dunamis is generically perceived as the starting point from which change and alteration proceed. It is the locus from which effects of change are produced and disseminated. It is a point of origination that triggers things to move, alter, transform or differentiate, thereby producing *difference* (at whichever level or sense 'difference' can be perceived of). Nevertheless, the statement that 'change' amounts to 'production of difference' does not necessarily conflate differentiation with separation; rather, difference is perceived in a more generic sense as alteration, since the difference thereby produced may possibly consist in unification or reconciliation of preciously separated entities. Hence, dunamis relates to differentiation from (or *relative* to) a previous state or condition, and not necessarily to division, segregation or partition. The same idea can be read inversely and thereby interpreted heuristically as suggesting that whenever difference is observed, in the sense of alteration of condition or gradation or stratification of any kind, this serves as an indication that some relation or quality of potency is found at work.

However, as Aristotle adds in the following few lines of book Θ, dunamis is not only that which, as a principle of change, makes things manifest in an *active* way—i.e. by

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of addressing '*one's self as another'* ('*soi-même comme un autre*'), for it entails a projective distancing from one's natural experience of the self as unity and sameness. See Paul Ricoeur, *Oneself As Another*, Kathleen Blamey (transl.) (London: University of Chicago Press, 1992). A similar mode of relating to one's self is implied in Aristotle's idea that an agent can instigate effects of dunamis upon himself *as another*.

moving towards a different state of being. It is also a *principle of rest* which allows things to *passively* maintain their given states, for the act of 'maintaining' can also be perceived as a dynamic process of acting towards staying in the same state. In this sense, dunamis is a 'principle of movement *or* rest [stasis]', where both concepts are contained within Aristotle's broader conceptualisation of change.[21] Being conceptualised as the source of change, the term dunamis is thus at least as polysemic—i.e. conceptually wide-ranging—as the variety of meanings that the concept of change can assume.[22]

Since it is associated with the broader notions of 'origin' and 'effect', it could be plausibly maintained that dunamis is intimately interrelated with the notion of 'causality'; for the idea that something is 'bringing about effects of change' may easily be interpreted as stating that it *causes* something else (or the same thing *qua* other) to change.[23] Nevertheless, the notion of origin, which is conceptually encompassed by dunamis, is not exhausted by the notion of causality. Aristotle's definition explicitly demarcates dunamis as *'αρχή'* [arche], meaning origin, and *not* as cause (*'αίτιον'*) [aition], and although origins and causes are indeed closely correlated and are even sometimes identical (since all causes are origins), still, causes are but only one instance of origins, since not all origins are causes. There is much more to the concept of origin than simply the meaning of a cause, such that a cause would more accurately be classified as a conceptual subset of the more general notion of origin. As Aristotle states earlier in book Δ,

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[21] 'Αρχήν μεταβλητική ή στατική' [arche metablitiki i statiki] (*Metaphysics*, Θ 1049b), i.e. a 'principle of movement or rest'. Translation from, J. A. Smith, W. D. Ross, *The Works of Aristotle: Metaphysica*, Vol. III (Oxford: Clarendon Press, 1908).

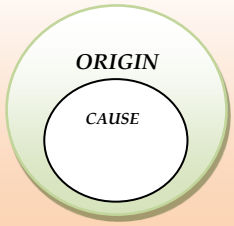
[22] For a more elaborate analysis of the notions of motion and change refer to the discussion below.

[23] This is a crucial point because numerous studies in the past have tended to conflate power with causation. Indeed, it has been a common phenomenon to render power as a causal mechanism. For example, as Dowding briefly discusses, Hume identified power with cause and even used the concept as a metaphor to explain the nature of causation in the natural world. See Keith Dowding, *Power* (Buckingham: Open University Press, 1996), p. 3.

> It is therefore common to every origin to be the first point from which a thing is, or comes to be, or from which one gets acquainted with it; and some of them are constituents, others external. Hence an origin may be a nature, an element, a thought, a decision, a substance, or what a thing is for; for with many things the origin both of acquaintance and of change is what is good and what is fine.[24]

We could schematically represent the morphology of the relationship between the concepts of 'origin' and 'change' as core conceptual features of dunamis in the following illustration (1):

Illustration 1: ***The concept of cause as a conceptual sub-set of the concept of origin***



As the above illustration demonstrates, the *generative* aspect of dunamis should not be identified, neither conflated, with causality. The idea of dunamis *qua* generation, or generative point, means that dunamis is that which 'brings about'—rather than *causes*—things to happen and events to manifest in the world.[25] As Heidegger articulately notes in his relevant treatise devoted to Aristotle's concept of dunamis, 'what is at issue here is not at all a cause-and-effect relationship, where we immediately think of the transfer of force, the effect of distance (...) and then puzzle over the secret relationship between cause and effect. Much more (…): force is an origin, the *from-out-of-which* for a change'.[26]

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[24] *Metaphysics*, Δ 1013a17-23.

[25] Whether these changes will be regarded as positive or negative is a different issue, which will depend on one's particular point of view and set of normative criteria specifying the content of one's value-judgements.

[26] Martin Heidegger, *Aristotle's Metaphysics [Theta] 1-3: On the Essence and Actuality of Force* (f.p. 1931) (Indiana University Press, 1995), p. 70. Italics my addition. It may be observed that in this

Anything which, through its being, serves as a starting point or source of production of change *or* of conservation [*stasis*] of a given situation, pertaining either to some external object or agent in the surrounding environment, or to one's own self, can be classified under the Aristotelian concept of dunamis. Interestingly enough, as we saw in the above definition, this includes both tangible and intangible sources, such as material resources ('elements'), intellectual practices ('thoughts'), products of emotion and deliberation ('decisions'), but also the very presence, as well as identity traits, of given agents ('what a thing is for').

Let us briefly note a helpful example provided by Aristotle, which serves to clarify the difference between causation and origin, as well as the relatively ambiguous second clause of his definition in which he states that dunamis is the origin of change 'in something [in itself] *qua other'.* That is the example of the medical dunamis ('*ιατρική δύναμις'/ iatriki dunamis*). A doctor's dunamis to heal—the 'medical power', which is considered as a constituent property of his identity[27]—is not exactly a causal dunamis, even though, *by means* of its exercise, it can contribute to bringing about a causal activity of healing. The medical dunamis serves as an originating point located within the doctor from which arise all those relevant conditions, processes and energies (including the knowledge, information, diagnosis, practical handling of physical symptoms, provision of prescription, etc.) that can bring about the effect of healing upon a patient. However, these processes cannot be strictly said to *cause* the healing. Rather, it is through the *exercise* or active application of this dunamis *by means* or *by virtue* of which healing may originate in

passage Heidegger renders dunamis as force. This interpretative choice is also subject to some of the semantical complexities examined earlier.

[27] *Metaphysics*, Δ 1019, a15-19; Θ 1049 b8.

the patient.[28] It is precisely this idea of 'by-ness' that best describes the idea of origination, rather than causality, which is characteristic of dunamis.[29]

The same example serves to illustrate how a dunamis can act as an origin of alteration *within* its bearer, '*qua* another' ['*comme autre*']. In our example, should a doctor endeavour to apply his constitutive medical dunamis in order to cure himself, in that case he would not be curing himself *qua* a doctor, but rather *qua* a patient ('*qua other*'). The doctor would embody both 'identities' and both qualities at the same time: that of the active bearer and agent of the medical dunamis (in his capacity as a doctor) as well as that of the passive recipient of the dunamis (in his condition as a patient). The active aspect of his identity—his medical dunamis—is exercised under those particular circumstances not by virtue of him being a doctor, but primarily by virtue of exhibiting, at that *particular moment*, the passive quality of being a patient, thereby using the same procedures on himself as he would if he were treating someone else—*an 'other'*. The same person can experience a relation of power internally, and, as such, the interplay between the active principle of change (dunamis) and the passive quality of its reception can coexist and manifest at the same time within the same agent. This suggests that an agent can be both the actor and recipient of her own dunamis and, hence, possibly embody an instance of dunamis of which she is both the origin and effect.[30]

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[28] For example, healing will also depend on a number of other conditions being present (e.g. the patient's general state of health, the curability of his condition, the means available for the cure, etc.).

[29] I construct parts of this definition based on Jonathan Lowe's most useful analysis of dunamis, presented in the context of the Oxford Power Structuralism in Ancient Ontologies' seminar series, Jonathan Lowe: "The Will as a Rational Free Power", 10/10/ 2012, Michaelmas Term, Department of Philosophy, Oxford University. For more information regarding this manuscript, the reader can refer to: http://www.power-structuralism.ox.ac.uk/home.

[30] The issue of agency will be further discussed in the following chapter.

Summarising Aristotle's first definition, dunamis is an active, non-causal, productive principle of change (or stasis), which serves to 'make things happen' and which may, or may not, *by means* of its exercise manifest a causal activity.[31] Change, alteration, manifestation, motion or differentiation, but even maintenance and conservation over time, constitute its distinctive marks or signs, which can be traced both in external recipients inasmuch as within the same entity or individual acting as its agent.

B) Second Feature: Motion

The second main feature of Aristotle's conceptualisation of dunamis is given by the concept of '*kinesis*' which literally means 'motion'. Further to its specification as 'origin of change', his principle *definition* further qualifies dunamis as an 'origin *of motion'*.

In our contemporary discourse, we usually refer to motion mainly in the sense of movement in space through time—i.e. as locomotion; our modern understanding of the concept is somewhat integrally imbued with an underlying sense of spatiality. However, Aristotle's understanding of motion ('*κίνησις'/ kinesis*) and alternation ('*μεταβολή'/ metaboli*) (and particularly motion *qua* alternation) as products of dunamis, is not limited to a *spatial* reading of the concept. In his thought, the concept encompasses a much broader set of qualitative attributes and a richer cluster of semantic nuances, so that spatial motion (locomotion) is only *one* of the possible *kinds* of motion. Therefore, for Aristotle, motion exhibits a twofold signification: it refers both to a form of *kinesis*, literally involving moving in space over time, but also to the more general idea of *change*, in the sense that something moves away from a prior state towards a new condition. However, most translations and interpretations of his texts render the word motion as change or

[31] Jonathan Lowe, op. cit., Oxford, 2012.

alteration[32], thereby reducing it to its latter signification. Given that in our contemporary vocabularies, the latter terms do not usually encompass the idea of locomotion, the effect has been that authors have often overlooked the distinctive conceptual nuances which pertain to the precise idea of motion, i.e. to activities such as transposition, passing, transiting, etc., (literally, to the 'motion' part of it).[33]

As a generic term, motion can be presented as equivalent to alteration [metaboli] which, according to Aristotle, is divided into the following four types: (i) '*γένεσις* or *φθορά'* [genesis or pthora], meaning generation or destruction; (ii) '*αλλοίωσις'* [aliosis], meaning alteration; (iii) '*αύξησις* or *φθίσις'* [aphksisis or phthisis], meaning growth or diminution; and finally, (iv) *φορά* [fora], meaning locomotion.[34] These meanings can be illustrated using the following diagram (Illustration 2): [35]

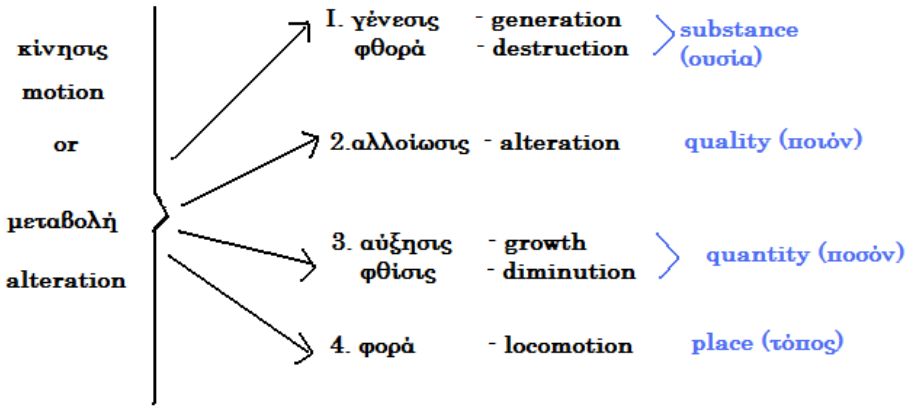
[32] See Joe Sachs, '*Aristotle: Motion and its Place in Nature'*, Internet Encyclopaedia of Philosophy, http://www.iep.utm.edu/aris-mot/.

[33] This is a crucial aspect of dunamis' conceptualisation because its definition as an origin of change (first feature) and, particularly, of motion (second feature) has been one of the most influential elements of Aristotle's thought upon subsequent thinkers of power and motion alike, both in natural and social sciences (including Hobbes, Galileo, Leibnitz and Newton). As it is elaborated in the following chapters (especially chapters V and VI) we interestingly observe that power has traditionally been relevant to the idea of motion, motility and mobilisation, and so, partially, associated with locomotion—movement in space and time. The idea of power as a source and principle of motion is encountered in numerous influential theories of power in political theory—with the most obvious and notable examples being those of Thomas Hobbes and Michel Foucault.

[34] Aristotle, *Physics*, book III, ch.1.

[35] I borrow this extremely helpful illustration from John Anton's relevant book on *Aristotle's Theory of Contrariety* (Lanham: University Press of America, 1957), p. 207.

***Illustration 2*: Aristotle's Notion of Motion**



(i) Generation and destruction are the two aspects of that kind of motion that is performed by or undergone at the level of a 'substance' (*ουσία*/ *ousia*) in Aristotle's language. Effectively, we could say that it is a type of change occurring at an ontological level. Simply put, it refers to the change that can occur at the level of the agent or entity in question considered in their most particular sense of specification. For example: a person (Michael), who is a male, a human being, a doctor, an American citizen and so forth, is seen in terms of his *ουσία* [ousia/ substance] when regarded in his uniqueness *as Michael*, as *that* specific, unique individual manifesting a personhood which is irreducible to any other category according to which he may be possibly described or any qualities and traits he may be assigned. A useful and succinct way of expressing this idea of substance is that of the *inalienable uniqueness* of each person and entity. [36]

[36] Substance is one of the most challenging categories in Aristotle's ontology, which generations of scholars have tried to come to grips with. Although providing a detailed account of this notion certainly falls outside the scope of the present study, it is helpful to offer a short explanation regarding its basic meaning. Substance is that which characterises the uniqueness of each being, its innermost particularity, what makes each being *that* which it is, and which is in some way different than any other being compared to it, irrespective of whether they might both belong to a same genus or species. (For example, individuals might all be human beings, but there is something about each individual which makes her unique, irrespective of the shared belonging to the same species); see Aristotle, *Categories*, 2 b5-6. As

(ii) Alteration refers to motion or changes that occur at the level of the *qualities* that are pertinent to (or demonstrated by) a particular person or object. Changes in the qualitative specifications of particular entities are considered by Aristotle as 'qualitative motions'. For example, someone becoming prettier, smarter, more compliant, or more liberal, and so forth.

(iii) Growth and diminution refer to change that occurs with respect to quantity, or 'quantitative motion'. This includes something getting bigger or smaller, more plentiful or scarcer, and so forth.

(iv) Finally, locomotion, as briefly discussed above, refers to spatial movement and to what we usually refer to as motion in the colloquial sense of the term.

What is particularly interesting about Aristotle's definition of motion is the fact that it disentangles the concept from a purely physical reading of the term—i.e. as locomotion. Just as the classical concept of motion covers a broader field of signification than our contemporary usages of the term, touching upon issues such as agency, quality, quantity and space, so does the correlated notion of change covers an equally broad range of possible meanings.[37] The idea of 'change' or 'differential' thus functions as

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he claims, 'none of the categories other than substance can exist apart' (*Metaphysics*, Θ 1069). Translated in anthropological/sociological terms, the substance is what imparts a unique particularity and an ineliminable subjectivity or uniqueness to every person. As Aristotle puts it, 'substance is that about an agent or thing which (a) is not predicated of anything else, (b) nor can it be present in another subject' (Aristotle, *Metaphysics* Θ 1054a18-20).

[37] The same idea was later adopted by Thomas Hobbes, who employed the notion in a very similar manner. Hobbes defined motion as 'any kind of change' and, in a quasi-Heracletean fashion, identified it 'as the universal cause of all things'. For Hobbes, all branches of science were understood as 'sciences of motion'. Since physics was regarded as 'the science that studies the motion of physical bodies', so was moral philosophy similarly regarded as a science of motion because it studies the '"motions of the mind" (such as envy, greed, and selfishness) that cause human actions'. Thomas Hobbes, 'De Corpore' (f.p. 1655), Chapter 6, vii, E I 72, in A.P. Martinich (transl.), *Part I of De Corpore* (New York: Abaris Books, 1981). Also, refer to the discussion of Stephen Finn in *Hobbes: Methodology,* Internet Encyclopaedia of Philosophy, http://www.iep.utm.edu/hobmeth/.

complementary to dunamis' first feature for it specifies some of the kinds of change or stasis that dunamis can act as an origin of. As such, dunamis is considered as the source (i.e. origin, principle or arche) which induces effects upon the unique being or identity constitution of entities (individuals or objects), including their particular qualities, sizes, resources or other pertinent quantitative specifications, as well as their positions and relative patterns of movement across space and time.

V. The Ontological Sense of Dunamis

Γ) Third Feature: Potentiality and Actuality

- ***Dunamis as Potentiality: The Pair Concept of Potentiality – Actuality***

The second major interpretation underpinning Aristotle's conceptualisation of dunamis consists in an ontological reading of the concept.[38] This dimension of dunamis has concerned a number of key thinkers in the history of philosophical and political thought, such as Kant, Brentano, Nietzsche and Heidegger, inasmuch as it has constituted a pivotal influence in the development of their theories. When employed in an ontological sense, dunamis is often translated in academic discourse as potentiality. Dunamis' ontological status *qua* potentiality is mainly expressed through the key conceptual distinction between potentiality ('*δύναμις'/ dunamis*) and actuality ('*ενέργεια'/ energeia*, meaning actualisation, *ergon*, work, practice or acticity—in Latin '*actus'*),[39] which jointly constitute a 'pair concept'. Together these form the third main feature of Aristotle's conceptualisation of dunamis.

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[38] There is of course an ontological element involved in the main sense of dunamis too. However, the distinction between the two senses serves to emphasise that, in considering the notions of potentiality and capacity, a greater number of ontological issues become more explicitly relevant to the understanding of dunamis.

[39] Action—or *ergon*—is considered as the telos or fulfilment of dunamis. On an etymological note, indeed the term en-ergeia literally signifies the passage of something *into* ('en') action or production ('ergon'): this obtains from the meanings of the words '*en*' (meaning, 'in' or 'within') + *ergon* ('act' or 'work').

The conceptual pair potentiality-actuality is evocative of the well-known difference between 'the potential' and 'the actual', which has served as a vital conceptual distinction structuring discussions on power in the texts of various key authors and across carious academic debates.[40] However, in the context of Aristotle's thought, the distinction is ascribed a more generic meaning, serving to analytically structure 'being', in which case it is expressed by the terms 'being-potentially' and 'being-actually' that explicitly convey their ontological relevance and reference to the idea of being.[41]

Potentiality and actuality refer to two interrelated, communicating and, in effect, complementary *states* or *modes of being* displayed by agents or objects. The passage from one state to the other—the passage from something being a potential to actually becoming manifest in real life as an actuality—represents the main *mechanism* through which all things come to be in the physical world. Positing the issue in those terms, Aristotle perceives dunamis as an inherent quality, or a *modus operandi* of being. His position entails the fundamental perception that whenever something exists it is always the case that it constantly partakes in ongoing processes and mechanisms relevant to dunamis—i.e. in recurring passages from incorporating something as potential to expressing it in the form of activity in real life, and vice versa In this way, Aristotle incorporated dunamis (qua force or power) into the overt meaning and definition of being such that, as Heidegger later interpreted, 'potentiality belongs to the very being of beings'.[42]

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[40] Key examples include modern authors such as Dahl's pluralistic model and Steven Lukes, although the same distinction is encountered much earlier in the history of the concept, in authors such as Hobbes, Locke, Leibniz and others.

[41] Stephen Makin, '*Energeia* and *Dunamis*', in Christopher Shields (ed.), *The Oxford Handbook of Aristotle* (Oxford: Oxford University Press, 2012), pp. 400-421.

[42] In his idiosyncratic manner of academic terminology, Heidegger expressed this conceptual feature of dunamis as 'being-directed-towards' or 'being-in-relation'. Brogan, op. cit., p. 112.

We can thus observe that, under the Aristotelian interpretation, dunamis is postulated as something omnipresent (as 'being everywhere'), in the sense that it is seen as constituting an essential feature or mechanism of our ontological apparatus. Consequently, dunamis cannot be simply thought as an incidence, an occurrence or a particular manifestation; it is not an event, for it itself forms an intrinsic part of the background mechanism (of potentiality-actuality) *by means of which* all manifestation of particular events occurs in real life. Dunamis is thus not exactly a *manifestation* in itself, as something which 'happens' and can be described, but rather as the *precondition* of the manifestation of particular events.

○ ***Potentiality - Actuality as Contrariety***

But what does it mean to say that dunamis is a fundamental ontological aspect of all living beings? In order to address this question, let us begin by clarifying the statement that 'potentiality-actuality is a pair concept serving to conceptually structure being'[43] through introducing a key notion of Aristotelian ontology crucial for describing his perception of the nature of dunamis.

According to Aristotle, there are two main ways in which an entity/agent can be ontologically described: first, in terms of certain general ontological features which specify its being (such as, substance, quality, quantity, place, etc.);[44] and, second, in terms of whether (and in what respects) the agent in question is found in either a state of potentiality ('*δύναμις'-'δυνάμει'/ dunamis-dunamei*) or actuality ('*ενέργεια'/ energeia*)—whereby the distinction serves as a heuristic employed to ontologically describe or 'classify' her standing.

[43] See Makin, op. cit.

[44] For an extensive discussion regarding these categories, see Aristotle's *Categories*.

The conceptual compound of 'potentiality - actuality' represents a pair of contraries—what in scholarly terminology is often referred to as *contrariety*.[45] The notion of contraries (or contrarieties—these two terms shall be used interchangeably from now on) resembles that of polarities, such as growth and diminution, right and wrong, good and evil, weak and strong, just and unjust, and so forth. Like opposites, contraries represent two contrasting yet inextricably interconnected states of being, the constant flow or movement between which serves to (re)generate and perpetuate both their individual being as well as their opposition, such that 'all things which have opposites are generated out of opposites'.[46] For example, the notion of growth can only be obtained referentially and comprehended comparatively through its conceptual contradistinction with the notion of diminution, since that which grows, grows *comparatively* to what it was before, and that is *ex vi termini* something smaller or lesser (and vice versa). Precisely because the concepts of growth and diminution are mutually-contained and mutually-implied, each time it is said that something grows or diminishes, that very statement serves to reinvoke the opposite notion and reconstruct the binary contrast between the two states *qua* polar opposites. As such, this idea of contrariety is very much akin to the idea of polarity; and since all things in the physical world (including the natural world itself) appear to partake in polarities and processes of polarisation (given that all things grow and diminish, move backwards and forwards, become weaker and stronger, and so forth), contrarieties are considered by Aristotle as universal in character and relevant to all particular manifestations of beings.

Moreover, similar to opposites, contraries are also relational, since the one 'end' of a contrariety can only be defined by reference to the other. For example, the 'faster' is

[45] Specifically, a metaphysical contrariety.

[46] Plato, *Phaedo*, 134.

generated from the 'slower', factually, logically as well as conceptually, meaning that it is only by virtue of something having been slow that it makes sense to say that it now becomes fast; the characterisation 'fastness' is meaningful because it entails a counterpart idea of 'slowness' in comparison with which it acquires its denotation.[47] Contraries are accordingly 'physical points marking the extremities which delimit the entire life *process* of an individual substance'.[48] In this sense, contraries constitute polar determinations of subjects which are found in *process*—i.e. involved in the process of becoming.

Based on these specifications, two key attributes may be identified as pertinent to dunamis' status as part of a contrariety. First is the notion of *process*: contrarieties delimit *processes* since they set out the polar ends in between which a process takes place, for a process always implies a 'from-ness' and a 'toward-ness' and thus requires at least two points of reference. In this sense, polar ends 'set the scene', so to speak, within which a process can be carried out as such. Likewise, potentiality and actuality effectively work together as part of the same process, and each is functional to the other, since potentiality is 'the force of change in the sense that it expresses the 'from-ness', while actuality is the telos or end, the point of culmination (...) [or] the satisfactory function of potentiality'.[49] Likewise, dunamis as potentiality is conceptually tied to the notion of process and so integrally related to the pattern of behaviour of agents found in a process of becoming.

Second, Aristotle considers that contrarieties involve the crucial element of intelligibility, since they serve as tools for rational analysis, examination and

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47 This issue is not for the first time introduced by Aristotle: it is an old problem in philosophy, one which is undertaken by Socrates on various occasions, and especially in *Pheado, The Republic* and *Timaeus*. However, Aristotle explored the idea of contraries in far greater logical categorisation and classification than his precursors.

48 Anton, *Aristotle's Theory of Contrariety*, 1957, p. 8. Italics my addition.

49 Ibid. 12.

classification. Therefore, in exploring contraries, we are also brought before dunamis' fourth conceptual feature, namely *intelligibility*.

Δ) Fourth Feature: Intelligibility

As Anton notes, 'contraries, as the *termini* of every change, can be generalised and stated in discourse and as such they are principles of understanding, generic concepts employed in the analysis of any determinate process whatever'.[50] In this capacity of theirs, they bear the status of discursive heuristics employed in the practice of ascribing meaning (intelligibility) to the world, or, at any rate, of perceiving meanings already entailed in physical and social processes.

There is, however, a more fundamental way in which contrarieties relate to meaning and perception: that is through their functional input in the processes of production of meaning. Contraries are *hubs of generation of meaning*. We can borrow a very helpful example from Plato in order to illustrate the idea that contraries provide the structure for the emergence of meaning. As Plato discusses in the *Republic* (book VII), when I look at my hand, the variable lengths of my fingers ensue an observable difference or sensible tension that creates 'a relational field' which triggers my observation and, successively, my perception of the relative qualities of 'small' and 'large' as those meanings emerge out of the process of visual juxtaposition. Indeed, as Taylor notes, this mechanism is owed to the fact that 'things only have meaning in a field, that is, in relation to the meanings of other things (...); there is no such thing as a single, unrelated meaningful element'.[51] Furthermore, this external difference, which stimulates my attention thereby triggering me to observe it, consequently becomes internalised and replicated in an intellectual form, in the context of my own thinking or thought-processes, as part of the perceptible intake and

[50] Ibid.

[51] C. Taylor, 'Interpretation and the Sciences of Man', in C. Taylor, *Philosophy and the Human Sciences II* (Cambridge: Cambridge University Press, 1985), p. 22.

processing of what I observe: the polarity, which was observed externally, now ensues in the production of an internal mental field, which, in its turn, triggers my perception and mental activity. The mind is prompted to relate and *compare*—precisely *because* the 'inputs' it receives are variable. Variability provides the infrastructure of comparative tension out which what emerges is *perception* and the production of meaning. In the above example, those are the particular meanings of 'smallness' and 'largeness', as well as the more specific perceptions of my thumb *as* small and my index finger *as* large.

Nevertheless, the process does not stop there. The observation of external difference, which has developed into the perception of a *conceptual* difference between 'small' and 'large', further elicits my mental discernment of even more general meanings and more fundamental or all-encompassing conceptual categories, which, however, are not themselves immediately observable, but rather ensue as cognitive repercussions of observation, such as the wider-ranging notions of scale and size. Those notions encompass both polar concepts perceived through my senses as a result of my experience of difference within my immediate environment. Hence the emergence of these broader conceptual 'classes' has its origin in the existence, constant interplay and interchanges between contraries, the comparative friction between which serves to trigger our observation, our intelligible analysis and the generation of perception of both particular and generic meanings and concepts. It is in this sense that meaning arises out of difference. Therefore, contrarieties are also crucially relevant to the domain of human perception, intelligibility, reason and formation of meaning.

The following general inferences can be drawn with regards to dunamis' intimately collated third and fourth features. First, (i) by approaching it from the perspective of contrariety, Aristotle provides a *procedural account* of dunamis, perceiving the latter as an inherently constitutive part of a *process*, rather than, strictly speaking, a *sui generis* or

'stand-alone' state, a possession or simply a relation. This inference is based upon the consideration that, for Aristotle, the distinction between the states of potentiality and actuality is more analytical rather than substantial, since, as we saw, contraries work together as parts of one process. Although they can be separately analysed, in reality they always function jointly, forming a conjugated whole, such that they are theoretically more accurately assembled as parts of the same *process*. Accordingly, the suggested interpretation of dunamis is more appropriately framed in light of the conjunction between the potential and the actual (which is given conceptually by the idea of process), rather than merely its identification with the notion of potentiality.

Associating the concepts of dunamis (*qua* potentiality) and actuality under a common, encompassing definition of contrariety, additionally implies that dunamis alone does not suffice to give a full account of itself: its definition requires the polar idea of actuality in order to be fully grasped, since, as discussed earlier, it is only in reference to actuality that potentiality acquires its meaning. Hence, (ii) dunamis cannot be entirely understood without reference to its actualisation: dunamis and the actualisation of a dunamis in the form of an outcome necessarily go hand in hand, both in terms of their practical manifestation in real life, but also in terms of their theoretical framing, since each of them is individually perceptible—and thus describable—only by reference to the other.

Finally, the above suggests that (iii) dunamis is intimately related to perception, as it further involves a crucial element of intelligibility. This is because, according to Aristotle, meaning is a quality which arises from the tension between contraries, and since dunamis (*qua* potentiality) forms part of one of the most fundamental contrarieties, the dipole of dunamis-actuality and the ensuing field of processes that induces, effectively it serves as a key locus, a hub or field of production of meaning. We shall return to this point at the last section of the chapter.

E) Fifth Feature: Dunamis as Capacity

Closely related to the notions of potentiality and actuality is the understanding of dunamis as a capacity. In classical discourse, potentiality acquires the meaning of a capacity that can be either innate or acquired (in which case it may also be lost), and which may or may not be realised in practice. This includes abilities, resources, talents or skills exhibited by various agents.[52]

There is a crucial distinction between the inactive possession of a capacity and its active use, which corresponds to its actualisation. Nevertheless, irrespective of whether it will actually manifest in practice, Aristotle states that every capacity entails, in its very constitution, the actuality towards which it is by definition inclined to strive.[53] For instance, the capacity of fire to heat can be understood as a potentiality. The actuality which corresponds to this potentiality (*qua* capacity) is heating itself. This means that whenever there is fire, there will also be some rate, form and amount of heating, and even in the case where there will be no actual heating at all, there will still be a tendency towards the manifestation of heating—i.e. towards fire expressing its 'heating dunamis' in action.[54] This is what Aristotle means by the claim that each capacity entails its corresponding actuality and also the relative disposition to actualise it. To summarize, according to its fifth feature, dunamis is defined as a capacity, whether innate or acquired, exhibited by an object or agent, which entails the possibility of being transformed into a certain kind of active exercise in real life.

This feature relates to features (a) and (b), since passing from potentiality to actuality effectively signifies a process of *change*: the passage of a capacity from a passive

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52 On the topic of acquiring and losing capacities, see *Metaphysics*, Θ 3 1047a, 5 1047b, 8 1049b-1050a.

53 *Metaphysics*, Θ 8 1046a. Also, *Physics*, III.

54 Ibid., Θ 7.

(or inactive) to an active state, whereby the capacity to be or act in a certain way is *transformed* into the correlated concrete state or action. To illustrate his perception, Aristotle claims that potentiality stands to actuality in the same way as some matter, such as bricks and woods, stands to a house, or as flesh and bones to a human being.[55] Capacities serve as origins of change (such that bricks and woods entail the possibility of being *transformed* into a building) while actualities represent the manifestation or the upshot of the process of change originating from capacities (e.g., the actual emergence of the building)—i.e., the successful transformation of a potentiality that is initially only a possibility, into an actuality which is a factual reality.

However, a key observation arising from the above is that a capacity (dunamis) may not be necessarily exercised in action, or, even if it is, it may not perform or finalise the change it entails, either because there will be no attempt to exercise it actively (e.g., a person with a house-building capacity that never actually attempts to build a house), or because the attempt to exercise it may not be successful (e.g., the person tries to build a house by getting all necessary supplies and putting them together, but does not succeed in actually building the house after all). Similarly, in the domain of human action, an individual may exhibit the capacity as well as the ethical disposition to perform charitable actions towards her fellow citizens and generally act virtuously for the benefit of society as a whole, however, she may never practically exhibit this ethical capacity in action through performance of appropriate deeds. Thus, simply having the potentiality (the capacity or resource) to perform a certain action does not guarantee its actualisation in real life. Whether a potentiality will be *successfully* transformed into an actuality depends upon a number of factors which will vary according to the specific conditions.

[55] Ibid., Δ.

It is also important to acknowledge that, according to the Aristotelian conceptualisation, capacities are still regarded as vital aspects of the processes through which the world is impacted, shaped, formed and moulded, precisely because it is they that provide the *sources* of all change. However, what gives rise to phenomena bearing impact upon the world and shaping its practical structures and affairs, is not simply capacities or resources alone, but rather *their transition* into actuality. As such, it is the reality of this conversion or transition which determines the actual value of a capacity or resource, as far as its relation, contribution and status as input to 'making things happen', i.e. to a state of potency, is concerned. Potency should not be conflated with the mere exhibiting or, so to speak, "possession" of capacities (if capacities can ever be accurately said to be 'possessed'). Because capacities dwell in the vastness of probabilistic indeterminism, priority, as far as the issue of impact and potency is concerned, rests with actualisation—i.e. the *successful* exercise of a dunamis. Hence, the conception of dunamis entails the key corollary that capacities are necessary, but by no means sufficient, conditions for potency.

Z) Sixth Feature: Dunamis and Becoming

The sixth feature of Aristotle's conceptualisation of dunamis consists in the notion of 'becoming'. Operating still under the broader ontological interpretation, the notion of becoming relates to the idea that potency accrues from the *procedural* and *transitional* aspects involved in the bringing about of effects of change. It exposes a further ontological aspect involved in the concepts of potentiality and actuality, which is introduced by the distinction between *being-potentially* and *being–actually*.[56] Here, the difference between the actual and the potential assumes again the form of an analytic distinction serving to structure the different states of being that an agent or object can exhibit. The idea of becoming is pertinent to the processes of transition between the actual and the potential

[56] Makin, op. cit.

(and vice versa), and it is critically relevant to discussions of power which concern the relation, and often the possible tensions, between capacities and outcomes.

With regards to its sixth feature, dunamis is distinctively expressed in a different grammatical form, particularly 'by [using] a distinctive syntactic mechanism, the dative *δυνάμει* [dunamei], used as an adverb modifying a form of the verb 'to be', for example, in the phrase, *δυνάμει ον* [dunamei on] ('what is potentially', 'potential being' or 'being-potentially')'.[57] The grammatical differentiation between dunamis as a noun and 'dunamei' ('being-potentially') as adverbial is key, because it signifies a passage from the understanding of dunamis as an object, and capacity as a 'thing' (which may be taken hold of or owned—i.e., a possession), to dunamis as an *active situation* (verbial form), a state of *being* which is exhibited and embodied by an agent or object, and which can accordingly be interpreted as constituting an active attribute of her being and activity.

A few examples Aristotle provides for illustrating this point include the examples of seed and tree, sperm and man, eye and vision.[58] For instance, the seed is *dunamei* (potentially) a tree, meaning that the seed is found in a state of being which both *tends towards* becoming a tree, *and* which *is defined in reference to its proclivity* towards this becoming. The term 'seed' (which denotes a potentiality) acquires its full meaning only in so far as it is considered in relation to its corresponding actuality, i.e. the tree, for the seed is by definition a seed *of* something, and therefore its definition cannot evade including (or at any rate conceptually evoking) the end-state towards which it naturally inclines. This is precisely because, the kind of being that a seed is, is a *dunamei* being (and the same goes for the eye which is found in a state whereby it constantly tends towards realisation of 'seeing' or 'vision'). Being-potentially represents a state of being which is characterised

[57] Anagnostopoulos, op. cit., p. 392.

[58] Aristotle, *De Anima*, 413a.

by its active *tending-towards* the realisation of the potential, such that an agent with a certain capacity is constituted by a towards-ness for the actualisation of this capacity. The same thing can be said about human beings and reason, where reason is considered as a dunamis by Aristotle, in the sense of faculty or capacity: human beings demonstrate an active tending towards the expression of their intelligible capacity of reason, irrespective of whether, and the degree to which, that actually becomes successfully manifested in reality, i.e. the degree to which they succeed in acting as fully rational and reasonable agents or engaging in rational argumentation. As such, human beings are inherently intelligible beings, in the sense that they incorporate the capacity to reason, including the active propensity towards its expression in actuality, notwithstanding that they may not always manifest this capacity in practice. In order to illustrate this conception of dunamis, it would therefore be more accurate to say that human beings are *potentially* reasonable.

Moreover, being-potentially is denotative of a state of becoming because it does not merely stand for the possession of an ability, but rather expresses a particular *situation* whereby an agent is found in the transitory process mediating between the possession of a capacity and its active expression in practice. Although becoming evidently involves an element of transiency, it still qualifies as a distinct state of being because it denotes a *situation* where agents-in-potentiality are characteristically constituted by their tending-towards a certain actuality. The state of mediation from potentiality to actuality, which was traced above as relevant to the idea of potency, is here also shown as relevant to becoming, for it delineates the space wherein processes of becoming take place.

The adverbial formulation of dunamis ascribes the concept the senses of activity, motion and change. Interestingly, it is precisely this feature of dunamis that is captured by the contemporaneous adaptation of the concept in English, in the word ‘dynamically’. Indeed, dunamis—unlike static interpretations of the concepts of resources and

capacities—is perceived, in classical discourse, as an inherently vigorous and vibrating entity. Its correlated state of becoming—a state full of motion, fluid, floating, rippling—consequently designates a distinct state of being, as well as it circumscribes a field or locus, which can also be described as the space of exercise of dunameis. Hence, the passages from being-potentially to being-actually may be said to designate a particular space, a procedural dynamic field wherein change and production of new structures, forms, as well as meaning, occur.

- ***The priority of Actuality over Potentiality***

As we saw earlier, having a dunamis without exercising or actualising it in practice bears no immediate significant impact on the way practical reality configures.[59] However, at the level of theory as well, dunamis cannot be meaningfully perceived outside the conceptual polarity designated by potentiality/actuality. A further reason why actuality is crucial for Aristotle in understanding functions of power is because it is seen as having a priority *vis-à-vis* its correlated potentiality. The priority of actuality, he argues, applies to all origins of change (whether natural, such as innate talents,[60] or acquired, such as technical capacities or learned skills), as well as to all senses of dunamis.

But in what ways does actuality precede dunamis/potentiality? Aristotle suggests three: logically or conceptually (‘*λόγω’/ logo*), temporally (‘*χρόνω’/ chrono*) and substantially or formally (‘*ουσία’/ ousia*).[61] For reasons of concision, we shall here mainly focus upon the first and third of the above. First, the logical or conceptual precedence of

[59] Given that a dunamis is perceived as entailing a *tendenc*y towards its actualisation, being in a state of inactivity does not preclude the probability of its future manifestation into practical reality, hence the use of the word ‘immediate’.

[60] For Aristotle, nature is a dunamis in the sense that it is a ‘an origin of motion (and change) not in an another thing, but in itself as itself’ (*Metaphysics*, Θ 1049b10).

[61] *Metaphysics*, Θ 1049b10-14.

actuality (what Aristotle refers to as actuality being prior 'in formula'[62]) is given by the fact that to have a certain dunamis intrinsically implies that one is likely *to act* in a particular way. Indeed, in order to define or make sense of a particular dunamis (e.g. a dunamis to do *A*), one first needs to have some preconception of the action (or actuality) to which the expression of that dunamis corresponds. As Makin illustratively points out, 'a potentiality is identified by reference to the correlative actuality, [for instance], the capacity of sight is the capacity to see; (or) to be fragile is to be liable to shatter, rather than vice versa (it would be odd to explain shattering as fragility-in -action)'.[63] A dunamis is always a dunamis '*to*', a dunamis '*for*' or a dunamis '*towards*'; consequently, its logical formulation is structured referentially to its corresponding actuality '*A*'.

Furthermore, Aristotle considers that actuality precedes dunamis because every dunamis exists by virtue of the possibility of manifesting into some form of action or event.[64] Its usefulness, as briefly examined, is derived by its active expression. This position, however, may be criticised for advancing an essentially instrumental character to dunamis, which fails to capture some of its more intricate aspects. At the same time, it may also be read as advancing a methodological prioritisation of practices too, as it purports that it is actions which point us to the identification and understanding of the underlying *dunameis* at work. This is an important point because it suggests an action-oriented approach to the issue of potency.

Nonetheless, a more careful reading of Aristotle's position shows that his approach does not preclude the existence of non-actualised forces; and it also does not exclude the possibility that the exercise of a certain dunamis might consist simply in the activity of its

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62 According to Ross's translation, J. A. Smith, W. D. Ross, *The Works of Aristotle: Metaphysica*, (Clarendon Press, 1908), Θ 1049b.

63 Makin, op. cit., p. 402.

64 This idea is pertinent to the Aristotelian notion of *entelecheia*.

expression, affecting solely its agent and her own experience of the world—something which, according to his first definition, his approach does take into consideration. To say that action is the telos of dunamis does not inevitably necessitate that the realisation of a dunamis produces an action or that it gives rise to an event which is external to—and hence detached from—either the process of its exercise or its agent. As such, no externally observable impact needs to occur in order for a dunamis to be said to be at work.

The above statements can be elucidated by considering Aristotle's distinction between two possible ways in which actuality ('*ενέργεια'/ energeia*) can be realised, which are distinguished according to the way the exercise of the dunamis relates to its agent and its object, as well as the character of the actuality in question. This distinction offers a considerably useful heuristic for qualifying different 'natures' of power events at variable levels of individual and collective experience.

First, there are cases where (i) the actuality corresponding to a dunamis is *different* or *separate* from the *process of exercising* that dunamis. In those cases, exercising a dunamis produces something *outside* itself, in the sense that 'the result is something apart from the exercise'[65]—i.e. an actuality which is not identified with or exhausted by the process of exercise. As Aristotle notes, 'the actuality is in the thing that is being made'.[66] For instance, in the earlier example of building, the activity of building, qua the exercise of the building dunamis, is *transferred and, consequently, in some way contained as energy within* that which is being built, because during the activity of building the conversion of the agent's dunamis into exercise can be thought of as a kind of energy that is released from the agent and transferred to the recipient object, thereby transforming it. The activity of building is a process whereby the builder's energies are passed on to the

[65] *Metaphysics*, Θ 1050 a30.

[66] Ibid., Θ 1050 a31.

building materials eventually transforming them into a house.[67] Nevertheless, the actuality corresponding to the dunamis of building, i.e. the house, is not exhausted simply in the process of activity or exercise of the correlated building dunamis. Rather, it manifests in the form of a separate product which acquires a separate status further to and after the process of exercise has been concluded; this is what Aristotle suggests in stating that 'the act of building is in the thing that is being built'.[68] The house as an actuality may have been achieved through the process of building; however, it remains separated from it, acquiring its own discrete status and 'reality' following the end of the building activity. This evidently portrays a positively productive reading of dunamis.

The second possibility identified by Aristotle is where (ii) the actuality corresponding to a dunamis *coincides* with its exercise. This case is rather engaging, for it suggests that the exercise of a dunamis does not necessarily produce something outside of itself, but, rather, its correlated actuality ensues (or is exhausted) in the process of its exercise. Put simply, the process of exercising a dunamis *is* the realisation of its correlated actuality. Nonetheless, 'when there is no product apart from the actuality, the actuality is *in* the agents'.[69] In such cases, then, the actuality, along with the energies involved in the activity of exercise which bring it about, ensues *within* the agents of dunamis—just as vision happens to the one who sees (for 'the act of seeing is in the seeing subject'—i.e. the agent of sight), and 'theorising is in the theorising subject' (i.e. knowledge happens to the knower).[70] Therefore, there is a possibility whereby the process of exercising a dunamis and its actuality coincide—namely, the realisation of a dunamis into an actuality *is* the

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67 Marx's theory of labour is reminiscent of that point regarding the interrelation between labour, energy and product. Interestingly, Marx referred to this idea as 'labour power' or 'abstract labour'. Karl Marx, *Capital: A Critique of Political Economy Vol. I* (London: Penguin Books, 1976), Chapter IX.

68 *Metaphysics*, Θ 1050α32-33.

69 Θ 1050 a34-35. Italics my addition.

70 As we discussed above, Θ 1050b 30-36.

very fact of its exercise. Moreover, those are expressions of dunamis which relate primarily to the agent who exercises them, for it is she who principally experiences the effects of its actualisation *while* exercising it, rather than any other external object or agent.[71] What this idea intriguingly suggests is that dunamis need not inevitably involve any external ('target') object or another agent towards which is directed, or which it will change, transform, manage, shape, etc. Dunamis can also be a one-to-one relationship, a relationship with one's own self.

Finally, Aristotle prioritises actions over capacities in a qualitative sense as well; for he sees actions as qualitatively more determinate and more resolute states than capacities, which he considers as ambivalent and inherently contradictory. 'The reason is this: every dunamis is at the same time a dunamis of its contrary (contradiction)', by which it is meant that 'that which is possible (*dunaton*) to be is both likely to be and not to be', and therefore, whenever something has a particular dunamis it is a dunamis for something 'which both may and may not be'.[72] There is, as such, an inherent element of ambivalence, indefiniteness or inconclusiveness involved in any dunamis, precisely because every dunamis equally entails both the prospects of being exercised and not being exercised,[73] as well as, we may add, the prospect of a failed attempt to exercise it, i.e. both the prospects of being exercised *successfully* and not being exercised *successfully*. It can be argued that this is precisely what justifies the introduction of the analytic distinction between capacity and outcome in the first place, including the interceding category of becoming (which, as

[71] The product ensuing from this actualisation of potential may also be used by others, thereby subsequently serving to generate external relations of potency. For example, theory can be shared with others after its actualisation by the thinker, but, still, this would seem to require the mediation of a further kind of dunamis, such as communication, writing or teaching, which constitute separate, though interrelated, dunameis to the dunamis of theorising.

[72] Θ 1050b8-12.

[73] Θ 1046, b30.

it was maintained, corresponds to the stage of exercise), but it is also what makes this distinction crucial for a theoretical formulation of the concept.

Furthermore, the above analysis also clarifies why having the dunamis (*qua* capacity) to produce certain effects onto the world does not necessarily imply that, when an agent is not exercising this capacity, she ceases to have it. Non-manifestation, non-action, or, alternatively, lack of outcome, does not imply lack or absence of the appropriate resources or possibilities of action and potency. This attests to the fact that the conceptualisation of dunamis is not locked in a strictly speaking inductivist or empiricist perspective. Similarly, it would be inaccurate to claim that dunamis is reduced to its instrumentality for action. Quite the opposite, an activity could be interpreted as of instrumental value, to the degree to which it reinforces, cultivates, maintains and fortifies its correlative dunamis, but even other kinds of newly emerging dunameis which spring forth as a result of the actualisation of anterior capacities. Although dunamis is indeed ascribed with some degree of instrumentality (especially in light of its evident teleological overtones), nevertheless, the same can be said about actualities too. For, just as action emerges out of the exercise of a dunamis, it is also the case that capacities are strengthened through their exercise, while, additionally, further capacities emerge as a result of the realisation of preceding ones. For instance, a builder only fully develops his dunamis (*qua* capacity) to build *by* actually *practicing* building, just as one learns how to properly theorise *by* theorising, and so forth. Since the exercise of a dunamis is intrinsically related to the procedural space of becoming, this line of reasoning exposes the vital importance that the notion of becoming bears for the conceptualisation of dunamis.[74]

[74] ‘Ο γαρ μανθάνων κιθαρίζειν κιθαρίζων μανθάνει κιθαρίζειν’ [‘o gar manthanon kitharizein, kitharizon manthanein kitharizein’] (*Metaphysics*, Θ 1049b31-32); which means ‘one who is learning how to play the guitar, learns how the play guitar by [actually] practicing playing the guitar’ (my translation). In this simple example, Aristotle pithily encapsulated his radical objection to the contemporaneously prominent

H) Seventh Feature: Passive and Active Agency

The seventh key feature of dunamis relates to the notions of passive and active agency, which correspond to the ideas of passive and active dunamis respectively. In certain ways, the idea of passive capacity represents the mirror-image or reverse aspect of the active ingredient of dunamis, captured by its energetic function as the source of production of effects, 'the force of change or rest'. Active capacities are more particularly perceived as capacities which act as drivers of change, without requiring an external stimulus in order to be 'set-off'. Thus, they internally contain the origin of motion and change.

Further to this active or impelling aspect of dunamis, Aristotle complements his definition by interestingly extending it to cover a corresponding *passive* principle of change as well.

> We call dunamis what originates an alteration or motion (*κίνησης*) [kinesis] not only in this way *in* another thing or *qua* other, but also *by the agency of* another thing or [the same thing] *qua* other. For in any respect in which a thing affected (*πάσχον*) [paschon] is at all affected (*πάσχειν τι*) [paschein ti], we assert it to be capable (*δυνατόν*) [dunaton] of being affected (*παθείν*) [pathein]; sometimes whatever the affection, sometimes not in respect of every affection but if it is for the better.[75]

Let us try to decode the above extract. For Aristotle, to be able to undergo or 'suffer', as it were, a dunamis exerted by another agent (or by your own agency *qua* another) requires,

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theory of the Megaric School which purported that existence is identical to manifestation, and which had thus conflated dunamis with the exercise of dunamis. In seeking to show how the binary division between being and non-being, capacity and activity, offered by the Megarics, was flaky, Aristotle introduced with this example the notion of becoming, the 'third state' mediating between being and non-being; or, between inactive capacities and manifest practices. This holds for all technical capacities and generally all dunameis related to practice, skill and specialisation; but it may also be true for innate capacities as well.

[75] *Metaphysics*, Δ 1019 a19-23.

inasmuch as it implies, the existence of an equivalent kind of dunamis *on the part of the recipient end* of the interaction. The ability to be affected or changed by someone is seen as constituting as much of a dunamis as the capacity of bringing about a change onto someone else; for, in order for an agent to be capable of passively accepting a certain change, alteration or motion, she must already exhibit a particular kind of quality or feature that allows, in the first place, the change-producing dunamis to be exercised upon her. A useful example discussed by Makin is that of water and salt: the active dunamis (capacity) of water to dissolve substances (its dissolving dunamis) can only be successfully exercised if there exists on the part of the recipient a corresponding passive dunamis which is enacted by the interaction; in this case, that is salt's solubility, in the absence of which water could not manifest its active dissolving dunamis.[76]

Some very intriguing aspects are involved in this idiosyncratic conception of agency. In the first place, the receiver of an active dunamis is presented as constituting an equally essential part of a power interaction as its active counterpart. The difference between active and passive powers consists in that, whereas an active power contains the origin or stimulus of its expression, which may be expressed autonomously without external intervention, a passive power needs to be triggered by something outside itself in order to perform its part in the formulation of a dunamis interaction.

The demonstration of a receptive or passive quality on the part of the recipient is, therefore, regarded as enabling the occurrence of a dunamis interaction both in an *active*

[76] The conceptual distinction between active and passive dunamis influenced modern philosophical thinkers who adopted, enriched and in various respects further particularised this distinction. A typical example is John Locke who also distinguished between active and passive powers, and, similarly to Aristotle's interpretation, defined an active power as 'the capacity to [make a] change', in John Locke, *An Essay Concerning Human Understanding* (f.p. 1689), P. H. Nidditch (ed.) (Oxford: Clarendon press, 1975), 2.22.II; or, in a subtler sense, 'the underlying source of that capacity' (Antonia Lolordo*, Locke's Moral Man* (Oxford: Oxford University Press, 2012), p. 31.

and in a *passive* way: passively because, the 'object' of dunamis is being acted upon; but also actively because the effect of change it undergoes in fact signifies the actualisation of its own dunamis (capacity) of manifesting that particular quality, which, may externally appear solely as the product of the exercise of the active dunamis. Consequently, the effect of change induced upon the recipient is not merely an effect of passive reception, but also an expression, a realisation or demonstration of one of its own dunameis or possibilities, in the sense that those effects constitute possible expressions of some of its own qualities (potentialities): it is its *capacity* to be transformed into this or that which the acting dunamis triggers, and that plays an equally determinant role in the actualisation and outcome of the interaction. And this role is decisive because, if the effect of change enacted upon the recipient did not correspond to one of its potential [dunaton] states of being, then the active dunamis could not have produced it. For instance, in terms of our aforementioned example, the dissolving dunamis of water cannot alone account for the manifestation of salt's dissolution without taking into consideration salt's property o*f being capable* of dissolution. Water's capacity to dissolve would not have been actualised if, for example, it was exercised on gold rather than salt; it is salt's passive dunamis which *enables* the exercise of water's active dunamis. These two forms of agency, active and passive, are thus crucially entangled in the manifestation of individual events of power.

We can thus identify the following three conditions, which need to be met for an effect of dunamis to occur: there presence of (i) an active capacity on the part of an active agent; (ii) an appropriate passive capacity on the part of the recipient; and, a further crucial proviso is that, (iii) the respective bearers of these capacities must be found in the right

relation to each other.[77] Hence, change—as dunamis' characteristic mark and core feature—is the successful correlation of active and passive capacities, which are jointly exercised, linked together and intertwined into a single event.

- ***Human Agency and Will***

The issue of agency, as a core feature of dunamis, cannot be satisfactorily examined without some reference to the crucial and rather intricate issue of human will. The very notion of agency, especially in its modern variation, is intrinsically related to the idea that human beings determine their actions by exercising some independent expression of internal autonomous motivation, intention or decision—and it is precisely that idea which enables and confers sense to relevant notions such as responsibility and accountability. Consequently, the discourse on agency, from ancient to modern times, is semantically structured and linguistically framed in terms of expressions directly evocative of the notion of will, as well as peripheral concepts which are widely assumed to be intimately correlated to it, such as voluntariness, freedom, autonomy, and so forth.

As a general note, the idea of agency implies the existence of some form of faculty of will—the postulation of an active and functional faculty of will. Under a stronger interpretation, agency may be seen as necessitating that actions are driven by conscious motives and some degree of self-aware intentionality. Conversely, a more minimalist interpretation would not need to place so much emphasis on the elements of awareness and intentionality, because these are not necessarily always present in the formulation of human actions, as individuals very often act unintentionally, unconsciously or unreflectively—or alternatively, because human actions often entail unintended results. However, a shared understanding which is identified as a common denominator of both

[77] As Makin concisely points out, 'it is only once an agent with an active capacity is found in the right relation to the patient with the appropriate passive capacity, [that] then the two capacities are exercised and a change occurs'. Op. cit., p. 410.

strong and weak interpretations is that, at the level of human activity, both actions and, even more importantly, the *intelligibility* of actions, stem from the fact that those are products of volitions, intentions, decisions and desires, all of which constitute, in Lockean terminology, 'species' or themselves 'products of the will'.

Accordingly, the notion of will, as a distinctive feature of human conduct, plays a crucial role in Aristotle's conceptualisation of dunamis. It serves the function of partly accounting for the operative mechanism which at once describes and explains how human beings have an originating role in their own actions and lives. As an origin of actions, the will is a rational, active, spontaneous, non-causal dunamis, which is internally stimulated and thus functions as a point of origination of actions.[78] As with dunameis in general, the will is not a *causal* power *per se*; rather, it is by exercising one's will—i.e. by willing—that one may bring about effects of change or trigger the generation of particular events.

In the first place, voluntary human agency functions as an originating source of its own volitions. This is largely owed to the conceptualisation of human will as *sui generis*—i.e. as not necessarily requiring an external stimulus for its activation. These volitions constitute kinds of actions—mental acts (albeit, complemented by desire) or psychic acts; and thus, in one sense, they represent the actuality of the will (i.e. the fulfilment of its exercise), while, in another, they themselves constitute parts of the will, manifesting during the process of exercising this dunamis in originating actions and bringing about effects either upon themselves or upon others. As Freeden, on a relevant note, remarks, 'the objection to the traditional philosophical distinction between thought and action can be queried on two levels: not only that thinking promotes certain kinds of action and,

[78] Distinguishing between rational and non-rational powers, Aristotle classifies the will under the first type. The will relates to causality in the same manner as dunamis (as examined in part (I) above). Again, I take some these characterisations from Lowe. See Aristotle, *NE*, book III, esp. 1110a–1112a.

possibly, change, but that thinking is itself a kind of activity'.[79] Similarly, being very pertinent to thinking, willing is also itself a kind of activity, i.e. an internal, psychological activity, inasmuch as the source of externally-directed action.

The will can be characterised as voluntary precisely because it bears the status of a spontaneous dunamis, as Lowe puts it, and this status grants it at least some decent degree of autonomous functioning.[80] Indeed, although the will may be both triggered and influenced by factors external to it (such as thoughts, emotions, external events, etc.),[81] there is still some ineliminable element of automaticity and autonomy characterising its functioning. Its exercise or activity consists in the very act of willing. Simply by doing so, an active dunamis is set off which immediately works towards the effective realisation of the content of willing. Human agency is thus exercised through the will—i.e. the exercise of the dunamis of will. The manifestations of this active dunamis may or may not materialise, may or may not bring about the desired events, depending on a variety of factors and conditions pertaining to the recipient object/agent, the status of the correlated passive dunamis, the framework hosting the relevant interaction, the conductibility of the surrounding context, and so forth.[82] Nevertheless, even in those cases where its contents are not realised in practice, the dunamis of will can still be said to have been exercised.

The above discussion leads us to the following important observation concerning one of the most intricate and intriguing aspects of the Aristotelian account of will. As an active dunamis, the will is regarded as exemplifying a double nature or a twofold function: it is at once both a dunamis and an actuality. As a dunamis, it is a 'mental power exercised

79 Freeden, op. cit., p. 43.

80 Lowe, op. cit., Oxford, 2012.

81 Regarding the relation between deliberation and willing see Aristotle, *NE*, book III, 1112a-1113a.

82 This is why, in Aristotle's thinking, events are not considered as deterministic, but, rather, as 'chance-events', since they are seen as always relying upon a parameter of chance pertaining to the multiplicity of factors contributing to their formulation.

or manifested' whose exercises are 'volitions or acts of will'. 'Volitions' are here considered as 'mental occurrences or events, with a distinctive kind of intentionality'; for a volition is 'always a volition *to do* such and such, where such and such is an action type'.[83] The case of the will, however, constitutes a complex case of a dunamis, precisely because the faculty of will may also, in certain ways, be viewed as an actuality. To exhibit this dunamis means to be engaged in an activity of willing, irrespective of the *intensity, normative status* or *attainability* of the content of willing;[84] it is, perhaps, this peculiarity of the will *qua* a dunamis which partially imparts human agency the attractive elements of freedom and voluntariness. Having the capacity or faculty (power) of will means to *be able* to will, and so, through willing, express at once the reality, the *towardsness* (tendency), inasmuch as the potentiality of acting as the originator of one's own actions and, thereby, as an agent of effects of impact upon one's surroundings.[85]

It is important to stress, however, that there are certain boundaries to the concept of will and its relationship to the idea of power. The problematic of the will, further to being one of the oldest in the history of philosophy, is also continuously open to different interpretations, which vary according to the epistemic field from which it is addressed. Therefore, while recognising that Aristotle's account offers a particular interpretation of the will, as a crucial feature of his concept of dunamis, and its relationship to the broader issue of power, it should also be acknowledged that different disciplines (for example,

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83 I take these points from my notes of Jonathan Lowe's presentation.

84 Aristotle, *NE* 1111b. Converging on this point with Aristotle, Locke eloquently summarised the issue of agency in stating that 'the exercise of active power is simply volition' (33), where volition is the sort of mental act that causes the sorts of actions (whether these be actions of the mind—thoughts or actions of the body—motions) that are called 'voluntary' (27). In the *Essay* (f.p. 1690), he basically defines the will as the power of the mind to act or forebear internally and externally (op. cit., Ch. XXI, Par.5).

85 *NE* III, esp. ch. 5.

philosophers, sociologists, anthropologists, physiologists, etc.) may treat the issue in a different manner. As such, this issue remains open to debate and contestation.

Having in this chapter explored the generic formulation and morphology of dunamis in classical discourse, in the following chapter the analysis turns to a more general consideration of Aristotle's concept of dunamis. Through critically reflecting upon the semantic features and underlying theoretical issues involved in the conceptualisation of dunamis, the analysis now turns to a discussion of hermeneutics. Employing insights from the present analysis, the following chapter sets out to creatively explore some useful interpretative potentials arising from a critical engagement with Aristotle's account of dunamis, with the purpose of elucidating current readings of the term, as well as opening up new possibilities of meaning and thinking about power in contemporary discourses.



CHAPTER II.

ILLUMINATING POWER THROUGH DUNAMIS

> *'Philosophical hermeneutics is a different matter: it is not an art but a critique—that is, it brings to consciousness in a reflective attitude experiences which we have of language in the exercise of our communicative competence and thus in the course of social interaction with others through language.'*
>
> (Jurgen Habermas, *Hermeneutics and the Social Sciences*)[1]
>
> '*Understanding occurs in interpreting.*'
>
> (H. G. Gadamer, *Philosophical Hermeneutics*)[2]

As it became evident in the previous discussion, dunamis offers a distinctively different understanding and conceptual formulation of power compared to some of our common readings of the term in contemporary discourse. This corollary serves to emphasise the significance of a historical-morphological approach to the study of power; for the exposition of a considerably different formulation of the concept can act as a comparative reference point from which useful interpretative reflections may be drawn. This chapter attempts to utilise this emerging reference point in order to engage in the intellectual practice of hermeneutics. Its aim is to critically and creatively reflect upon the preceding discussion of dunamis, in order to explore novel possibilities of meaning as well as alternative interpretative routes for approaching and understanding the concept of power

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[1] Jurgen Habermas, 'Hermeneutics and the Social Sciences', in K. Mueller-Vollmer (ed.), *The Hermeneutics Reader* (Oxford: Basil Blackwell, 1986), pp. 294.

[2] H.G. Gadamer, *Philosophical Hermeneutics* (Berkeley: University of California Press, 1976), p. 389.

today. The chapter therefore extrapolates possible interpretations of power arising from a critical discussion of dunamis' conceptual features, shedding light upon some conceptual possibilities which current dominant framings of power have generally overlooked.

(α) Dunamis as a Normatively Neutral Generic Concept

One of the main conceptual possibilities arising from an interpretative appropriation of the classical account of dunamis concerns its first conceptual feature of 'origin of change', and, particularly, the idea that power is intrinsically related to difference. We should be reminded that, in classical discourse, the idea of change as production of difference acquires a generic denotation, such that differentiation is not conflated with segregation. Rather, the idea of differentiation is more generically rendered as alteration—a notion which could refer to and encompass both processes of separation and reconciliation.

To make this abstract idea comprehensible in more concrete social terms, the first feature of dunamis can be interpreted as suggesting that potency develops in proportion to the grades of differentiation between the members and groups comprising a polity. Accordingly, social difference can be read as a mark as well as an effect of relations involving a power component. Nevertheless, even in the case of a relatively non-differentiated society (which could be interpreted either as more inertial or more homogeneous), relations of potency would not be entirely eliminated. They would, perhaps, tend to occur at lower rates of frequency and intensity. This observation follows from the appreciation that difference and homogeneity are not necessarily opposing notions, while potency need not be regarded as a priori negative, exploitative or restrictive. Even individuals who identify as members of the same group, which grants its members equal status and claims, develop relations which, effectively, involve *dunameis*—to the extent that their interactions instigate changes upon one another; as well as by virtue of

participating in collective mechanisms which function to organise the group or society and its various collective activities—for example, structures of social stratification, rankings, hierarchies, et cetera. All of those mechanisms form, as well as instigate, instances of differentiation, while at the same time, they also constitute apparatuses serving the purpose of providing cohesion and unity to collectivities. What is more, the definition of dunamis as origin of *stasis* can also be used to account for processes that work to maintain the status quo or the state of non-differentiation in a society. In any event, whether contributing to segregation or homogeneity, socio-political apparatuses, intrinsically involving differentiation, produce relations and effects of power in society, in the sense that they tend to foster and distribute varied roles to its members, instigate changes and coordinate activities which serve to alter the conditions of social life. Besides, structure, order and organisation intrinsically imply differentiation, in the generic sense of the term.

Under such an interpretation, which relies heavily upon the classical conception of dunamis as both qualitatively and normatively neutral, power may thus be assigned a neutral connotation. On a first level of analysis power can be possibly disentangled from the quality, normative features or moral standing of its effects. Although the normative aspects of power certainly pose a crucial issue of political concern, nevertheless, its study belongs to a second-order analysis which, although necessary and complementary to the above, should not be conflated with a first-order conceptual approach to power.

As we have seen, common understandings of power nowadays appear to be more normatively nuanced, as well as incorporating a stronger evaluative component of meaning, than its semantically corresponding dunamis. A number of predominant intellectual currents and scholars in contemporary political thought have, whether implicitly or explicitly, identified power with ‘restriction’, ‘suppression’, ‘domination’ or ‘subordination’, usually conceptualising it as a negative form of *power over*. In this way,

power has generally been assumed as *apriori* exhibiting an inherently conflictual nature. A characteristic definition is that of Steven Lukes who defines power as a relational situation whereby '*A* exercises power over *B* when *A* affects *B* in a manner *contrary to B*'s interests'.[3] Obviously, according to Lukes, 'power (*over*) possesses an intrinsically negative evaluative content' since 'what characterises an exercise of power (*over*) is its detrimental effect on the interests of the power-subject'.[4] Likewise, it is not rare amongst certain feminist interpretations of power to trace a similarly 'negative' reading of the term, often viewing power as synonymous to an instance of domination or subordination. Indeed, as Butler notes, 'we are used to thinking of power as what presses on the subject from the outside, as what subordinates, sets underneath, and relegates to a lower order'.[5]

Of course, it would be a sweeping omission not to acknowledge that *not all* interpretations of power include negative or pejorative normative evaluations. More and more scholars appear to endorse the understanding that domination is only a sub-set—or a particular modality—of power.[6] However, this does not negate the fact that, still, a significant number of scholars interpret 'the expression *power over* as carrying an intrinsically negative meaning'.[7] The general trend of intrinsically correlating power with restriction (more so than with production) has served to misleadingly imbue the term with a sense of 'compelling' or a more or less embedded nuance of intervention, restriction and

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3 Steven Lukes, *Power: A Radical View* (London: MacMillan Press, 1972), p. 27. Italics my addition.

4 Pamela Pansardi, 'Power To And Power Over: Two Distinct Concepts Of Power?', *Journal of Political Power*, 5:1, 2012, pp. 73-89, p. 74.

5 Judith Butler, *The Psychic Life of Power: Theories of Subjection* (Stanford: Stanford University Press, 1997), p. 2. For a rigorous exploration of this, as well as a feminist reading which goes well beyond the conflation of power with domination or subordination see A. Allen, *The Power of Feminist Theory: Domination, Resistance, Solidarity* (Boulder: Westview Press, 1999).

6 Pansardi, op. cit., pp. 75-78.

7 Ibid.

manipulation,[8] which has significantly contributed to bestow a 'bad reputation' on the concept—all this, unfortunately, at the cost of hindering the possibility of a normatively detached approach. Objecting precisely to this logical unnecessary, analytically parochial and descriptively deluding conflation, Foucault argued insistently that 'we must cease once and for all to describe the effects of power in negative terms: it "excludes", it "represses", it "censors", it "abstracts", it "masks", it "conceals". In fact, power produces; it produces reality; it produces domains of objects and rituals of truth'.[9]

Nevertheless, as the examination of dunamis identified, *it is* possible to discursively address the issue of power at a generic level, in a manner that only secondarily involves moral and normative dimensions or considerations of contextual nature, such as the various specific forms through which contingent power structures crystallise and power relations become particularised in given historical and socio-political contexts.

(β) Power Beyond Possession

As we saw, dunamis *qua* potentiality refers both to an origin of change, as well as a capacity—dunamis' fifth conceptual feature. On account of this feature, dunamis can better be understood as a *process* rather than merely a 'possession' which can be transferable, conferrable, tradable or bequeathed.

The implicit or explicit postulation of power as a possession is, unarguably, a rather common interpretation present in various contemporary accounts.[10] The conflation between the two notions is reflected in the very language commonly employed to describe

[8] Barry Hindess, *Discourses of Power: From Hobbes to Foucault* (Massachusetts: Blackwell 1996).

[9] Michel Foucault, *Discipline and Punish: The Birth of the Prison* (London: Allen Lane, 1977), p. 194.

[10] P. Morriss, *Power: A Philosophical Analysis* (Manchester: Manchester University Press, 2002); J.E. Isaac, *Power and Marxist Theory: A Realist View* (Ithaca: Cornell University Press, 1987); Hanna Fenichel Pitkin, *Wittgenstein and Justice* (Berkeley: University of California Press 1972).

power relations or the phenomenon itself—for instance, in linguistic formulations of the kind '*A* ***has*** power *over* B' or 'A ***has*** power *to* do X'.[11] Aristotle's account, however, does not really accommodate such perception. Power qua dunamis is not something we *hold*, but rather something we *manifest*, it is not a possession but a 'state' we relate or enter in to, a modality of being we (or, to that effect, societies as examples of collective being) assume. The qualities this 'trope of being' can demonstrate, or the manners in which it can be exercised, are innumerable and, most probably, predictively inexhaustible.

In that sense, dunamis can be seen as bearing *some* similarities with the Foucaultian view of power as *capillary*[12] (i.e. power that stretches and spreads out even to the smallest aspects of life and society), to the extent that it views the issue of 'power' as a more subtle, intangible and elusive *operation* constituted by the various complex, fluid *internal* processes of individuals, as well as an ever-present feature of individual and collective life extending beyond institutionalised consolidations of power expressions. Although the connections between the two authors is not a topic that has received sufficient attention in the existing literature, nevertheless certain scholars, for instance Judith Butler, have perceived some interesting parallels between the two approaches. Butler, particularly, claims that Foucault's theory is in fact invested upon a certain implicit reworking of the Aristotelian formulation of the soul and the essential internality of power.[13] Yet, dunamis *could not* be accurately accommodated within Foucault's *capillary power* model, since Aristotle posits and grounds the issue of dunamis' ubiquity and multifacetedness upon a

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[11] F. E. Oppenheim, *Political Concepts: A Reconstruction* (Chicago: University of Chicago Press, 1981).

[12] Michel Foucault, 'Two Lectures' in *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, Colin Gordon (ed.) (New York: Pantheon Books, 1980) pp. 78-108, esp. p. 96.

[13] As she argues, 'we can understand Foucault's references to the soul as an implicit reworking of the Aristotelian formulation in which the soul is understood to be the form and principle of the body's matter' (Butler, 1997, p. 89). For a more elaborate discussion of this, see her *Bodies that Matter: On the Discursive Limits of Se*x (New York: Routledge, 1993), pp. 32-36.

clear and rigorous ontological foundation (which is further elaborated in a systematised theory of the soul), which Foucault is hesitant and theoretically ill-equipped to sufficiently account for, although unsuccessful in not beckoning its theoretical-justificatory necessity. Whereas Aristotle is clear in demarcating that the subtler and ever-present features of dunamis are owed to the fact that dunamis relates to the very *structure of being*, Foucault lacks the necessary ontological concessions in order to address the apparently analogous ontological suggestions his theory of power implicates as its embedded meta-theoretical assumptions.[14] As Butler argues, 'Foucault is notoriously taciturn on the topic of the psyche, but an account of subjection, it seems, must be traced in the turns of psychic life'.[15] And so, without such provisions, collapsing the two accounts together would not only propound yet another form of comparative parochialism, but would also do little justice to Aristotle's account, which evidently appears to have something more, or at any rate different, to say than Foucault on the issue of power.

Moreover, Aristotle's conceptualisation does not overemphasise the idea of resources or capacities as aspects of dunamis. In his conceptualisation, we discover the possibility of a formulation which does not advance the concept of capacity as the quintessential core feature around which power's morphology is to be (necessarily) structured. In this way his perspective offers an alternative to the presently numerous approaches which have tended to overstress the importance of capacities, often to the extent at ending up equating the two

[14] On the self-contradictory aspects of Foucault's treatment of normativity, ontology and metaphysics see Charles Taylor, 'Foucault on Freedom and Truth', *Political Theory*, Vol. 12 (2) (1984), pp. 152-183 (esp. pp. 162-165) and Nancy Fraser, *Unruly Practices: Power, Discourse, and Gender in Contemporary Social Theory* (Minneapolis: University of Minnesota Press, 1989), chapters 1-3, esp. pp. 22-35.

[15] Judith Butler, *The Psychic Life of Power*, p. 14.

concepts.[16] As we saw, dunamis as capacity and as potentiality does not signify nor amounts to potency *per se*. Rather, dunamis indicates the *precondition for potency*, which *may* arise as a result of a dunamis (or a set of dunameis) being exercised. As was elaborated, what Aristotle deemed of primary importance, as far as the shaping of reality is concerned, is action, as well as the *factual* realisation of capacities or potentialities: a dunamis alone, if not actualised into some form of event, is only of limited importance and impact-bearing significance. Ergo, dunamis alone is not power.

Comparing this historically distant account of dunamis to modern conceptualisations, we observe that the latter have tended to assign a greater weight to the notion of capacity as a core feature of power, as well as to conceptualise capacity-qua-power in a considerably different way than classical discourse. Further to the fact that several modern interpretations have largely reduced power to a calculation of resources and capacities, some of them have perceived of capacities as objective, empirically observable and measurable 'assets', usually perceived as strictly material in nature. Thus we observe that a largely materialist and an essentially empiricist conception of capacities as 'distributable commodities' has generally been purported by key currents of thinking about power in political theory.[17] Furthermore, there has also been a tendency to identify the notion of capacity with a particular *kind* of material entity or commodity, such as

[16] Walter Korpi, 'Power Resources Approach vs. Action and Conflict: On Causal and Intentional Explanations in the Study of Power', *Sociological Theory*, Vol. 3 (2) (1985), pp. 31-45; P. Morriss, 'Power and Liberalism', in S. Clegg and M. Haugaard (eds.), *Handbook of Power* (London: Sage, 2009), pp. 54–69. Relevant terminology often refers to power as 'power resource' which becomes 'distributed' across actors or classes according to 'set of preferences'. A similar approach has dominated International Relations discourse on power. For example, 'power derives from strength and will. Strength comes from the transformation of resources into capabilities', Chas. W. Freeman, Jr., *Arts of Power: Statecraft and Diplomacy* (Washington: United States Institute of Peace Press, 1997), p. 3.

[17] Herbert A. Simon, 'Notes on the Observation and Measurement of Political Power', *The Journal of Politics,* Vol. 15 (4) (1953), pp. 500-516. Also refer to the thesis' Introduction and Chapter IV.

'money, 'wealth', 'capital', etc., which has also occasionally led to the identification of power with one of those particular 'assets'. This has often resulted in reductionist, partial and over-simplistic theoretical formulations of the kind 'money is power' or 'capital is power', and so forth.[18] Although this conceptual tactic has often been baptized by the name of 'realism', there exist multiple objections with regards to whether this approach actually grasps and is able to describe adequately the range, richness and multidimensionality of our real-life experience of phenomena of power.

Consequently, although capacity has generally been recognised across historically specific discourses as one of the key features of potency (whether in the case of dunamis or, in Morriss' words, in the perception of power as 'ableness'[19]—a definition which even Steven Lukes,[20] who initially appeared to object to it, eventually accepted as valid), nevertheless, we observe that the modern conceptualisation of capacity is considerably different to its classical counterpart. Dunamis refers to capacity in the sense of a *possibility* or *tendency*, rather than an asset. Under this interpretation, capacity is not necessarily equated with, but neither can it be measured by, something strictly tangible or material, nor does it refer to an already established state of affairs (e.g. capacity as a concrete possession, a state of authority, establishment, control or embedded potency). On the contrary, capacity as a core feature of dunamis integrally incorporates the elements of

[18] Identifying power with capacities, and capacities with tangible, quantifiable and weighable assets, International Relations Theorists have even come up with a measurable indicator of power, the *'Composite Indicator on Aggregate Power'*. This involves the composite measurement of 54 indicators and covers the capabilities of 44 states in Asia Pacific from 1992 to 2012. See Enrico Fels, *Shifting Power in Asia-Pacific? The Rise of China, Sino-US Competition and Regional Middle Power Allegiance* (Berlin: Springer, 2017), pp. 225-340; also T. Parsons, 'On the Concept of Political Power', in idem, *Politics and Social Structure* (New York: Free Press, 1969), pp. 352-404.

[19] Peter Morriss, *Power: A Philosophical Analysis* (Manchester: Manchester University Press, 2002).

[20] I am indebted to my supervisor, Professor Michael Freeden, for bringing to my attention this point regarding Lukes' revision of this issue in his 2nd edition of his influential book ['*Power: A Radical View'*, 2nd ed. (Basingstoke: Palgrave Macmillan, 2005), pp. 13-15)].

uncertainty and indeterminacy, which thereby impart the notion with a lighter nuance and a greater sense of fluidity than modern understandings of power as capacity or ability.

Moving on, as with capacity, the concept of power in contemporary discourse has often been perceived as a more or less 'rigid' and resolute state of affairs. A further recurrent feature, as noted in the Introduction, is that the term is often used in ways which suggest a 'stronger' reading of power as a kind of currency, 'authority' or 'domination', i.e. as a concrete, established, objective, at variable degrees resolute, and, often, authoritative state of affairs.[21] Frequently, this sense of rigidity shading the concept follows from the overstating of material resources as inputs to power (often regarded as power in themselves), such as, for example, in resourcist accounts of power;[22] or, equally, as briefly noted, by the overemphasis placed on the quantitative aspect of those resources which are taken to count as capacities pertinent to power.[23] As such, in the majority of modern readings, power has been traced as *conceptually adjacent* to ideas such as 'possession', 'ownership', 'getting', 'seizing'. An interesting implication stemming from this is that, despite attempts to shift the conceptualisation of power away from the interpretative tendency to identify it with authority, our discourses still display a residual underlying understanding of power as an established state of domination *qua* authority, i.e. a relatively solid, rooted state of affairs, characterised by its bearing a more or less persistent impact onto the world and the way events are shaped, structured and unfolded

[21] For a good critique of this standard view see A. Allen, *The Power of Feminist Theory: Domination, Resistance, Solidarity* (Boulder, CO: Westview Press, 1999), esp. pp. 120-128.

[22] The debate between Morriss and Dworkin regarding the scope of the notion of ability and its appropriate relation to the idea of material resources is a good example illustrating the issues at stake. An informative analysis of this is presented by Keith Dowding in 'Power, Capability and Ableness: The Fallacy of the Vehicle Fallacy', *Contemporary Political Theory*, 7 (2008), pp. 238–258.

[23] Kenneth Waltz's, *Theory of International Politics* (London: Addison-Wesley, 1979).

within it.[24] This position, however, in many ways represents a conflation of power with establishment—a notion which, in Aristotle's system of thought, would be better captured by the concept of actuality rather than dunamis.

In light of the above critical observations, our exploration of dunamis enables us to reframe our thinking about power in accordance with a different reading of potency. This interpretation introduces potency as a more fluid situation (pertaining to dunamis' second feature of motion), which can be described as a grounded current pointing in one or several directions, in terms of the practical manifestations it engenders, but which, nonetheless, specifies nothing more than the primary resource, the background and the initial 'push' required for the occurrence of an event. Dunamis is a *possibility* for action, and as a possibility, it entails *both* an element of certainty and uncertainty—i.e. it is probabilistic. It implies certainty because whether a capacity exists is a matter of 'objective' fact, and dunamis *qua* capacity specifies precisely the objective existence of a *disposition* or a *propensity* towards performing certain actions or manifesting certain states of being (for example, fire *objectively* has the capacity to warm, my arm the ability to raise, my intellect the ability to perceive, etc.). Yet, at the same time, dunamis also bears an element of uncertainty, because whether this objective capacity will successfully be streamed towards actualisation in real life will depend on a variety of factors (the fire may never light up, or it may light up and be extinguished before it starts to heat up, and so forth). It follows that the exercise of a dunamis, the realisation of an actuality and the

[24] This applies even for interpretations of power which are supposed to have moved past this tendency in conceptualisation, such as post-structural readings, such as Foucault's.

emergence of potency, intrinsically involve an element of indeterminacy, thereby constituting more fluent, non-deterministic situations, and, largely, chance events.[25]

Drawing from the above analysis and summarising the main findings of the present conceptual examination, the following possible interpretations can be construed regarding both existing and potential future conceptualisations of power.

1. *Capacity Alone is Not Power.* The comparative study of dunamis helpfully fleshes out some of the reasons why capacity alone cannot be considered as power—a position which has been rather popular among contemporary scholars of power.[26] Our analysis demonstrated that there exists another possibility for interpreting power, which is not necessarily capacity-centred; for, actuality [*energeia*]—dunamis' counterpart notion standing for activity, actuality, outcome, motion, or the state of 'being-at-work'[27]—may be identified as conceptually closer to the idea of potency than its supposedly semantically corresponding concept of dunamis. This position obtains precisely in light of the theoretical postulation of dunamis as an ambivalent state intrinsically involving an element of indeterminacy with regards to its standing in the world of events, which stems from the

[25] Interestingly, we find this idea of chance as relevant to power in modern approaches too, such as Weber, according to whom power is 'the *chance* of a man or a number of men to realise their own will even *against* the resistance of others who are participating in the action'. See M. Weber, *Economy and Society: An Outline of Interpretative Sociology* (Berkeley: University of California Press, 1978), p. 926; italics my addition. Moreover, Barry and Dowding discuss the relevant distinction between 'luck' and 'power', where luck is defined as 'the probability of getting what you want without trying' and power as 'the probability of getting what you want if you act in all possible worlds which are the same as the actual one with the exception of the preferences of all other actors'; K. Dowding, *Power* (Buckingham: Open University Press, 1996), p. 52. Also, B. Barry, 'Is it better to be powerful or lucky? Part 1', *Political Studies*, 28 (2) (1980), pp. 183–194.

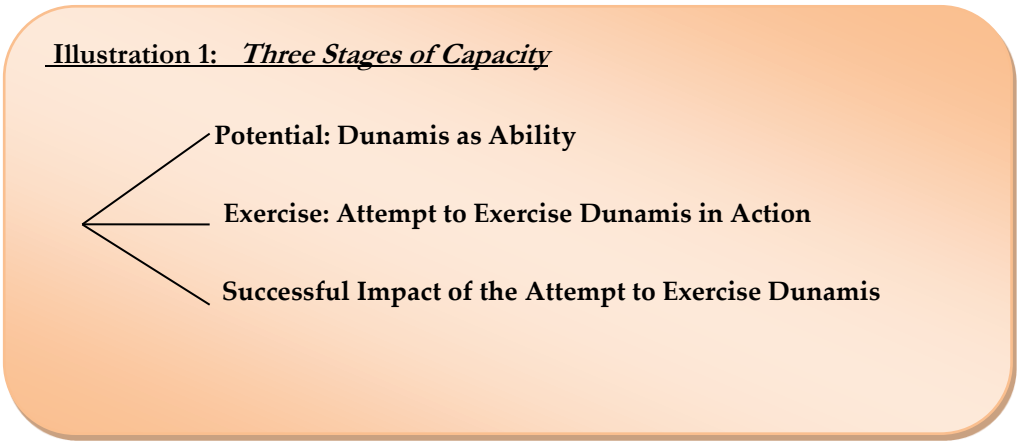
[26] Especially in the field of international relations, for example, in Luckacs, Parsons, etc. For a most elaborate account regarding this issue see Barry Hindess, *Discourses on Power: From Hobbes to Foucault* (Massachusetts: Blackwell, 1996).

[27] See Makin, op. cit.

inherent possibility of its non-realisation. For this reason, dunamis qua capacity partly signifies a more tenuous or 'weaker' state of affairs, as it conceptually represents a more inconclusive situation compared to its correlated actuality.

Consequently, demonstrating capacities—or, as our current terminology would linguistically frame it, the 'owning' of resources—is of importance in proportion to the degree to which these capacities are (or can be) exercised; as well as, more specifically, to the extent to which they are exercised *successfully* and thus become practically transformed into their correlated actualities. Being in possession of resources or exhibiting capacities without using them (as a more static view of capacities and power would have it) could then, under a different light, be interpreted more as a sign of impotence rather than potency. For example, what difference does it make if one is entitled to a large property or fund if one cannot access it and make use of it, and, likewise, what value is there in having access to a property that one is not entitled to use? In both cases, no change can originate from the agent, no impact can be brought about onto the world, and, therefore, the agent can hardly be considered as relating to the quality of power. Similarly, with respect to the reading of capacities as abilities, what *practical* difference does it make if a person possesses a natural talent for playing the violin, if she never actually gets to hold a violin in her life? And how can the music that could potentially be produced by the finest Stradivarius actually bear any impact so long as there is no one who can play it and release its fine sounds into the world? If a capacity is not *activated* or performed in real life, no effect of change can originate from it and therefore, in those cases, capacities cannot be said to have served (or been fulfilled) as loci of potency. It follows then that capacity is not identical to power, but that neither can it be simply understood as a resource or a reservoir of potency.

Through a critical reading of Aristotle, the following interpretative formulation can be submitted, suggesting that, to the extent that capacity is relevant to power, it can more accurately be captured as proceeding in three steps, or as consisting of three crucial features, forming the following notional triptych illustrated in the diagram below (Illustration 1):



(i) The *existence* of a potential (dunamis) in the form of resource *and/or* ability from which action can follow (e.g. in the above example, the possession of a Stradivarius violin *and* the correlative ability to play it).

(ii) The *attempt* to exercise this potential/ability or resource in practice—that is, the attempt to *enact* it through (inter) action and exercise (actually getting hold of the violin and practically attempting to play it).

(iii) The *successful* impact of the attempt, (actually accomplishing the production of music after having got hold of the violin and successfully attempting to play it).

The presence of all three conditions is deemed necessary for change-producing effects to take place, which, consequently, may or may not develop into a situation of potency. The above interpretative reflections therefore prompt us to a more probing and intricate understanding of capacity qua an input or aspect of power.

2. *Actuality is conceptually closer to power than dunamis.* A second observation concerns certain further points of conceptual divergence between the classical and modern perceptions of power. Further to its attribute of ambivalence, the classical interpretation of dunamis was also traced to involve a correlated sense of fluidity, rather than a sense of firmness or concreteness.

Notwithstanding, from the perspective of modern discourse, power (let us be reminded, still as translation of dunamis) is generally associated with parameters such as impact and effectiveness of action, establishment and authority.[28] All of those terms are accordingly nuanced with a sense of firmness, since they imply a more or less established, rigid, and thus already achieved, position of influence or control over a course of events—a status quo, as it is often referred to, literally standing for the dominant state of affairs in which practices have already been patterned and crystallised. Yet, in contradistinction, dunamis indicates a trend, a stream of possibilities and possible events that may or may not come to be. It denotes an inclination towards an end state or goal, along with an impetus towards its manifestation. However, precisely because it incorporates the inclination towards its actualisation, this conceptualisation implies that capacities are not merely dormant or passive but rather 'pregnant' states of affairs. Thus, in this respect as well, contemporary discourse offers a distinctively different picture of power than the classical understanding of dunamis.

Moreover, along with this underlying attribute of rigidity, nowadays power is often conceptually correlated with the idea of *exercise* of capacities, with substantiated and observable outcomes, established institutional practices, with the very idea that practices foster relations of power—all of which have been postulated as affecting an agent's

[28] As Freeden notes, 'the concept of authority is inextricably and specifically associated with the concept of power—it always 'call(s) up the concept of power' in order to be defined' (Freeden, *Ideologies and Political Theory*, pp. 66-67).

behaviour and her environment by bringing about or maintaining concrete states of influence, impact and so forth.[29] Certain post-structuralist strands take this argument even further by conceptualising power primarily as an activity, leaving out considerations of capacities altogether. The most notable example of such treatment is Foucault's, who summarises this position succinctly in his claim that 'power is neither given, nor exchanged, nor recovered, but rather exercised, and that it only consists in action'.[30]

This discrepancy existing between the classical understanding of dunamis qua potentiality and capacity qua trend, on the one hand, and the modern perception of power as impact, exercise, establishment and/or outcome, on the other, serves as a crucial indication that the notion of actuality is in certain respects conceptually more compatible with the modern concept of power, even if—somewhat paradoxically—it is dunamis that is still being considered as power's semantic equivalent. Therefore, if power is to be interpreted as relevant to the ideas of impact and practical effectivity, as well as to the way

[29] This rather common view of power has been advocated by a number of influential theorists—albeit in different ways and from different traditions, including Robert Dahl, Nelson Polsby, Brian Barry, Bachrach and Baratz, etc. [See R.A. Dahl, 'The Concept of Power', *Behavioral Science*, Vol. 2 (3) (1957), pp. 201-215; Nelson W. Polsby, *Community Power and Political Theory*, 2nd ed., (New Haven: Yale University Press, 1980); Brian Barry, 'Power: An Economic Analysis', in Brian Barry, *Democracy, Power and Justice* (Oxford: Oxford University Press, 1989), pp. 222-269, (esp. pp. 227-8); P. Bachrach, M. S. Baratz, 'Two Faces of Power', *The American Political Science Review*, Vol. 56 (4) (1962), pp. 947-952]. Lukes argues that pluralism and, even more so, behaviouralism, espouse such an understanding of power; this, however, he deems problematic, for he considers it to be committing what he refers to as the 'exercise fallacy': the view that 'power can only mean the causing of an observable sequence of events', or tangible outcomes emanating from intended action. Such view misleadingly conflates power 'with success in decision-making' and prevalence *over* others in conflict situations. Steven Lukes, 'Power and the Battle for Hearts and Minds', *Millennium*, 33 (3) (2005), pp. 477-479; *Power: A Radical View*, 2005. For an interesting critical discussion see also Freeden, op. cit., 2013, pp. 302-303; D.L. Swartz, 'Recasting Power in its Third Dimension (Review of Steven Lukes, Power: A Radical View)', *Theory and Society*, 36 (1) (2007), pp. 103-109.

[30] Michel Foucault, 'Two Lectures', in *Critique and Power: Recasting the Foucault/Habermas Debate*, Michael Kelly (ed.) (MIT Press, 1994), p. 28.

practices are organised, then it follows that it is actuality [*energeia*], rather than dunamis, that is conceptually closer to contemporary perceptions of power.

3. *Potency resides in the procedural field between potentiality and actuality.* Following on from the above, a capacity cannot *alone* bear much influence on the world. Also, the performance of any single action cannot serve as a source of firm and prolonged impact. Therefore, it is neither the mere possession of a capacity/resource, nor the manifestation of any single kind of action at a given time which can exhibit the properties of a fairly firm, recurring and effective shaping of reality—properties which, according to contemporary currents of thinking, would be required for ascribing an entity (be it a person, a situation, an institution, a group or a structure) the status of power. This is because power has been largely conceptualised as requiring the demonstration of a prolonged change-bearing impact onto one's surroundings, and, in this sense, it has been closely associated with the idea of *duration*.

However, whereas neither the concept of potentiality nor actuality can alone contain the rich semantic load entailed by the modern concept of power, there is a possibility that the features of *effectiveness*, *establishment* and *forcefulness* (characteristic of power) could be conceptually located as properties pertinent to the joint operations of the pair concept 'potentiality-actuality', and, more specifically, as properties emerging in the *passage* from potentiality to actuality. It is, as such, neither of the two states individually, but, rather, the *process* of transition and, particularly, the flexible and recurrent successful transition from a state of potentiality to a state of actuality (and vice versa), which, simultaneously, serves as the site and source of impact-bearing and change-producing activity. Therefore, the quality of potency, in the modern sense of the term, can be traced as arising somewhere along the conceptual space designated by potentiality and actuality.

Interestingly, Heidegger reaches a similar conclusion regarding the scope of signification of the concept of dunamis. In criticising Nietzsche's account of power on the grounds that it conflated the idea of power (*Macht*) with the notion of force (*Kraft*), failing to adequately distinguish between them, and while attempting to build conceptual bridges between the concept of dunamis and modern conceptual variants of power, Heidegger argues that dunamis encompasses both notions of power (*Macht*) and force (*Kraft*) (where force is the name he gives to dunamis qua capacity and origin of change). As he claims,

> *Force*, the capacity to be gathered in itself and prepared to work effects, to be in a position to do something, is what the Greeks (above all Aristotle) defines as dunamis. But power is every bit as much a being empowered, in the sense of the process of mastery, the being-at-work of force, in Greek, energeia. Power is will as willing out beyond itself, precisely in that way to come to itself, to find and assert itself in the circumscribed simplicity of its essence, in Greek, entelecheia. For Nietzsche power means all this at once: dunamis, energeia, entelecheia.[31]

What marks a difference upon the world and what, more importantly, can *entrench* that produced difference onto the world, what may yield effects of change or maintenance of given states of affairs, rests in the *process* of transiting from a state of capacity/ability to a state of actuality—and vice versa, where this process is considered *in its entirety*.

This alternative interpretative perspective on dunamis provides helpful criteria for assessing the impact or potency an agent bears on her surroundings. Accordingly, all of the following parameters would need to be taken into consideration in order to navigate through the exploration of phenomena of power at a social level: what material and mental resources are available to agents? Where do the effects of impact stem from—i.e. what are the sources of one's actions, based on the resources which are available to her

[31] Quoted in Brogan, op. cit., pp. 110-111.

(ontologically, materially, emotionally and intellectually)? How do these resources function, both individually and jointly, and what tendencies do they entail and prescribe? Crucially, how are these successfully transformed into action and practices, i.e. what is the degree and level of success of their conversion into actualisation? At what frequency and intensity does this process of successful conversion occur? And, finally, what is the duration of these effects, namely, to what level and extent do these actions and practices become entrenched in the agents' surrounding context?

Activity, change and power can all be traced as properties or products emerging at the level of the intermediate procedural field constituted by the *joint* operations, interactions and transitions between potentiality-actuality. The degree, success, frequency, intensity and variety of transitions from one state to the other form the key factors which can provide an indication regarding an agent's state of potency. What can then be identified as determining the existence of potency is the *rate of conversion* of capacities into actions, *as well as* of actions into capacities—where the concept of rate implies frequency and thus, indirectly, duration.

The latter point is partly accounted for by the consideration that when a potentiality is actualised new potentialities are created or made possible out of the attainment of its actuality, which can, in their turn, as new types of potentiality/capacity, be used to produce action, and so forth. The end-product of a dunamis' successful conversion into actuality is very often the emergence of a new dunamis, which may subsequently serve as the starting point of a new dunamis-actuality relation. Prior actualities may thus eventually become themselves resources for new actualities to emerge. This indicates a two-way movement between capacities and actualities. Accordingly, the above interpretative formulation may be complemented by the appreciation that potency consists both in the successful

conversion of a capacity into action, as well as, simultaneously, the ongoing generation of new capacities out of given patterns of practice.

4. *Potency can be epistemologically deduced by actions and activities, yet it is not exhausted by them.* On an epistemological level, the above interpretation of potency implies that an agent is said to be powerful, or a relationship of power may exist, to the degree in which the agents involved transform some of their potential capacities (dunameis), through exercise, into action. Further to (1) above, this would imply that, ultimately, any relationship, situation or effect of power can be observed in and inferred by actual situations and events.

Such a reading of Aristotle's account appears possible in light of his inductivist methodological preference. This implies that it is from the observation of 'real-time' events and structured conditions, that one can discern the underlying procedures which trigger them into reality. Yet, more than merely a point of general epistemological significance, this understanding also entails particular methodological repercussions regarding the range of approaches theorists of politics can adopt in discerning power relations. For instance, were we to apply this interpretation at the level of social affairs, it would, accordingly, suggest that in order to ascertain the kinds of dunameis at work in a society and study their effects, one would simply need to observe the *practices*, events and structured institutions manifesting within the given social context.

Nevertheless, an important counter-argument against such an interpretation is that it evokes some form of methodological realism that constricts power to the tangibly observable. This poses a crucial limitation to an account of power since *manifested* actions alone do not suffice in providing the whole story regarding the formation and function of relations of impact and change. For example, such a reading is inadequate for accounting for those cases where a set of resources/capacities has been set in motion and entered the

process of transition from potentiality to actuality, but which, however, have not yet, at the time of observation, fully accomplished the transition into culmination of real situations, *even though* the procedure of their actualisation has been elicited. Furthermore, not all dimensions at which power relations may possibly occur are tangibly observable or empirically discernible, as in the case of intellectual, emotional and psychological interactions. Finally, there is also the possibility of failed attempts to exercise a capacity in action. In those cases too, our observation of lack of actualisation (i.e. the observation that 'nothing has occurred or manifested') would be inadequate in accounting for the efforts and processes involved—albeit fruitlessly—in the attempt to enact potentialities in practice and bring about effects of impact in observable manners. Therefore, although the observation of 'hard facts'—in the case of society, *de facto* practices, institutions and relations—is a crucial aspect in the ascertaining of existing power relations, it does not exhaust the various dimensions, levels and mechanisms involved in the formation and playing out of relations of potency.

However, it can be argued that, despite its appreciation of the empirical aspects of dunamis, Aristotle's account is not strictly empiricist—i.e. it does not necessarily focus on externally observable phenomena or 'concrete facts'. This point will become clearer as we move along the third chapter, where the internal psychological dimension of power relations is examined. Yet, as it was earlier conjectured, the conceptualisation of dunamis can be interpreted as placing its emphasis neither *solely* on capacities, nor entirely on practices and actualised effects, but, instead, on the patterns of interaction, interrelation, exchanges and interconversions between the two; thus it would be inaccurate to conflate the priority assigned to actuality with an understated preference for inductivism. Accordingly, Aristotle's perspective can be alternatively read as merely maintaining that there is an important signalling operation embedded in manifested activities.

The interpretation hereby suggested avoids the possible setbacks discussed above, and can plausibly account for the cases of time-lags between exercise and actualisation, as well as failed attempts to exercise dunamis. As a more general conclusion, we may infer that Aristotle's conceptualisation of dunamis *qua* potentiality and the common contemporary view of power seem to share a theoretical commitment to the practical significance of actions and practices both as methodological heuristics as well as crucial (yet not necessarily exhaustive) characteristics of potency.

(γ) Internal Phenomena, Being-potentially and Becoming

As far as dunamis' third, fourth and sixth conceptual features are concerned (i.e. 'potentiality and actuality', 'intelligibility' and 'becoming'), our discussion mainly focused on the interesting idea that dunamis forms part of a contrariety. As we saw, contraries involve an element of intelligibility. In this capacity, they bear the status of discursive heuristics and tools for rational analysis, which help us ascribe meaning (intelligibility) to the world or, at any rate, perceive meanings already entailed in physical and social processes. Contrarieties were therefore shown to be crucially relevant to the domain of human perceptions, reason and formation of meaning, thereby also relating to dunamis' fourth feature of intelligibility.

Correspondingly, the contrariety of dunamis-actuality can *also* be interpreted as intimately relevant to the realm of perceptions. More particularly, it can be interpreted as providing a locus of meaningfulness. This suggests that dunamis does not simply refer to a process or a state of affairs 'out there' but, rather, it intrinsically involves—as well as it is constituted by—*our perception of it*, since it forms an integral part of the very processes through which meanings are generated. Dunamis can thus be plausibly interpreted as partly involving a phenomenological aspect, precisely because the term captures at once the factual ('mechanical' as it were) behaviour of things/agents, as well as, *concurrently,*

our *perception* of this behaviour, as this is triggered by the processes of interaction and exchange between the relevant contraries.[32]

By extension, a further important implication is that relations of potency serve as a site for the production of meaning. Part of this meaning-generative function is attributed to the fact that power relations intrinsically involve the element of difference, which, as we saw, is intimately related to contrarieties and the correlated mechanisms of emergence of meaning. It follows that the discernment of what power is, and how it functions within a socio-political context, would also have to be traced at the level of cognitive patterns, ideological interactions and intellectual production at all levels of social stratification, especially in view of the fact that the social divisions partly emerge from cognitive divisions between members or groups of the polity occurring at the level of thinking.

Moving on, pertinent to dunamis' third feature are also the ideas of 'being in potentiality' (*dunamei*) and 'being in actuality' (*energeia*). The idea of 'being in potentiality' offers an alternative understanding of power not simply as something that can be owned or taken hold of (i.e. a possession), but rather as an *active situation* (expressed in the verbial form *dunamei*). Consequently, it may be interpreted as a state of being that is exhibited, embodied or even integrated by an agent, in which case it partly forms an attribute of her being. As such, potentiality and actuality as contrariety also descriptively delineate a state of becoming which is flux, and wherein which power exchanges shape both the 'power receiver' and the 'power holder'.

[32] This may sound like a variant of phenomenological thinking (and indeed in some respects the development of phenomenology has been influenced by Aristotle; see Heidegger, op. cit.). However, what underlies Aristotle's view on this point is that the physical world cannot be disentangled from our perception of it, and hence by the element or energy of intelligibility which he sees as forming equally a part of nature as matter itself, running through and intertwining with all material processes. This suggests that Aristotle avoids a dualism between the 'physical world' and 'the mind', offering an interpretation which views matter and thought to be functioning jointly.

The following interpretative repercussions can be extrapolated from the above. In the first place, describing dunamis—and particularly the exercise of dunamis—in adverbial form implies moving away from an understanding of potency as a passive possession—a 'thing' (as its nominal form conveys) or a 'commodity' which can be somehow 'owned' and thereby traded or possibly exercised as a possible outcome, handling or management of its ownership. Instead, the adverbial form of dunamis conveys the conception of potency as constitutive of the agents involved in its expression. Therefore, it could be argued that, in certain cases, at the moment of the exercise of a certain dunamis, agents identify both with the capacities and the activity which they manifest (just as in Aristotle's example, the eye, in seeing, identifies with the action of sight and the vision it produces). Hence, in certain respects, dunamis becomes exercised precisely *through* its identification with the agent.

Accordingly, in between the relatively more 'solid' states of being of 'having a capacity' and 'exercising and accomplishing a capacity in action', there exists an interceding process of becoming within which both states mutually inform each other in the making. As we saw, an agent of dunamis transforms the object towards which she acts as 'a source of change', inasmuch as she is herself transformed as a result of achieving the actualisation of a dunamis which previously rested inactive within her. At the moment of the exercise of dunamis, both agent and object interactively co-constitute the field of becoming. Since both of them may concurrently undergo processes of change and transformation, the distinction between 'agent' and 'recipient' (and thus also between the very notions of 'subject' and 'object') becomes blurred, less palpable and less apparent.

This interpretative possibility evidently puts forward a highly sophisticated understanding of potency, whereby the very situation of potency and the agents forming part of it may be, likewise, considered to be identified at the moment of exercise.

Consequently, in exercising a certain dunamis, an agent does not occupy an 'objective' static place somewhere outside the interaction, but actually *participates* in exercising it in various complex and mutually-shaping ways.[33]

(δ) Passive Agency

In view of the Aristotelian conception of the will as inherently constitutive of the internal intellectual and psychological processes leading to the performance of actions that render individuals agents of dunamis, and in conjunction with his notions of active and passive dunameis, the above interpretation entails certain probing implications regarding possible readings of agency.

1. The idea of passive agency. Although the idea of active dunamis—defined as 'what it is about one thing in virtue of which it can produce changes in another'[34]—is ascribed a privileged conceptual role in Aristotle's account, the notion of passive dunamis was also detected as assigned with greater significance than what we usually encounter in modern discourses on power. Dunamis does not necessarily presuppose or require a form of active agency. To 'qualify' as an agent of dunamis—or, an agent of potency—does not precipitate the performance of externally-oriented actions which are actively and overtly impacting upon others. This is because to be able to receive or withstand a dunamis can itself be considered as a particular kind of dunamis, and thus as a modality of power.

2. The idea of passive dunamis suggests a notion of passive agency which broadens the scope of inclusion of the term 'agency'. This is a crucial point for, nowadays, the prevailing discursive interpretations of agency as capacity for autonomous action, freedom of deliberation and choice, understand the concept mainly through the ideas of activity or

[33] Contrary to the view of power as authority, where, for instance, power is equated to a sovereign ordering of subjects, which bears the *active* role of ordering subjects which *passively* obey it.

[34] Makin, 'Actuality and Potentiality', p. 401.

action, rather than passivity and reception. Contemporary understandings of agency are principally oriented around this dimension of purposive activity, accentuating the active aspect involved in questions and practices of autonomy and deliberation. In parallel, they implicitly downgrade passivity and reception, often projecting them as forms of subjectification which are often regarded as running counter to their normative aspirations of autonomous agency. Indeed, the features of reception and passivity are sometimes viewed as contradicting normative ideals of agency that are currently popular amongst various strands of political theory (such as certain variants of feminism and Marxism). Agency as a descriptive term, as a norm, as well as a substantiation of moral prerogatives (such as liberty, equality, self-authorship), has been largely identified with action.[35]

Significantly, a different reading of agency becomes possible. In the first place, the reception of an active dunamis is a necessary aspect of its exercise. Without the possibility of reception, the possibility of exercising dunamis is eliminated.[36] The exercise of a dunamis is thus partially a function of the prospect of being received; thereby, power depends both on the recipient *as well as* the power 'holder' [P= *f* (agent), (recipient)].

Further to those relatively simpler attributes assigned to passive agency, Aristotle's account additionally entails the far more complex thesis that the exercise of a dunamis is

[35] For an excellent discussion regarding the concept of agency in contemporary debates in political theory see Lois McNay, *Gender and Agency: Reconfiguring the Subject in Feminist and Social Theory* (Cambridge: Polity Press, 2000). Extremely rich and variable perspectives on this issue have been provided by feminist thinkers. The debate over agency is multifaceted and rather complex (see for example Judith Butler, 'Contingent Foundations' in Seyla Benhabib et al., *Feminist Contentions: A Philosophical Exchange* (New York: Routledge, 1995), pp. 35-58; Amy Allen, *The Politics of Ourselves* (New York: Columbia University Press, 2008). Nevertheless, the idea of activity can still be traced as a common conceptual denominator of most theoretical formulations.

[36] This concerns the cases where the agent and the recipient do not coincide. Using contemporary terminology, this idea appears to resemble the existing view that power does not exist without a subject. Nevertheless, the present analysis suggests a different reading of passive agency which exceeds the identification of passivity with either active or passive subjectification.

only possible *because* it triggers into actuality a dunamis already residing within the recipient end. Whether an active dunamis will be *enabled* to be exercised, and, more particularly, the success of its exercise in the form of an impact-bearing actuality, is directly proportional to a demonstration of the passive capacity to receive it. Tellingly, the very capacity to receive and be shaped by the exercise of a dunamis itself constitutes a dunamis, as much as the active change-producing force. In other words, to *be changed* is interpreted as an *act*, because causing something else to change triggers its own set of responses. Ergo, being changed or receiving a change-producing dunamis implies some form of agency. It is this idea which, in Aristotle's thinking, is captured by the notion of passive agency.

Hence, the following claims about agency can be made, as far as power relations are concerned. First, a passive agent in a weaker sense, enables, while, in a stronger sense, allows or even permits a given interaction of dunamis to take place. By passively permitting to be exercised upon by an active agent the recipient of a dunamis *acts* conducively, and thus also as an *agent* (even though a passive one) in the carrying out of the interaction *viewed from the perspective of the event of the interaction*.

Along the same lines, instead of viewing the exercise of dunamis by an active agent as something restrictive, threatening, intrusive, interfering—i.e. seeking to suppress or exploit the passive agent,[37] on the contrary, an acting dunamis can in some cases be alternatively interpreted as enabling, even as beneficial: it can enable the passive agent in a

[37] Post-marxist accounts and critical discourse analysis exhibit such tendencies. See N. Poulantzas, *Classes in Contemporary Capitalism* (London: New Left Books, 1978), esp. pp. 15-32; Bob Jessop, 'Marxist Approaches to Power', in E. Amenta, K. Nash, A. Scott (eds.), *The Wiley-Blackwell Companion to Political Sociology*, (Oxford: Blackwell, 2012), pp. 3-14; Richard W. Miller, 'Marx's Legacy', in Robert Simon (ed.), *The Blackwell Guide to Social and Political Philosophy* (Oxford: Blackwell, 2002), pp. 131-153, especially p. 143.

positive way by bringing some of her dormant capacities to reality, i.e. by providing the 'boost', as it were, that is required for her capacities (dunameis) to move from a state of potentiality to a state of actuality—a transition which, perhaps without the intercession of an active dunamis, it may not had been possible for the passive agent to experience. In that sense, as Allen remarks, certain exercises of power can actually be traced as beneficial for the 'subject' of power, her example being in basketball coaching, where 'the power the coach has over the players is exercised for their benefit, and not for their disadvantage'.[38]

In sum, the qualitative specifications of agency proffered by these possibilities prescribe a greater scope of inclusion in the conceptual category of agency. Agents are not only those who act in a more apparently energetic and overt manner, but also those who function in subtler, less explicit and not as easily discernible ways (what is nowadays referred to as 'soft power' is perhaps a variant of such interpretation). Since a passive dunamis determines the possibility, range and extent of the production of effects of change, then it follows that passive agency too *participates*—i.e. *actively* conduces to—the manifestation of power.

3. The quality of passivity suggests possible degrees of permissiveness of agents in accepting to be impacted by a dunamis, thereby broadening the scope of responsibility for agents engaged in relations of power. The above interpretation grants passive agency a rather different role than what we, as political theorists, have been traditionally accustomed to think in our times; according to it, the passive agent carries variable degrees of responsibility for the interaction of power, precisely because the occurrence of the interaction depends, partially, to her enabling or permitting it.

[38] Allen, op. cit., p. 125.

Given that a situation of potency depends on the passive as much as on the active agent for coming to be, it follows that the passive agent need not be postulated as the neutral recipient of an objectively potent (or 'forceful') active dunamis—let alone the exploited or helpless object, as various interpretations have conjectured.[39] Extending this account, the view of a 'victimised', 'suppressed', 'restrained' understanding of passive agency, which we often encounter in several discourses,[40] represents a theoretical construal of agency which is neither logically necessary nor always descriptively accurate. According to the above analysis, the passive agent is neither the neutral object nor the exploited victim that 'suffers' a dunamis (interestingly, on a semantic note, even the common expression 'to suffer a power' reveals the prevalent underlying 'subjugated' understanding of passive agency). Instead, the passive agents may alternatively be traced as carrying some responsibility, both for their undergoing of the particular dunamis, as well as for the development and formulation of the particular pattern of power relation and field of potency on the whole.[41]

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[39] For a very good discussion regarding the issue of voluntariness and responsibility in Aristotle's account of will see W. F. R. Hardie, 'Aristotle and the Freewill Problem', *Philosophy*, Vol. 43 (165) (July 1968), pp. 274–278. Even in cases where the disposition towards performance of a particular action may attributed to forces of nature, i.e. where 'nature is the true agent', Hardie notes that 'still it is through us in our deeds that nature works. So we are responsible—in a sense' (p. 277).

[40] As for example certain Marxist and feminist, interpretations of power.

[41] On this point, see Aristotle, NE, III, especially chapters 4 and 5 concerning how injustice, vices and even illnesses are regarded as, to a great extent, voluntary. An obvious objection to this position is that there exist instances of compulsion where the passive agent cannot be said to bear responsibility for the power interaction. Although the aim of this discussion is to provide a constructive interpretation of Aristotle, and not to engage in detail either with all peripheral aspects of his theory, or defend the latter, it is still helpful to remark that we do find acknowledgement of the possibility of involuntary interactions in his work. Particularly, Aristotle identified two cases where an agent cannot be held responsible for the origination of actions (and thus for participating in an interaction of dunamis): when something is done (i) under compulsion, where the 'moving principle' is in the external circumstances and the 'agent compelled contributes nothing'; or (ii) 'by reason of ignorance' (NE, VII, 2). In contradistinction, voluntary action is defined as that action whose moving principle is in the agent

Our discussion of the concept of will helps to clarify further this interesting idea that the passive agent is actively conducive to the creation and configuration of the field of potency. Applying the notion of passive agency to the domain of human action, which is will-driven, implies that in an interaction of dunamis among individuals, the passive reception of an active dunamis does not occur without some degree of permissiveness or some form of allowance from the part of the recipient end. Any interaction of dunamis between (two or more) human beings is, essentially, an interaction between (two or more) wills. My will to act in a certain way causes me to attempt to exercise my dunamis upon you, in order to bring about an effect of change on you; however, in light of the above discussion, the success or not of my attempt to act out the commands of my will upon you will depend, at least to some considerable degree, on whether you are capable and/or willing to *accept* to become a bearer of my dunamis' exercise. It would be an omission not to acknowledge that there are, of course, various degrees of reaction and acceptances of power situations. We could say that those degrees signify gradations of reaction, which can range from direct acceptance, acquiescence to tacit compliance. Effectively, tacit compliance can be interpreted as a form of suppressed resistance, if the cost of overt resistance is too high. However, even in this case, the choice to comply as a result of

himself, given that he is aware of the particular circumstances of the action. Nonetheless, he argues that there are certain instances of compulsion where responsibility does not rest entirely with the external agent or circumstances, and for which the passive agent could be seen as partially responsible. 'It would be absurd to make external circumstances responsible, and not oneself, as being easily caught by such attractions', for instance 'to make oneself responsible for noble acts but the pleasant objects responsible for base acts' (NE, III, 1). Moreover, in many cases, individuals can be held responsible for their ignorance. That is why there exist laws punishing an agent for actions performed under ignorance. 'Indeed, we punish a man for his very ignorance, if he is thought responsible for the ignorance, as when penalties are doubled in the case of drunkenness; for the moving principle is in the man himself, since he had the power of not getting drunk and his getting drunk was the cause of his ignorance. And we punish those who are ignorant of anything in the laws that they ought to know and that is not difficult, and so too in the case of anything else that they are thought to be ignorant of through carelessness; we assume that it is in their power not to be ignorant, since they have the power of taking care' (NE, III, 5).

calculating costs against benefits, remains, ultimately, a decision—i.e. a matter of voluntary decision.[42]

Based on our interpretation of Aristotle, the success of my will in manifesting a dunamis implies that the receiver's will was to some extent compliant and accommodating to receiving its exercise—or, at least, no sufficient counter volition was displayed, either because of lack of understanding or awareness of the situation, et cetera. Of course, the kinds of perceptions, the general level of consciousness and self-reflection exhibited by an agent are in turn determined by the general patterns of social culture, collective thinking, education and general external stimuli to which she is exposed.

Yet, still, according to Aristotle, the will maintains some degree of autonomy and freedom in choosing or navigating through these different socially-engendered ideological frameworks, which, on the whole, determine the structure of the intellect and the patterns of thinking available to their members. It is therefore possible to read the above interpretation as offering an alternative construal to Aristotle's well-known (yet much debated) postulation that 'we ourselves in a way are partly responsible'[43] for the status of our character—and thus, by extension, our agency. Accordingly, this conceptualisation entails the theoretical position that there is always some degree of authenticity exhibited by individuals, and even in cases where we observe a lack thereof, this is but one of the possible ramifications of its exercise, i.e. ultimately, partially a choice of the individual for some reason to render her authenticity.

4. The notion of passive agency shifts the focus from the question of 'how power is wielded' to 'how power is received'. It is a common recurrent feature of contemporary discussions of power to place greater emphasis on the question of 'how power is

[42] See Chapter III on Aristotle's discussion of *prohairesis* (voluntary decision).

[43] NE, 1114, b22-24; Hardie, op. cit.

exercised' (seized, wielded, or attained), rather than how it is received—and, particularly, how its reception influences the effectiveness of its exercise, and thus its status *qua* power. However, as we saw, the attempt to bring about effects of impact cannot be considered independently of the recipients' ability to receive it. The issue of power, or potency, can only be adequately appreciated in the conjunction between these two parameters.

An appropriate example to illustrate this point is discursive power. The effects of impact that a speaker desires to induce in her audience will crucially depend on her efficiency in targeting her audience—where this effectiveness is broadly determined, according to Freeden, by four major criteria: rational persuasiveness, rhetorical attractiveness, emotional appeal and threat;[44] but, furthermore, it will also be contingent upon the variable receptions and the variety of interpretations that may emanate from the audience, and which may, or may not, be the desired ones in light of the speaker's intentions. The formulation of these interpretations (and particularly whether those will be in accordance to the speaker's intentions) is only partially owed to the speaker's discursive effectiveness, while a number of other important parameters determining their reception will depend entirely on the members of the audience—such as, their particular cognitive, educational and cultural background, their intelligence and intellectual skills, the semiotic context serving as their point of reference, and so forth.

The *reception* of discursive power is, moreover, crucial in a further respect: namely, in that its recipients exert a form and a considerable degree of influence on the very structuring and formulation of the attempt to exercise it. As Freeden remarks, 'the communicator has a target audience or readership in mind and tailors the text to the

[44] Michael Freeden, 'Political Thinking as Power', in Keith Dowding (ed.), *Encyclopedia of Power* (Sage, 2011), pp. 492-496.

anticipated frames of reference and to the assumed optimal receptiveness'.[45] This means that the kind of exercise of power a communicator attempts is in fact already shaped by the projections of its possible receptions, which depend upon the imagined particular characteristics and attributes of the targeted audience (including their dunameis *qua* capacities and potentialities)—therefore, *by* the recipients of power. This occurs both in preparing the communication, by assumptions made about the targeted audience and then, as well as while delivering it, by its actual response. The reception of discursive power thereby shapes the outcome of the attempt to exercise power, even prior to its exercise, by constituting a factor determining from the first stages of planning and formulating it the very character of the attempt, as well as the particular modality of its exercise.

Accordingly, the key distinction can be drawn between the intended result of an attempt to exercise a dunamis and the actual impact of its exercise.[46] Appreciating this distinction reinforces the suggestion that potency cannot be viewed as a one-sided incidence, nor as a property/commodity, nor simply as a matter of exercise or activity from the part of an active agent; rather, it is better understood as an event constituted by the entanglement and mutual operation of parameters that involve both the active and the recipient ends in their joint agencies, including the environment hosting the interaction. To say that an individual 'has power', therefore, means that she has access to a particular field of activity, exercise and actualisation of dunameis/resources, in which passive agents are also equally crucially participants. Potency may be accordingly interpreted as referring to the way in which an agent relates to that field, rather to a property she owns or merely a set of relationships she establishes in a given context. This is a key observation, for it discloses an aspect of power whose recognition serves to eliminate—at least partly—the

[45] Ibid. 493.

[46] Ibid.

'bad name' given to it by conceptually detaching it from negatively charged nuances of 'coercion', 'despotism', 'suppression' and 'imposition', which, as we saw, have constituted dominant conceptual features assigned to the term in numerous (if not most) conceptualisations in the past.

5. *Dunamis additionally refers to the way in which individuals relate to themselves. This implies that there is an inherently personal aspect involved in potency, such that potency often signifies a relationship to one's self.* Overall, in the discussion of active and passive agency, we have discerned and so distinguished between the following possibilities: (a) the possibility where an agent acts as an active agent; (b) the possibility where an agent acts as a passive agent of some external active dunamis, in the relationship between two different persons; and (c) the possibility of the same person acting both as the active agent and passive recipient of her own dunamis. In this case, where an individual acts both as the exerciser and recipient, dunamis was demonstrated as an internal process—or inter-formation—of dunameis.

Yet, the latter possibility implicitly suggests that dunamis, and potency in general, bear an ineliminable personal component, which is not exhausted in the understanding of potency as interpersonal (i.e., as involving the relationships between individuals). Since Aristotle's definition entails the possibility that dunamis refers to an internal interaction, it follows that a person is already a 'universe' of dunameis, actualities and internal micro-activities which entail capacities, interactions of impact and expressions of potency. Therefore, potency, like dunamis, can also demarcate a relationship to one's own self. Accordingly, one's externally-oriented actions obtain as outward manifestations or externalisations of one's internal dynamics going on at the level of constitution of selfhood. After all, given Aristotle's ontological account, before a person is even capable of exercising a certain dunamis outwardly what is requisitely precedent is a series of

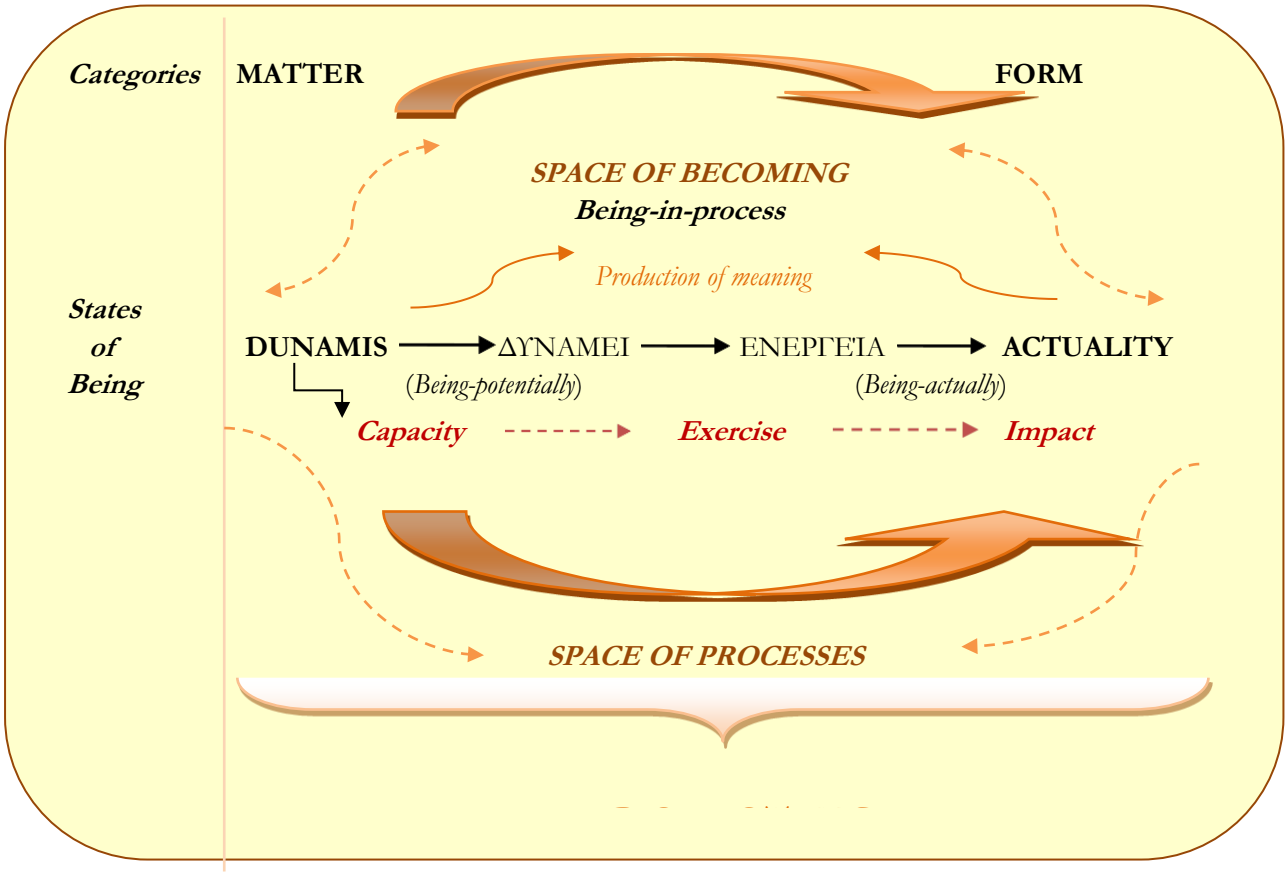
internal processes involving her thought patterns, will, emotions, body, etc., all of which lead up to the exercise of the externally oriented dunamis (for instance, in the example of discursive power, the processes of thinking, planning and crafting a speech or text). This issue is elaborated on in the following chapter.

ε) Process and Fluidity

The final interpretative ramification concerns the idea that power—qua impact and potency—develops along the *processes* of passage from 'being-potentially' to 'being-actually', which also relate to the processes whereby agents entangle, interact and merge with their societal structures and contexts. Given that process implies duration, and since duration as a temporal manifestation is inextricably related to space, it follows that processes can be assigned a spatial hypostasis, and be thus represented in the form of either a real or symbolic expression of space. Those processes can therefore be interpreted as designating a procedural interactive space, a *milieu*, wherein change and production of new structures, forms, but also meaning, occur. That space, identified as the field of potency, is delineated by the process of inter-becoming taking place in between the abstractive indefiniteness of dunamis (as something which may or may not be actualised) and the firm vesting of action. As such, it incorporates both externally observable and not-yet-manifest procedures, both capacities and ensuing products or practices. Accordingly, a possible way of describing potency is through the constant and constantly adaptable inter-determination between capacities ('powers') and actions/practices.

We could attempt to summarise the above features and relations delineating the field of potency in a visual form, in the following illustration (2):

<u>Illustration 2</u>: The Field of Potency: Dunamis, Actuality, Space of Becoming & Exercise



What this illustration helpfully serves to point out is that the main process demarcating the field of operations, which acts as the locus of potency, is given by the interplay between the contrary states of potentiality/actuality. On the other hand, potency corresponds to and signifies a field of becoming that is constituted by capacities, including the mediating processes whereby capacities are being enacted and transformed into occurrences—i.e. the ongoing flow of production, destruction, expression and transformation taking place between them. This procedural space of change and becoming can therefore be interpreted as the field of potency, in that the exercise of capacities/potentialities gives rise to new kinds of actualities/practices, which, once achieved, offer themselves the preconditions for new kinds of capacities to emerge.

An example illustrating the latter point is given by the invention of the internet. A number of technological resources and programming capacities in the 1960s progressively led to the emergence 'the internet'. Nevertheless, once created, the actuality of the internet also began to function as a *resource* giving rise to a number of novel capacities previously unknown—in fact, non-existent (which are still ever multiplying): capacities of instant communication across the globe, international financial and commercial transactions and enterprise, global databases, new structures of collective organisation and governance, et cetera. The emergence of new capacities following the successful actualisation of previous dunameis, may again, in turn, yield the realisation of new kinds of actualities, which, in their turn, are most likely to induce the emergence of new capacities, and so on.

The above considerations highlight the important corollary that it is not possible to define all kinds of capacities and possible activities that may manifest in the world and, hence, all specific forms that power may assume; this is one of the key reasons why concepts, such as power and potency, can be more appropriately approached generically. Since power can manifest in infinite ways, through infinite kinds of capacities (dunameis) and countless forms (actualities), it is impossible to exhaust the meaning of power in concrete or definite terms. It is thus implausible to particularise or constrict its definition, for example, by equating it with one *particular* kind or modality of either capacity (such as money, physical strength or any other resource), or actuality/ effect, such as wealth, authority, domination, establishment, etc. Power's broad and inherently indeterminate scope of signification simply does not permit closure of meaning through its identification with any one single concrete modality or form it may assume in a given context.

Conclusion

This and the previous chapters examined the classical concept of dunamis as the original conceptual modality of power in political thought. They identified and explored the core features of its conceptual morphology in classical discourse, including their various discursively esoteric sociological and political implications. Studying dunamis as a particular and distinct way of thinking about power, our investigation explored interesting overlaps, but also divergences, between classical and contemporary perceptions of power.

The investigation ranged between a diachronic and synchronic focus, paying attention to the range of discursive and semantic features, culturally particular nuances and key theoretical repercussions of classical dunamis, while observing the development of the concept in time. In addition, the discussion provided useful reflections regarding power's contemporary standing and synchronic meanings, as those emerged from a constructive comparison with its distant conceptual relative. In this way, the chapter sought to clear space for the emergence of more original readings of the concept.

Through a synthesis of the analytical, critical and constructive/interpretative analyses, the following key inferences were drawn. First, (i) the analysis argued for a complex understanding of capacity, supporting the corollary that capacity alone cannot be considered as power. Second, (ii) it was shown that the concept of dunamis is not an accurate translation of power, given that the two concepts present significant differences in their semantic contents. Particularly, power was traced as conceptually closer to the concept of actuality. In light of the conceptual discrepancies between dunamis and power, the inconsistency between the actual meaning of dunamis in its original context and its translation in modern discourse indicates a conceptual discontinuity between the two terms, which raises serious concerns regarding the viability of its current translations.

Third, (iii) the investigation argued for a possible reading of potency as a transitive and fluid process involving the inter-formation of unmanifested potential and vested actualisation (including the underlying procedures underpinning their mutual fermentation and inter-determination). The binary distinction between 'capacity' *vs* 'outcome' was shown to be elusive, in light of the alternative conceptualisation of potency as that which 'binds' capacity to outcome. Fourth, (iv) certain key implications regarding the concept of agency were discussed. The analysis explored the possibility of alternative readings of agency which demonstrate a wider scope of signification and inclusion, as well as different perspectives on the issues of responsibility and participation in power relations.

Finally, Chapters I and II pointed out possible constructive appropriations of dunamis, opening up space for the emergence of alternative readings of power. One of those interpretations was discussed in greater detail. Particularly, in light of the upshot that neither the concept of capacity nor the idea of practice and exercise can alone exhaust the possible meanings of power, this interpretation particularly explored the notion of potency as relevant to a field of processes, or, more sophisticatedly, as one long manifold procedure. A broader interpretation of potency was put forward as a quality ensuing from the ongoing operation of the processes of transition, mutual yielding and exchange between capacities and actualities. In this way, the discussion demonstrated how potency is at once both individually and collectively construed. It shed light upon the productive aspect of power as creative—as the dynamic process of the gradual building up of reality.



CHAPTER III.

DUNAMIS AT THE LEVEL OF HUMAN BEHAVIOUR: PSYCHE, POWER AND THE CASE OF ETHICS

'Plato scolded a child who was playing at cobnuts.
He answered him: "You scold me for a small matter."
"Habit," replied Plato, "is no small matter."'
(*Montaigne, Essays*)

Introduction

In Chapters I and II we explored the classical concept of dunamis, as the first conceptual modality of power in political thought. We saw that in this historically particular discourse, dunamis is approached primarily as a generic concept, involving a crucial ontological dimension. By employing a morphological approach, the investigation identified seven core conceptual features structuring its morphology, namely, origin of change, motion, potentiality, intelligibility, capacity, becoming and agency. The question of this chapter, however, is how does the generic formulation of dunamis become adapted in classical discourse in order to account for manifestations of dunamis/power at the level of individuals, interpersonal interactions and society? What further dimensions and attributes is the concept assigned once it becomes employed in particular epistemic inquiries explicitly concerned with individual and societal practices?

The analysis begins with some methodological reflections concerning the particular manner in which Aristotle pursues the morphological assembling of the concept of dunamis. This is identified as largely accounting for the relationship between its generic

and sociopolitical articulation. This discussion throws light upon the different possible patterns of morphological arrangements employed in conceptualising key notions such as power. After exploring the political relevance of the ontological posture of dunamis and establishing the epistemological reasons underpinning the importance of studying dunamis at the level of individual behaviour and individual character, the discussion proceeds with investigating dunamis as a concept pertaining to the broadly defined sphere of ethics.

In the second part of the chapter, we turn our attention to Aristotle's definition of dunamis as a feature of the human psyche, and thus as a crucial aspect of psychology. Through a rigorous exploration, the analysis discusses the crucial notion of *hexis*. As will be seen, *hexis* is a crucial heuristic for (i) understanding power at a social level through mainly accounting for the semantic content that dunamis acquires in its ethical and sociopolitical articulation; and (ii) imparting consistency and cohesion to its morphological construction. Finally, the last part of the chapter pursues a constructive interpretation of the main features of the psychological, ethical and sociological articulation of dunamis, through exploring the hermeneutic possibilities of understanding power which arise from a constructive interpretation of the classical concept.

I. Some Preliminary Methodological Observations Regarding Morphology

Aristotle's wide-ranging philosophical thinking extends over a variety of epistemic subjects, which are nowadays typically regarded as distinctively separate or only remotely relevant to each other—such as psychology, physics, biology, astronomy, ethics, metaphysics, ontology, politics, et cetera. Considering the diversity of his corpus from the perspective of the commonly prevailing assumption that the nature, methodology and goals of those various epistemic areas are fundamentally disparate, such that each of them mandates (or *should* mandate) a highly differentiated set of conceptual and methodological

apparatuses—one may justifiably anticipate some degree of epistemological fragmentation or discontinuity between the various aspects of his thinking.

Yet Aristotle's philosophy seems to defy these expectations. Instead of inconsistency or discontinuity, his thought is marked by homogeneity and cohesion. How is this quality of epistemic continuity achieved? Mainly through his distinct conceptual-morphological strategy. This consists in the formulation of a uniform conceptual apparatus, constructed in such way so as to be potentially employable and applicable across a variety of subjects-areas, notwithstanding their qualitative differences, discursive particularities and possible epistemic idiosyncrasies. More specifically, it entails the formation of a conceptual core, comprised of certain key concepts whose meaning is construed in light of the entire range of areas explored in his thinking, and not simply each time exclusively in view of the specificities of the particular subject-matter of his enquiry. As such, the theoretical consistency of Aristotle's thought ensues from, inasmuch as it is owed to, the particular *conceptual approach* he adopts and which marks out the idiosyncrasy of both his thought and methodology.

A special kind of semantics is thus put forward: a universe of generic meanings is synthesised through the introduction of a given set of generically defined concepts, which, once applied onto specific epistemic areas and concrete case studies, acquire more specialised significations, nuances and particularised meanings according to the nature of the subject-matter at stake. Yet, it is precisely the fact that those core concepts are *generically* formulated which permits their wide-ranging and flexible span of application. Consequently, all subsequent particular enquiries are constructed upon and exhibit the same conceptual core, both *semantically* as well as *morphologically*.

All this is of significance to our investigation precisely because dunamis constitutes one of those key generic concepts dwelling at the heart of Aristotle's philosophy and forming part of its uniform conceptual core.[1] The concept of dunamis is defined generically (as explored in Chapter I), and subsequently becomes applied across a variety of epistemic fields and subjects, where each time it develops analogous and corresponding specialised significations. This is a key reason which makes the discernment of its anthropological,[2] social and political character not only a very interesting but also a rather intriguing task. Consequently, the discussions of dunamis which we encountered in the context of Aristotle's ontological treatises, although articulated in a discursive style which may not directly disclose their political relevance, are immediately relevant to dunamis' sociological, ethical and political formulation.

The general conceptual 'senses' and features of dunamis identified in the previous chapters can thus now also be shown as pertinent to its political conceptualisation. With their particular adaptation in the sphere of individual and social action, those features are partly re-configured such that they develop distinct significations and become imbued with specific, politically intelligible attributes. Therefore, dunamis is also constructed as an ethical, psychological and political concept in classical philosophical discourse.

Identifying the conceptual pattern or 'tactic' employed by Aristotle lays open the possibility of utilising it in current scholarship in order to ascertain the ways in which core concepts become conceptually invested with particular features when applied to specific subject areas. Certain methodological implications follow from this. Specifically, the above is suggestive of a two-fold method: a method which, on one hand, discloses the

1 More of those key generic concepts are explored in Aristotle's *Categories*

2 The term 'anthropological' is broadly used here to refer, in accordance to its classical use, to all issues pertaining to the human being as individual, i.e. to the field of examination pertaining to the subject-matters of human nature, psychology, ethics, politics and justice.

manner and discursive processes through which core concepts become qualitatively particularised within a given discourse; while, on the other hand, it reversely traces epistemically particularised concepts back to their core generic conceptual origins.

This approach can be described as a form of 'conceptual engineering', which, when applied in the inverse manner, takes the form of 'conceptual reverse-engineering'. The former amounts to the task of detecting how a generic concept is specifically shaped, re-configured, adjusted and 'tailored' so that it can be applied in a particular epistemic field, including the discursive ways in which it mutates, modifies and transforms in the process of being transposed and appropriated in more specific subject areas. In the second case, 'conceptual reverse-engineering' amounts to the venture of identifying the generic conceptual roots exhibited by an epistemically and/or discursively situated concept, through detecting its general morphological outlook, as well as subsequently mapping out the possible inductive trails linking it to its generic conceptual sources. Both 'tactics' form aspects of the same method.

Those considerations are employed as methodological guidelines directing the present discussion. The following analysis studies the ethical and sociological version of dunamis in reference to its similarities and discrepancies vis-à-vis its generic formulation. It focuses on dunamis' adaptation at the level of anthropology (i.e. the study of inter-personal conduct and the interaction between the individual and the collective), and politics, as the study of collective structures, activities and collective behaviour.[3]

[3] It should be noted from the outset that our analysis shall not examine the political rendering of the concept of dunamis as domination, although that is a possible interpretation of Aristotle's middle books of his *Politics* (especially books V and VI). The reason is that this particular aspect of his conceptualisation constitutes a matter already extensively researched in the existing literature. Instead, wishing to shed light upon relatively disregarded aspects involved in the history of the concept, our

II. The Social Relevance of the Ontological Discourse on Dunamis

Ontology – Epistemology - Ethics

The term 'dunamis' appears 530 times in total in Aristotle's *Metaphysics,* while relatively less frequently in his *Politics,* where we encounter 282 references to the term, and even less so in his N*icomachean Ethics,* where there are just 58 mentions of the term. Overall, according to *Index Aristotelicus,* we may distinguish between about 18 different ways in which the term is employed across the entire Aristotelian corpus.[4] Using bibliographical evidence in order to discern the emphasis placed on the concept of dunamis (qua modality of power) in different discursive moments, these numerical indications suggest quite clearly a variation or difference in the importance and weight assigned to dunamis in the context of Aristotle's broader onto-metaphysical investigation on the one hand and, on the other, in the context of ethico-political enquiry. These bibliographical observations suggest that the concept of dunamis appears to be more central from an onto-metaphysical point of view rather than as a strictly speaking *political* concept.

One of the reasons possibly accounting for this asymmetry in discursive significance is that, in the context of classical discourse, dunamis is regarded as *logically* primarily related to the domain of ontology (including the enquiry into human nature) and only subsequently (and by extension) to sociology and the sphere of 'the political'. 'The political' antecedes the 'ontico-natural' because it is regarded as a natural progression or extension of individuals' innate (i.e. ontological) characteristics of inter-connectedness, interdependency and mutuality. More specifically, the political is regarded as the end-product of human beings' natural 'togetherness'; as such, it marks the culmination of their

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analysis shall particularly focus on those aspects of his ethical, psychological and sociological account of dunamis which have remained largely uncharted.

4 Hermann Bonitz (ed.), *Index Aristotelicus* (Berolini: Georgii Reimeri 1870).

ontological predispositions towards community-formation, very much like early modern political theorists considered the 'state of nature' to precede the 'state of the political' and the institution of law and authority, as well as saw the latter as constituting an enhancement of man's primary (pre-political) living conditions.

This idea is furthermore explicated in light of the classical understanding that, when it comes to individuals and their affairs, power cannot be considered, nor adequately understood, irrespective of human nature. Similarly, in the case of Aristotle, the concept of dunamis appears secondarily or peripherally related to the question of the political. This is a crucial observation for it further suggests that classical political theory is not as predominantly preoccupied with the question of dunamis (or, to that effect, power); consequently, the ensuing conceptualisation of the political is not as 'power-centred' as we observed to be the case in later historical discourses. The crucial political problematic does not revolve around the issue of 'who has the power', or—even less so—'how one gets power', although it should be acknowledged that discussions of political authority *do* occupy a central place in the discourse. Rather, the main concern is how the formation and operation of political structures, institutions, norms, as well as the institution of government itself, can be designed so as to promote particular social ends or goals which are deemed as satisfying certain ontological prerogatives. Those include social health, social harmony,[5] or the attainment of 'the good life'—'*eudaimonia*'—both at an individual and collective level.[6]

These three aspects of philosophical thought—ontology, epistemology and ethics—are thus seen as inextricably linked in discussions of the political; and so the classical approach to political theory consists in their joint and simultaneous employment.

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5 Indeed, Plato equates 'harmony' with justice. *Republic*, 443-445, 500-501.

6 Aristotle, *Nichomachean Ethics*, Books I and X.

Ethics and Psychology in Aristotle's Political Thought

As with most classical authors, so in the case of Aristotle the enquiry concerning human nature is found at the heart of his political thinking. This type of enquiry, which basically amounts to the study of the individual, delineates a distinct epistemic area that unequivocally plays a decisive role in the formulation and development of classical political theory. Indeed, in the context of classical discourse, exploring the bewildering area of human nature was widely considered as the primary, most basic groundwork upon which political discourse can be appropriately founded and from which succeeding discussions concerning the sphere of political organisation can effectively proceed,[7] precisely because the characteristic features of human nature were treated as the fundamental determinants of the qualities of political association.

In Aristotle, the political significance of human nature is founded on two levels. On a theoretical level, it is grounded upon his ontological view of human beings as 'political animals'.[8] The ontological postulation of human beings as innately invested with a *nature politique* implies a view of the individual as inherently politicized. It thereby advances the political as an a priori condition, and not merely as a coincidental occurrence or aftermath, of human existence. Naturally, the inborn inclination towards the formation of political societies is explained in light of an already existing trait of the species which represents an entelechy of human nature. Consequently, Aristotle regards the institution of political society as the development of a natural dynamic, hence as a natural occurrence, very much like the formation of the family ('every state (polis) exists by nature, just like

[7] This is, however, a common feature of early modern until late 19th century political theories too, such as Hobbes, Locke, Rousseau, J.S. Mill, et cetera.

[8] Aristotle, *Politics*, I 1253a2-3.

the first societies'[9]). The deductive signification of human nature as political is what mainly justifies its theoretical significance in political discourse. From the above two premises the epistemological conjecture follows that developing an understanding of the nature of human beings, qua members or parts comprising a social whole, is *ipso facto* related to the task of discerning the qualities and nature of the political.

From a more practical point of view though as well, the fact that human beings are predisposed to 'natural togetherness'[10] (i.e. their 'herd-like' nature) is treated by Aristotle as a further indication of their lack of individual self-sufficiency,[11] a feature which, thereby, mandates social cooperation. Social cooperation is necessary and flows naturally, at first for the basic purposes of survival and sufficiency ('*ζειν*'/ zein) but, then, additionally for the sake of attaining 'the good life' ('*ευ ζειν'/* eu zein).[12] It is important to note that this position does not entirely follow from Aristotle's quasi-historical account regarding the development of the state/polis (as this is unraveled in the first book of his *Politics*), but, perhaps more importantly, also from his more general philosophical understanding regarding the organic nature of human association. This philosophical position[13]—which represents a commonly shared view amongst classical theorists—holds that human beings are inextricably related constitutive parts or 'organs' making up a whole—the polis—which itself exhibits the character of, and accordingly functions as, a unitary organism. Hence, cooperation in the form of political association follows

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9 *Politics*, I 1252b29-30. This position is stated again a few lines later, 'φύσει πόλις εστί' ['physi polis esti'], i.e. 'the state/polis exists by nature'.

10 Janet Coleman, *A History of Political Thought: From Ancient Greece to Early Christianity* (London: Blackwell, 2000), pp. 92-95.

11 *Politics*, I 1253a18-29.

12 Ibid, 1252b30-1253a5. The state originated for the purpose of living, or surviving, but its being and functioning continues for the sake of the good life 'living well' ['πόλις (…) γινομένη μεν του ζην ένεκεν, ούσα δε του ευ ζειν'/ 'polis (…) ginomeni men tou zin eneken, ousa de tou eu zein'].

13 This is a position also advocated by Plato, especially in the *Republic*.

spontaneously from the very nature of interrelation between its constitutive members forming integral parts of the same collective whole.

As briefly noted, the above theoretical interpretations entail certain epistemological ramifications, such as the suggestion that studying the parts comprising a whole (in this case, the individual comprising society) is an indispensable aspect of the study and understanding of the whole—i.e. the polis and its political features. This is because, according to Aristotle,

> as in other departments of science, so in politics, the compound should always be resolved into the simple elements or least parts of the whole. We must therefore look at the elements of which the polis [i.e. as 'state'] is composed, in order that we may see in what the different kinds of rule differ from one another, and whether any scientific result can be attained about each one of them.[14]

Prior enquiry into psychology and human behaviour is, therefore, considered as an epistemic activity of primary importance for the one who wishes to approach satisfactorily and comprehend adequately what for Aristotle marks both the epitome as well as the basic precondition of all human activity: namely, the constitution and ongoing harmonious functioning of the political.[15]

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[14] *Politics*, 1251a18-23.

[15] Although Aristotle regards the whole as preceding the part, i.e. the political as being prior to the individual, nevertheless, his inductively-oriented method suggests that analysis should proceed from the part to lead to the understanding of the whole. The priority of analysis of the 'elemental' vis-a-vis the 'compound' is reflected in the way Aristotle himself structures the sequence of argumentation in the *Politics*, which begins with an examination of the attributes of man and then proceeds to the examination of political structures and regimes (See *Politics*, 1252). Perhaps that is also the reason, as Coleman argues, why the *Politics*, as a work, follows the *Ethics* (Coleman, 2000, p. 147).

This is the point where the study of ethics comes into play. It is important to clarify that the term 'ethics', in its classical signification, does not refer to the same semantic content as contemporary usages of the term. First of all, ethics does not exactly represent the endeavour of prescribing a set of moral rules or standard patterns of conduct; consequently, it is not invested with the kind of moralistic undertones and nuances with which it becomes imbued in later historical discourses (especially in the context of medieval theological discourse). Looking into its initial etymological meaning, ethics derives from the term 'ethos', which stands for 'habit', pattern of behaviour, or 'habituation' through repetition of behaviour. Its semantic indication and performance concerns more of a descriptive rather than a prescriptive or normative function. In light of this understanding, Aristotle argues that, '*politics*, as a study, is the study of human in groups, whereas *ethics* is the study of the individual in isolation'.[16] Politics relates to ethics epistemically, in the same manner as the individual relates to society practically: the two 'entities' are inextricably related as well as mutually shaped, both in 'logos'—i.e. in rational analysis—as well as in practice.

According to this interpretation, ethics as a type of enquiry or branch of knowledge refers to the study of the formation and patterns of human behaviour, social conduct and the ensuing configuration of human character. 'Character' is here understood as a more or less standardised, crystallised and structured pattern of both possible and active behavioural traits exemplified by a given individual. Ethics additionally studies how these processes of behavioural configuration relate to the promotion of an individual's interests, the attainment of certain psychological states which are deemed as the most advantageous

[16] Keith Dowding (ed), *An Encyclopedia of Power* (Sage, 2011), p. 30.

and conducive to the attainment of the good life.[17] Yet, all those procedures take place within a greater cultural environment or milieu—the polis, which is the reason why Aristotle considers the fields of ethics and politics, as explored in these pages, to be two intimately interrelated areas of knowledge. Indeed, his version of ethics 'tries to account for human motivations to action in a particular cultural milieu',[18] and given that cultural contexts may vary considerably with one another, this implies both that ethics as a practice and as an epistemic enterprise deals with processes which extend beyond the sphere of moralistic *a prioris*.

Aristotle perceives ethics both as a theoretical as well as a scientific branch of study: it is scientific because it is based upon and constantly guided by the empirical observation of human behaviour, which varies according to the cultural context in which it is situated; yet, it is also theoretical, since, as all science in general, it begins from a set of axioms and a body of theoretical knowledge, which at first enables and then continuously guides, informs and imparts meaning to specific scattered observations, thereby permitting their synthesis into an intelligible exegetic framework that may succeed in accounting for the formation of individual and collective patterns of behaviour.

The kind of theoretical knowledge pertinent to ethics as the study of human conduct revolves precisely around the key theme of human nature, and, more specifically, incorporates what the ancients referred to as 'psychology'. Psychology (which

[17] This approach to ethics does not seek to apply any particular moral standard or given set of rules of conduct other than the principle of 'moderation' ('*μέτρον*'—i.e. 'proportion'). However, moderation is not, strictly speaking, a uniform 'standard', at least not in a moralistic sense, since moderation is a general principle whose particularised application depends upon the person's particular individual features, as well as the particular and relative 'stretch' of extremes pertinent to his particular psychological structure. Thus, specific patterns of conduct that may ensue from the application of this general principle will vary from person to person.

[18] Coleman, 2000, p. 125.

encompasses a variety of aspects of what we would nowadays study under the disciplines of sociology, anthropology but also philosophy) studies individuals' internal characteristics and dynamics from which types of behaviours, habits, character traits and, consequently, actions proceed. It thus becomes evident that, in the context of classical discourse, politics, ethics and psychology suggest an epistemic triptych, such that the analogy can plausibly be drawn that psychology relates to ethics in the same manner as ethics relates to politics. Politics studies the emergence of structures and patterns of collective behaviour resulting from the cumulative (in effect, exponential) operation of individual patterns of conduct, which crystallise or consolidate in the formation of social and political institutions. Likewise, ethics studies the formation of consolidated behavioural traits—i.e. the individual character—as this results from the interaction, mutual formation and exchange between the individuals' various internal faculties, behavioural dispositions and psychological patterns.

This explains why Aristotle regarded psychology as an immensely valuable political heuristic. Psychology explores those internal dynamics and features which function at the background of social and political developments, accounting for the behavioural dispositions of individuals, which potentially manifest into socially-oriented actions, subsequently giving rise to norms, structures and institutions. Approaching the matter from this interpretative position, it follows that to understand power at a collective level, one has to consider and address it from an ethical-psychological perspective. In accordance with the epistemological position endorsed by Aristotelian discourse, this implies starting from the analysis of the elemental 'part'—in this case, the individual—before proceeding to the analysis of the 'compound'—the polity. Psychology and ethics, in their Aristotelian formulation, can therefore appropriately be considered as particular moments or applications of his general ontological enquiry, focused specifically upon the

study of individuals and societies, thus bearing immediate relevance to the study of politics and the phenomena encountered within the political realm, such as power.

III. The Psychological Account of Power: Dunamis as Faculty, Psychological Capacity and Origin of Actions

> *'What is the psychic form that power takes? Such a project requires thinking the theory of power together with a theory of the psyche.'*[19]

When it comes to human and social experience, dunamis is considered as something which, before anything else, individuals first experience internally, in the configuration and playing out of their own inner dispositions, psychological states, character traits, patterns of thought and behaviour. Just as Aristotle's epistemology mandates that the study of the compound should proceed from the study and analysis of the part/particular, so in the case of power the study of power relations at the level of political institutions proceeds from an articulation, conceptualisation and examination of power as a feature of the individual, as an attribute obtaining from the internal functions of human psychology, the micro-processes of the constitution of personhood and, eventually, agency.

According to Aristotle, every individual possesses a set of internal dunameis. In the case of human psychology, as we briefly examined in the previous chapter, these are referred to as 'faculties', whic, effectively act as '*archai* (*'αρχες'*)—i.e. as origins of change, motion and causality—in the lives of individuals. The first marking feature of the sociological articulation of dunamis consists in the reading of the concept as descriptive of the range of functions constituting the internality of human existence. Power, accordingly,

[19] Judith Butler, *The Psychic Life of Power: Theories in Subjection* (Stanford: Stanford University Press, 1997), pp. 2-3.

is perceived as proceeding through the playing out of individuals' internal dynamics and manifesting through the expressions of individual activity which serve to translate, transfer and transform the individual to the collective, the personal to the political.

In the first place, dunameis qua faculties refer to those internal psychological structures which inhere in man qua rational being and which become expressed in the manifestation of particular kinds of internal states, conditions, modes of being and psychological behaviours, such as senses, emotions, perceptions, impressions, thoughts and reason. What do these faculties bring about as induced changes, what can they be said to cause or, more precisely, originate? Particular feelings, thoughts, evaluations, sentiments, opinions and reactions, would be a few illustrative examples. The entire 'pallet' of possible psychological experiences and internal states of being, feeling, thinking that individuals may passively undergo or actively manifest, are all perceived as upshots or expressions of internal dunameis. This understanding amply discloses the inherently personal dimension encompassed by the classical understanding of dunamis.

Yet, although in the sphere of classical ethics and psychology, the concept of dunamis acquires primarily the meaning of faculty, nevertheless it still maintains the broader range of signification suggested by its generic formulation. Accordingly, the seven core features delineating dunamis' semantic core (namely, origin of change, motion, potentiality, capacity, becoming, passive and active agency, intelligibility) find concrete application in the context of human psychology, by being discursively appropriated in order to explain the manners in which individuals form their patterns of thinking, their behaviours and characters within the social sphere.

Indeed, the connotation of dunamis qua psychic faculty is intimately related to the reading of the concept as capacity and as potentiality. In the case of the psychological

formulation of power, those features are expressed through the appreciation that all individuals are capable of or prone to experiencing the states of joy, anger, desire, fear, courage, friendship, love, etc., in the sense that those states constitute concrete *ontic possibilities* for them. Individuals' internal dunameis lay out the psychological infrastructure which enables them, unlike other living beings, to have particular emotional and cognitive experiences, such as yearning, liking, loving, but also contemplating, analysing, reasoning, evaluating, and so forth. Each of those states is possible—it signals a *potentiality* of our being—precisely because it corresponds to and ensues from a correlative dunamis residing within human agency. Therefore, dunameis qua faculties define the *potentialities* of human psychology by specifying the possible range and kinds of psychic states individuals may experience internally, as well as, by extension, the range and *quality* of activities or deeds they may express and materialise externally.[20]

Depending on their intensity and quality, these first-order products of dunameis may manifest into externally-oriented actions, thereby defining and circumscribing an individual's comportment both towards her immediate environment as well as the greater social context wherein which she gradually develops and unravels her character. Given the appreciation that the standard practices of society obtain from the collectivity of individual practices, it follows that the character of the individual and the character of her political community are mutually shaped as well as reciprocally specified.[21] The faculties/dunameis

[20] All human beings are capable of feeling joy or suffering fear, experiencing love or demonstrating wit, of reasoning and developing moral standards: all these form dunameis while at the same time demarcating defining features of human nature. The whole idea of a human nature refers precisely to the fact that human beings are differentiated from other kinds of living beings with respect to their distinct dunameis, by virtue of which they are also capable of experiencing states which, for example, animals cannot.

[21] We find this idea well-elaborated in Plato's political thought. Plato articulated and supported the inherent continuity between city and citizen, and their respective moral, ethical, functional and even psychological qualities. See *The Republic*, Books 8 and 9, esp. 543-545.

of the individual are thereby both individually and collectively experienced, and so they are concurrently of both personal and political significance. Thus their existence and ongoing functioning vividly demonstrate the crucial overlapping between the broader categorical notions of 'the personal' and 'the political'. Their examination thus may also elucidate some of the crucial connections and possible continuities between experiences of power both at an individual as well as a collective level.

Dunameis as psychological entities are conceptualised as the first pillars of power which reside within the individual. In this way, they are concomitantly interpreted as determining the variety of ontic states and experiences which effectively define what it means to be human—henceforth their ontological status obtains. Furthermore, dunameis represent the reservoirs of potentialities which may become expressed as exercises of power. Thus, they designate the first sources of every kind of action, which may or may not succeed in eventually transfiguring into relations of power.

The Psychic Dimension of Power: Dunamis and the Human Soul

By conceptualising dunamis as human faculty, Aristotle transposed the issue of power to address it at the level of the human soul. As the above discussion illustrates, the individual is conceptualised as an active site of power, not in that it offers herself merely as the constantly mouldable subject of externally induced forces, but rather in the sense that each individual somehow represents the total sum of countless *internal* dunameis, which may partly be triggered by, but not be entirely reduced to, external circumstances. However, this internality that is pertinent to the experience of power does not remain unspecified nor is it merely postulated in the abstract; rather, it is assigned a form of agency, or a central focal point acting as its locus. The agency of this internality is what Aristotle conceptualised as 'the psyche' of the individual. It is thus useful to briefly examine

Aristotle's account of the psyche and the basic tenets his psychological theory from which the particular meanings and range of significance of dunamis as a socio-political issue are construed. As such, we may identify three important distinctions that lay out the nature of power at the level of human psychology.

THE TRIPARTITE STRUCTURE OF THE PSYCHE

First is the structural division between the different 'parts' of the soul, which offers an analytical account of the 'anatomy' of the human psyche. Following the prevalent philosophical theory of his time, Aristotle postulates a tripartite division of the psyche.[22] The dunameis/powers of the soul delineate the distinctive capacities of the psyche classified as follows: (i) nutrition—the ability by virtue of which the individual is nourished and grows (which is also common to plants and animals); (ii) sense-perception or the appetitive part of the soul; and (iii) intellect or reason, producing perception, which is the power or feature that distinguishes man from other forms of living beings and accounts for his distinct ability to impart meaning, significance and intelligibility to his experiences, including his capacity to communicate those perceptions and thinking through the use of language.[23] Interestingly, for Aristotle, perception is a psychic state.[24]

The powers of the soul are categorised by reference to a scale of reason, or their degree of partaking of *logos*; in other words, their standing vis-à-vis intelligibility. The nutritive aspect of the soul is deemed as irrational, the appetitive part can be both rational and irrational (it may both participate or not in l*ogos*), depending on whether the individual succeeds in managing his appetites according to the mandates of reason; while intellectual power represents the rational part of human beings, the capacity of reasoning.

[22] DA 414b1-5.

[23] NE 1102b.

[24] Coleman, p. 127.

Intellectual power is thus considered to play the most decisive role in the organisation of society and the formulation of collective norms, including the quality of an individual's participation in the affairs of political community.

FIRST AND SECOND ORDER PSYCHIC DUNAMEIS

The second key distinction is given by the two levels of psychological powers or capacities, which Theodore Scaltsas appositely calls 'first-order' and 'second-order' dunameis.[25] 'First-order' dunameis refer to *capacities* which define the kinds of potentialities of human nature, but which are found at a latent or dormant state. Such capacities include, for instance, the capacity to reason scientifically, to acquire knowledge, or, equally, our biological capacities, such as vision. The capacity to reason scientifically or the capacity of seeing exist *as possibilities* prior to their exercise, while they persist *qua capacities*, even after they have ceased being exercised.

Why and how are those latent capacities differentiated from second-order dunameis? An example taken from *De Anima* serves to illustrate this point quite clearly. We may all, potentially or theoretically, become scientists, experts or knowers of a particular body of knowledge—where science is broadly perceived by Aristotle as a 'cognitive quality of persons engaged in thinking', i.e. 'science is knowing'.[26] However, in reality, for variable reasons, not all individuals actually become scientists, or *knowers*, and perhaps some never even get the chance to develop their inherent capacities for scientific reasoning. To exhibit the dunamis to reason scientifically (what Aristotle calls 'the power of science'), prior to learning and studying and thus prior to acquiring the appropriate body of knowledge relevant to science, is quite a different thing than the kind of dunamis which is acquired as a result of constant practice, cultivation and exercise of one's

[25] Theodore Scaltsas, *The Golden Age of Virtue: Aristotelian Ethics* (Athens: Alexandria, 1993), p. 48.

[26] Coleman, op. cit., p. 121.

capacity of reason *in practice* (what Aristotle called the practice of *theorein*, i.e. theorising). Therefore, according to this distinction, an individual may be called a 'scientist' in two different senses: first, in the sense that, likewise all human beings, she also inherently exhibits the power of scientific reasoning and, as such, is a scientist *in potentiality*, irrespective of whether or not she has actually acquired appropriate knowledge by putting this innate capacity into action. But we also call 'scientist', perhaps in a more accurate and certainly stronger sense, the individual who has *actually* studied and who, through educational processes and relevant training, has properly *activated* this inherent scientific capacity into practice. Both individuals may be called 'scientists', however each of them is 'powerful' (dunatos)—or, better, stands in relation to their first-order capacity—in a considerably different manner.[27]

The two kinds or orders of dunamis at the level of human psychology are thus differentiated as follows:

i) Dunamis as an inherent latent ***capacity or potentiality***; for example, all human beings have the power to reason, but in order to reach the stage where they can actually exercise this power in practice they must first develop a relevant body of knowledge and receive appropriate intellectual training. In the case of a first-order dunamis we thus refer to a capacity irrespective or outside the scope of its exercise.

ii) Dunamis as ***the capability or ability to exercise*** the inherent (first-order) dunamis in practice, i.e. to activate it by means of practicing a relevant body of knowledge. It is important to note that second-order dunameis entail not only the acquisition of the practical means for expressing a latent capability, but also *the demonstration of the will* to exercise it. A second-order dunamis refers to the acquired

[27] DA 417a29-31.

capacities that are necessary for activating or 'awakening' and exercising first-order dunameis in action.[28]

The distinction between first and second-order dunameis stresses what was established in the previous chapter, namely that the mere possession of a dunamis without it being exercised does not produce any impact and hence cannot alone be qualified as power. The step which mediates between the mere possession of a capacity (stage one) and its exercise (stage two) is given by the mechanism of second-order capacities. It is important to stress, however, that second-order dunameis do not precisely constitute a separate stage in the realisation of power, and thus they cannot be said to suggest a fourth stage in the procedure identified in the previous chapters. Rather, they are referring to the *mediating mechanism* between stages one and two of power—i.e. they specify the *process* through which an actor may proceed from the first stage of mere possession of a latent capacity to the second stage (the ability) of exercising it in practice. This will determine to a large extent whether stage three—i.e. its successful realisation and impact as power—will be achieved. The distinction between first and second order dunameis thus serves to clarify how the 'attempt to exercise power' comes about and what it consists in. Hence, first-order dunameis can be interpreted as the necessary condition while second-order dunameis (which broadly correspond to the second stage of the exercise of a capacity in action) as the sufficient condition for the exercise of power.

The introduction of the notion of second-order dunameis adds at once an intriguing and helpful dimension to the 'capacity approach' to power. Particularly, it can be interpreted in such a way so as to clarify both (i) certain crucial aspects pertaining to the nature of resources, as well as (ii) the status of resources as a necessary but not sufficient condition for the exercise of power.

[28] DA 417a 24-417b6.

In the first place, the psychological approach to power establishes rather neatly the argument that resources, as far as their pertinence to power is concerned, cannot be regarded as exclusively material in nature. Power resources can be psychological and intellectual, which furthermore means internal and personal in kind. This raises the epistemological inference that one cannot adequately examine power relations or structures outside the personal contributions as well as receptions of those individuals who participate in them and who, effectively, *constitute* them. Hence, the nature of resources encompasses the psychological aspects and points of origin which determine the range and quality of individuals' comportment, activities and interactions with their environment.

Those psychological resources are regarded as responsible for shaping the character and quality of agency that individuals formulate, conditioning the scope and type of their participation within their wider sociological context, inasmuch as they specify the manners in which agents will be likely to contribute productively to the configuration of particular political structures, institutions and patterns of social relations involving a component of power. Besides, the notion of agency—let alone its decisive role in the formulation of power relations in society—cannot be adequately explored without first having an adequate understanding of the inputs and processes involved in the constitution of agency. The latter includes some account of the nature and qualities of agents, their internal capacities, tendencies, probable behavioural patterns, and so forth, in which agency consists. This interpretation, thus, reminds modern readers that power consists of a crucial and necessary psychological and cognitive dimension which cannot be ignored if one wishes to formulate a clear, consistent and thorough understanding of the ways in which power emerges and functions within the broader context of society.

Furthermore, the distinction between first and second-order dunameis can be fruitfully interpreted in a manner which can clarify and expose *why*, but also *how*, power,

although based on resources, 'is not the same as resources'[29]—i.e. why to have a capacity does not amount to, neither is it adequate for, the exercise of power. As was established in the previous chapter, capacities must be exercised *successfully* in order for a phenomenon or incidence of power to take place, where this success consists both in their effective exercise *as well as* reception. Nonetheless, based on an interpretatively constructive reading of Aristotle's psychological account of dunamis, we may further trace the existence of particular mechanisms mediating between the possession and the exercise of a capacity. More specifically, what is required for the exercise of a given capacity is the existence or acquisition of some additional type of capacity which convert first-order capacities into activities. We observe a *qualitative* differentiation between *genres* or kinds of capacities and particularly the specification of second-order capacities, whose function is to facilitate the *exercising* or converting of initial/first-order capacities in practice. In this way, the concept of second-order capacities offers the necessary explanatory heuristic which establishes the distinction, at the same time as it provides the link, between active and dormant capacities, thereby clarifying the procedural aspect of the 'capacity mechanism' of power. With the introduction of second-order capacities, Aristotle avoids, as Johansen puts it, 'Moliere's famous *virtus dormitiva* caricature of capacities, on which positing a capacity does nothing to explain the activity for which it is responsible'; 'this is because the capacities, for Aristotle, serve as efficient, final, and formal causes of the changes they are capacities for: they give us an informative and non-vacuous explanation of why these changes occur'.[30]

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[29] Keith Dowding, *Power (Concepts in Social Thought)* (University of Minnesota Press, 1996), p. 3.

[30] Caleb Cohoe, **'**Review of Thomas Kjeller Johansen '*The Powers of Aristotle's Soul'*, Oxford University Press, 2012', in *Notre Dame Philosophical Reviews* (25/05/2013), http://ndpr.nd.edu/news/40259-the-powers-of-aristotle-s-soul/. Also, Thomas Kjeller Johansen, '*The Powers of Aristotle's Soul'* (Oxford: Oxford University Press, 2012).

THE FUNCTIONS OF THE PSYCHE

The third crucial distinction marking Aristotle's psychological theory concerns the division between the three kinds of functions or states exhibited by the human psyche[31]: (a) *pathē*' (passions, affections or 'accidents'); (b) *dunameis* (powers)—which, as explored in the previous chapters, are intrinsically correlated with the diametrically corresponding state of *energeia* (activity); as well as, (c) *hexeis* (habits, dispositions or acquired states[32]). Although each of those notions covers a wide spectrum of signification, a comprehensive analysis of which would certainly fall outside the scope of the present investigation, a short outline of each is deemed useful for our analysis.

(a) Pathē

In the first place, the concept of *pathos* refers to a passive state—or, a state of passivity—that the psyche may possibly exhibit, and which ensues from the mediating of an internal or external active dunamis. According to Bonitz's helpful classification, pathos may semantically signify three distinct yet correlated possibilities. First, a *reaction*, i.e. the effect of the process of being acted upon ('*paschein'*), or, alternatively put, the result of passively undergoing an active dunamis. Second, the undergoing of a certain kind of affection. Or, third, an intense affection or upheaval relating to pain or pleasure.[33] Examples of passions include, 'desire, anger, fear, courage, envy, joy, friendship, hatred,

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[31] Aristotle, NE, I, 4, 'those [things] that can happen to the psyche are three [in kind], pathe, dynameis, hexeis'. See also DA 417α31-β9.

[32] Henry George Liddell, Robert Scott, *A Greek-English Lexicon*, entry «hexis».

[33] See Marjolein Oele, 'Passive Dispositions: On the Relationship between πάθος and ̋ἕξις in Aristotle', *Philosophy*, Paper 36, 2012 [http://repository.usfca.edu/phil/36]; Marjolein Oele, 'Heidegger's Reading of Aristotle's Concept of Pathos', *Philosophy*, Paper 18, 2012, [http://repository.usfca.edu/phil/18]. As Oele lucidly cites, Bonitz distinguishes between five different senses of 'pathos': (i) as the process of being acted upon, (ii) as incidental attributes acquired by subjects (such as a colour), (iii) qualitative change, (iv) calamities or pains, (v) affections or upheavals of the soul relevant to the feelings of pleasure or pain. (I), (iii) and (v) are the senses which are more pertinent to our analysis in this chapter.

passion, jealously, compassion', [34] and so forth, where all of the above are interpreted as situations where the psyche is found in a passive state or condition.

(b) Dunameis – Energeie

Nevertheless, passions are only possible to be experienced by individuals because they possess the relevant and corresponding capacities *of* desiring, *of* feeling anger, *of* exhibiting compassion, et cetera.[35] As faculties or ***psychological capacities*** (which Aristotle occasionally refers to as parts (*moria*), those capacities are in fact dunameis that form part of the psyche and delineate the potential emotional and cognitive functions of individuals.[36] In this fashion, dunameis configure the underlying infrastructure *by means* or *by virtue* of which individuals may undergo particular psychological experiences—such as passions—, out of which their character traits progressively develop. As ***psychological potentialities***, dunameis circumscribe the possible in terms of ontological experience—i.e. in terms of states, feelings and perceptions that individuals are likely to experience internally, and, consequently, express externally in the form of actions, which may originate by any kind of combination of those dunameis.

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[34] Aristotle, NE, II 1105b 22-23.

[35] This is a specific adaptation of the element of 'by-ness' which was traced in the discussion of dunamis qua ontological concept in the previous chapters. See Aristotle, NE, II 1105b 24-15, 'dunameis are those by virtue of which we can sense these passions, the fact that we have the ability to feel anger or sadness or compassion'. Dunameis thus serve as 'receptors' which, according to the input received by the soul, determine the range of potential reactions to internal or external stimuli. Those can be emotional or, more generally, psychological states, such as 'anger', sadness', 'compassion', 'friendship', 'amity', etc.

[36] Mariska Leunissen, *Explanation and Teleology in Aristotle's Science of Nature* (Cambridge: Cambridge University Press, 2010), p. 51(n).

As noted, the capacities or dunameis of the soul also function as an individual's inner principles or ***origins of change***.[37] This dimension of their conceptualisation implies that dunameis signify the sources or origins of any kind of psychological situation (emotion, affection, virtue, character trait), including any kind of practice or activity that may initiate from the individual. In accordance to its generic formulation, dunamis is in this case too specified as an *origin of* ***motion*** *or change*, which, in the context of the study of the individual, amounts to saying that dunameis account for the originating role individuals have in their actions as well as the formation of their character. Dunameis provide the foundations of agency.

Corresponding to dunameis are the *energeiē* or activities of the soul (in the same manner that, as we saw in Chapter I, actuality corresponds to potentiality). *Activities* of the soul refer to the doings and active performances resulting from the operation of psychological and cognitive powers applied *in action*, including the effects those activities bear upon the individual's psychological condition, her perceptions, experiences and enterprises undertaken in everyday life.

The most notable example of an activity (energeia) of the soul, which Aristotle considers as immediately relevant to politics, is *eudaimonia ('ευδαιμονία')*, the most central concept of his ethics. *Eudaimonia* stands for 'happiness', 'fulfillment' or the achievement of the 'good life'—what, in academic discourse, is often referred to as 'living-well'. Tellingly, Aristotle posits *the good life* as an *activity* emanating not from the operations of the social mechanisms or institutions of the polity, but rather, as a very distinctive activity of the psyche, and, particularly, an activity arising from the psyche's

[37] The generic definition of dunamis as a principle of change is also applicable here. In addition to the features specified in its ontological formulation, in the context of ethics this notion acquires some further qualitative extensions appropriate to the discussion of individuals and society.

rational power. This activity consists in the functioning of the psyche as a whole in accordance to virtue, and constitutes, according to classical discourse, the ultimate goal or highest good towards which individuals, but also societies, should strive for. *Eudaimonia* is not an instrumental good but an end-in-itself for the sake of which all other subordinate goals (health, money, wealth, safety etc.) are desired and pursued—which is why it is ranked as the highest amongst them.[38] Yet, as noted, *eudaimonia* is not a property of collective structures or political life, but a property of the soul, which the latter institutions can either promote or not. However, a soul which is flourishing, a soul which is healthy, happy and complete, does not only constitute an individual goal, but is, furthermore, normatively advanced by Aristotle as the ultimate goal of human societies too—indeed, the very *raison d'être* of the institution of the political community.

Exploring the idea of the good life as an activity of individuals' internal dunameis, Aristotle, moreover, conceptualises eudaimonia as a continuous process, a constant state-of-being, which, through persistent practice and habituation, eventually becomes entrenched in the individual soul as its standard pattern of functioning. The good life refers to a pattern of inner psychological functioning, which can only be attained by individuals (not structures), but which can be collectively experienced to the extent that structures can promote, safeguard and cultivate this pattern within individuals, through, first, education and, second, the patterns of behaviour and practices designated through and by the laws.

In accordance with the generic formulation of energeia explored in the previous chapter, we observe that, in its psychological appropriation too, the concept signals a constantly active situation—a *situation* of 'being-at-work'.[39] (This is a situation and not a *state per se*, since a state entails a static connotation unsuitable to the idea of constant

[38] NE 1097b22-1098a20.

[39] See Chapter I.

action signified by energeia). Whereas dunameis demarcate the 'internal receptors' which, upon reception of stimuli, define the variety of potential responses, psychological reactions and ensuing interactions with one's environment (relating to how individuals *receive* and internally process the various stimuli), activities of the soul relate to how individuals *comport themselves* psychologically, which is reflected and expressed through their externally manifesting actions and general pattern of social behaviour.

(c) Hexis

What is still left unanswered is how a psychological dunamis is actually converted into an energeia/ activity. What are the mechanisms or processes that may account for the successful exercise of a capacity that may subsequently wield an effect of power?

The answers to these key questions are partly provided by the heuristic distinction between first and second order dunameis, since, as we examined earlier, what is requisite for the conversion of a first-order dunamis to action is the mediation of a second-order dunamis. In the case of human behaviour and affairs, the link between these two stages of power is particularised and is given, for the most part, by the third key function of the soul (which is, at the same time, a second-order dunamis), which Aristotle specifies under the term '*hexis*' (*'ἕξις'*).[40]

Hexis is one of the most important notions in classical political thought. As a second-order dunamis, it encompasses all those socially essential mechanisms and procedures, such as education, collective norms, practices, habits, traditions, laws, and even etiquette, which serve to activate, mould and channel individual forces and abilities towards particular modes and varieties of psychological and behavioural manifestation. *Hexis*, which literally means 'having' or 'to have'—derived from the verb '*ἔχω*' [echo]

[40] In plural form, 'hexeis'.

and rendered in Latin into the (recently very popular in sociology) term '*habitus*'[41]— indicates the state of being-in-possession ('*ἔχειν*'/ echein) of a certain attribute or habit. More specifically, it refers to a psychological disposition usually acquired or established through repetition of practice.[42] According to the interpretation of some scholars, *hexis* also refers to the exhibiting of a 'readiness',[43] in the sense of a *tendency* or *disposition*[44] to act in a certain way, which has been acquired or grown out of habit, training or repetitive practice. In the context of ethics, *hexis* furthermore signifies a state of character[45] or habitual *manner*[46] of behaving which, through recurring praxis, has become *internalised* by the agent and gradually turns into one of his main character traits, thereby defining his personality; for *hexeis*, as Aristotle suggests in the *Categories*, denote the qualities 'by virtue of which things are *what* they are'.[47] For instance, knowledge, virtue, health, but also kindness, honesty and justice are a few examples of *hexis* thus perceived.[48]

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41 See Pierre Bourdieu, *The Logic of Practice* (London: Polity Press, 2000).

42 As Theodore Scaltsas notes, the concepts of dunamis and hexis form the basis, not only of Aristotle's own ethical theory, but the entirety of ethical discourse over the course of history. Scaltsas, *The Golden Age of Virtue*, p. 40.

43 Yves R. Simon, *The Definition of Moral Virtue*, Vukan Kuic (ed.) (New York: Fordham University Press, 1984), p. 71.

44 Attention should be drawn to the slight yet meaningful conceptual distinction Aristotle draws between hexis and disposition. He clearly distinguishes between the two in the *Categories*, by considering hexis as a more stable, lasting and firmly established feature of the individual than a mere disposition (8b 25).

45 John P. Anton, George L. Kustas, Anthony Preus (eds.), *Essays in Ancient Greek Philosophy* (Albany: State University of New York Press, 1989), especially Donald Morrison's chapter, 'The Taxonomical Interpretation of Aristotle's Categories: A Criticism', pp. 19-46. Also, the introduction in David Ross (transl.), *Aristotle's Nicomachean Ethics* (Oxford: Oxford University Press, 1980), and Tom Sparrow, Adam Hutchinson (eds.), *A History of Habit: From Aristotle to Bourdieu* (Plymouth: Lexington Books, 2013).

46 In NE, II, 1105b, Ch.4, hexis is also described as the manner in which we comport ourselves towards or with regards to our passions.

47 Aristotle, *Categories*, Part 8.

48 See Aristotle, *Metaphysics* 1022b: 'but (b) there is another sense of "having" which means a disposition [diathesis], in virtue of which the thing which is disposed is disposed well or badly, and either

In the *Nicomachean Ethics*, Aristotle offers a very short yet concise explanation of *hexis*, which contextualises the concept within the greater framework of his psychological theory. As he notes, *hexeis* denote the *manner* in which we stand and comport ourselves, either well or badly, vis-à-vis our passions—in other words, they refer to how well or not we manage, handle and process our passions and dunameis. In order to illustrate the significance of the use of the (often rather misunderstood) terms 'good' and 'bad', he brings up the example of anger and claims that we are said to stand 'badly' towards our anger if we feel it violently or too weakly, and 'well' if we feel it moderately, and similarly with reference to the other passions.[49]

Two major aspects are involved in the Aristotelian notion of *hexis*. The first concerns the issue of 'internal management' or management of the self, which is pertinent to his acknowledgement that individuals play an active and decisive role in the formulation of their character. The manner in which an individual stands, acts, reacts, and manages himself *internally*, vis-à-vis his own internal psychological processes, thoughts and affections, each of which motivates a particular way of acting and living, is what yields both the procedure of formulation, as well as the *quality* of *selfhood* developed as a result of the operation of those internal dynamics. At the same time, *hexis* also describes

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independently or in relation to something else. For instance, health is a state (hexis), since it is a disposition of the kind described. Furthermore, any part of such a disposition is called a state (hexis); and hence the excellence [arête] of the parts is a kind of state'. Health and virtue constitute hexeis not only because they rest in and result from constant, continuous practice, and so constituting acquired features of one, but also because individuals are *naturally* disposed towards them—i.e. the human body is inclined and 'gravitates' towards exhibiting and maintaining its health. Equally, Aristotle thinks, the human soul is naturally predisposed towards 'virtue' and goodness, as the necessary means towards achieving the 'good life' (eudaimonia). For an elucidating discussion regarding the mechanisms and processes of habituation, see Nancy Sherman, *The Fabric of Character*: *Aristotle's Theory of Virtue* (Oxford: Clarendon Press, 1989).

[49] NE, II, Ch. V. Aristotle's conception of 'goodness' as moderation (metron) transpires in an obvious fashion from this statement.

the mechanism through which agency is formed, thereby explanatorily accounting for how individuals have an originating role in their own actions.[50]

The concept of *hexis* is key in theoretically grounding and, furthermore, substantiating the idea of agency. This function performed by the concept within its broader discursive environment is reinforced by the understanding that *hexis* is considered by Aristotle as '*προαιρετική'* [prohairetic], meaning voluntary—i.e. as a matter of free will, choice or decision, and not simply an issue of external conditioning or desire (given that *hexis* refers to the manner in which we behave *towards* our desires). Some of our dunameis—qua psychological capacities and potentialities—may be set by nature, while passions may be whimsical, impetuous, imposing, irrational and often uncontrollable, but *hexeis* is what rests with the agent to handle, what is found at her discretion and residing at her own hands to define, establish, regulate and perform, as she may decide. This is not a small slice of the pie left to the individual, for, as Aristotle famously stated, '*hexis* is second nature'; which means that habituation can be as strong, as determining and as influential upon individuals and, by extension, upon society, as much as natural forces, biological conditions and endowments, including people's natural dispositions. The recognition of *hexis* as a constitutive aspect of the operation of human psychology, in conjunction with its parallel specification as an expression of volition, establishes the notion of a free will, upon which agency—which *requires* inasmuch as it intrinsically *implies* some degree or mode of free will—is effectively grounded.

One of the most illustrative examples of *hexis w*hich, at the same time, constitutes a cardinal concept in Aristotle's ethical and political theory, is virtue (in Greek, *'αρετή'*/ arête). Virtue is immediately related to the activity of living well (which, as we saw, is

[50] See Chapter I.

defined as 'the activity of the soul in accordance with *virtue*'), such that the good life or happiness is defined as consisting in virtuous activity.[51] Leaving the possible moral implications of virtue aside, virtue is, conceptually speaking, designated as a *hexis* in the sense that it consists of and is assembled by a set of patterns of practices which encourage, nurture and, finally, establish within each individual the active endeavoring towards the good life. As Sachs comments, *hexis* 'does not merely mean a passive habituation. Rather, [it] is an *active* condition, a state in which something must *actively* hold itself (…) If the human soul had no being-at-work, no inherent and indelible activity, there could be no such moral stature, but only customs'.[52]

To the degree to which it consists in virtue, the good life involves both the experience of an *internal* condition of stable wellness, tranquillity, balance and satisfaction (it is a psychological circumstance), as well as the outward expression or 'playing-out' of this condition in the form of *externally*-oriented actions. These two, taken together, define the character of the individual and impart his soul its ethical stature. Virtue is energetic, since it signifies a process of being-at-work resulting by and upheld through the continuous (re)construction, demonstration and practical manifestation of certain patterns of thinking, psychic processing, internal management of one's self and external behaviour. All those become expressed in everyday life in the form of individuals' activities and general comportment in the context of their social and political interactions.[53]

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[51] This notion constitutes the cornerstone of Aristotle's virtue ethics. For a helpful analysis of virtue, see Jessica Moss, '"Virtue Makes the Goal Right": Virtue and Phronesis in Aristotle's Ethics', *Phronesis*, Vol. 56 (3) (2011), pp. 204-261.

[52] Joseph Sachs, *Aristotle: Ethics*, Internet Encyclopedia of Philosophy, 2005. http://www.iep.utm.edu/aris-eth/. Italics my addition.

[53] In this particular case of virtue, the pattern of behaviour consists in moderation/metron.

To develop a *hexis* means to cultivate a particular *pattern* of thinking, a particular *pattern* of feeling, a particular way of comporting one's self-vis-à-vis one's desires, as well as in relation to other individuals and circumstances. It refers to how we receive external events, and how we act ourselves externally. We may summarise the key meanings that are semantically incorporated by the term, by stating that *hexis* gives us the 'common resultant' ensuing from the combined and correlated functioning of (i) an individual's *internal* psychological behaviour (how one stands in relation to his passions, impulses, etc.); (ii) her reaction to *external* circumstances—including the reception of external stimuli, energies, powers coming from her context; and (iii) the manner in which she *actively stands* and conducts herself within this context. *Hexis* thus offers a description of the structure of an agent's joint *pattern* of behaviour on all three levels.

How, then, to use the above example, does one actually become virtuous? Or, to pose the question in a more general fashion, how do we come to develop a *hexis*? Aristotle claims that we are not born virtuous, but we *are* born with the capacity to be virtuous;[54] similarly, we are not born possessing any particular *hexis*, but, as we grow, we work through our own patterns of psychological and social behaviour and eventually develop certain standard *hexeis*, which define our character and which, of course, may change and evolve over time. The activation or awakening of the capacity to be virtuous comes through the ***practices*** one conducts. As Sachs puts it,

> We arrive at virtues by working at them: in the give-and-take with other people, some become just, others unjust; by acting in the face of frightening things and being habituated to be fearful or confident, some become brave and others cowardly; and some become moderate and gentle, others spoiled and bad-tempered, by turning around from one thing and toward another in the midst of

[54] See NE, II 1003a, 'none of the moral virtues arise in us by nature'.

> desires and passions (See NE 1103b, 1422). [Aristotle] sums this up by saying that when we are at-work in a certain way, an active state results. This innocent sentence seems to me to be one of the lynch-pins that hold together the *Ethics*, the spot that marks the transition from the language of habit to the language appropriate to character (...) since it says that a *hexis* depends upon an *Energeia* [activity]. The latter word, that can be translated as 'being-at-work', cannot mean mere behavior, however repetitive and constant it may be.[55]

As examples of two differently acquired *hexeis*, Aristotle distinguishes between two *kinds* of virtues, ethical and intellectual. Ethical virtues are developed through repetitive activity—or 'addiction' *('ἔθος'/ ethos*) to a given type of conduct, whereas intellectual virtues are acquired through education (provided by teachers and/or social learning mechanisms).[56] In both cases, however, we observe that the key to developing a *hexis* is provided by the notion of praxis.

Having acknowledged the crucial function that the concept of *hexis* as *prohairetic* [voluntary] performs in substantiating Aristotle's account of agency, there is still an important social dimension involved in the way *hexeis* are developed within the individual, which dictates sources of habituation external to individual volition. In this case, *hexeis* do not merely signify autonomously chosen habits of character, but they also take the form (and hence meaning) of collectively promoted patterns of behaviour, norms and practices that are disseminated, promoted and cultivated through laws, standard education and upbringing. It is this very consideration which, after all, underpins the decisive ethical dimension—but also responsibility—which Aristotle saw as inherently immanent in lawmaking. As he notes in Chapter I of the second book of the

[55] Sachs, op. cited.

[56] NE, II 1, 1103a.

Nichomachean Ethics, 'legislators make the citizens good by forming habits in them, and this is the wish of every legislator, and those who not effect it miss their mark, and it is in this that a good constitution differs from a bad one'.[57] Similarly, family upbringing plays a pivotal role in the formation of individuals' *hexeis*, since Aristotle thinks that individuals who have received a more noble—in the sense of virtuous—upbringing are more likely to be interested and inclined towards engaging in intellectual activities, such as the discursive (political) examination of what constitutes the 'good life', which, as an example of intellectual habituation, helps instil and inspire within the interested individual the *hexis* of virtue in which the good life consists.[58]

A tension appears to exist between Aristotle's conceptualisation of *hexis* as *prohairetic* [voluntary], on the one hand, and *hexis* as a social mechanism, on the other. If an individual's *hexeis* are formulated, somewhat automatically and partially involuntarily, by her upbringing and participation within a broader social context, this could be read as implying that her subjectivity is effectively conditioned since it is constituted by socially designed and shared behavioural practices which were not voluntarily chosen, but, rather, more or less, indirectly forced upon her. This syllogism suggests that Aristotle's account appears to demonstrate a serious contradiction which, effectively, engenders some form of social determinism; his account would seem to be evoking, and reconstructing, albeit in an idiosyncratic manner, the agency/structure problem that has long now troubled both theorists of power in particular and political thinkers in general.

Yet, Aristotle returns to the issue of the relationship between *hexis*, *prohairesis* and social conditioning in Chapter II of the second book, to address the possible objection that *hexis* consists merely in the performance of particular practices, which could be traced

[57] NE II 1, 1103b.

[58] NE I 4, 1095b.

back to family and social conditioning. Examining his favourite example of *hexis*—virtues—he claims that simply the performance of certain acts, e.g. just and prudent acts, does not alone amount to the individual having actually developed the qualities of justice and prudence as features of her personality/subjectivity. This is because, he argues, the importance of a certain practice does not rest with the activity but, rather, with actor; any activity a person may perform—e.g. in the case of automatically or unreflectively participating in collective practices and norms—does not imply that the actor necessarily possesses or represents the correlated quality associated with the particular practice.[59] Hence, the correlated quality or trait does not form part of her subjectivity, and, consequently, social habituation cannot be considered as tantamount to the construction of subjectivity—which, were it the case, would certainly pose a challenge to an individual's authenticity and autonomous agency. As he notes, 'the agent *must be in a certain condition* when he does [virtuous acts]', and cannot be said to exhibit the relevant qualities if she is merely performing the act 'by chance or at suggestion of another'.[60]

When it comes to *hexeis*, which relate immediately to one's defining features of subjectivity, and thus agency (unlike *hexeis* which relate merely to skills—*'τέχνες'*/ technai)[61], Aristotle identifies three provisos—or necessary conditions—which must hold in order for the practicing of a certain kind of act to result to the internalisation and assimilation of its correlated quality within the individual (qua *hexis*) as part of her subjecthood: (i) to have knowledge or be aware of the act one performs; (ii) to have consciously *chosen* to perform the act (i.e. perform it at her will); and, (iii) to practice it firmly and with determination.[62] Bearing the element of awareness or consciousness,

[59] NE, II 4, 1105a.

[60] Ibid. Italics my addition.

[61] NE1140b.

[62] Ibid.

hexeis hence practically refer to the ways through which an individual comes to hold an active and constructive role in the formulation of his character. Under the same signification, *hexeis* also delineate the complex procedural processes of self-management through which this character is practically constituted. As a result, modes of social habituation promoted through collective education and institutional practices can only qualify as *hexeis*—in the sense of deeply rooted, established features of one's subjectivity—to the extent that the individual is reflectively aware, acquiescent and adequately committed to their performance.

Therefore, despite the sturdy social element involved in its definition, *hexis* cannot be reduced to practices of social habituation performed by individuals. Given that *hexis* is conceptualised as *one* of the possible functions of the soul, this further implies that subjectivity cannot be—either logically or theoretically—reduced to *hexis*. Consequently, it is not possible for agency ever to be entirely usurped by, or collapsed into, collective structural practices. We shall return to this point in the last part of this chapter.

The above reflections bring us to the final key feature of *hexis*, which concerns the subtle yet critical conceptual distinction between *hexis* and behaviour. As Sachs rightly points out, in the previously quoted passage, *hexis* should not be confused with mere *behaviour*, 'however repetitive and constant'. The distinctive connotations encompassed by *hexis* pertain to its denotation of a more fundamental mechanism relating to the formation of one's character, which, despite its practical dimension, and thus possible behavioural aspects, would be inaccurate to identify with behaviour.

The semantic particularity of *hexis* consists in its reference to the development of given psychological patterns which both obtain through and result in practices and kinds of behaviour, but which cannot, nonetheless, be conflated with the latter. The concept thus

effectively describes the dominant *patterns* of cognitive, intellectual, emotional and bodily processes and responses—i.e. the patterns of thinking and acting, both inwardly and outwardly—which delineate the range of possible activities and thus types of behaviour that may arise out of their functioning. Those deeper underlying psychological patterns work productively towards the formation of one's character, the specification of its features and qualities, thereby functioning like 'threads' which, through the multiple combinations of their interweaving, constitute what Sherman figuratively describes as 'the fabric' of one's character.[63]

Hexis and the Field of Power

Based on the above interpretative examination, we may discern that the concept of *hexis* performs a crucial explanatory and cohesive function serving to sustain the core structure of Aristotle's account of dunamis. Indeed, when examined at the level of the individual, *hexis* relates to the exercise of power precisely by virtue of providing the key link between capacities and their exercise into (possibly impact-bearing) activities. More particularly, as we saw, *hexis* represents the most common and most relevant—sociologically and politically speaking—second-order dunamis, which provides the key to the capacity mechanism of power.

There are two ways in which this exegetic 'bridge' is established. On the one hand, as Aristotle informs us, in the case of biological capacities or material resources, the direction of interrelation between a dunamis and its exercise proceeds from the presence of a dunamis (qua capacity) directly to its active manifestation (which, in certain cases, such as the senses, happens automatically[64]). The sequence thus proceeds from *dunamis* → to

[63] Nancy Sherman, *The Fabric of Character*, 1989.

[64] NE, II 1103a20-b10.

direct exercise → to *activity*.[65] Nevertheless, in the case of intellectual dunameis, including virtues (i.e. capacities involving the element of reason or perception), a latent capacity on its own does not suffice to bring about its exercise or instigate the production of its relevant activity directly. What is required is the mediation of a supplementary *activity*, which is postulated as necessary for stirring or activating the primary capacity, such that the latter may, eventually, be exercised successfully, and through its successful exercise, manifest particular effects and products in practice.

For instance, Aristotle claims that one becomes accustomed to acting generously (i.e. develops generosity as a feature of his subjectivity) through the repetition of generous acts. The carrying out of such acts serves as the necessary mechanism activating one's internal disposition towards generosity, and thereby establishes generosity as a characteristic pattern of behaving that, sooner or later, becomes a distinctive feature of one's subjecthood. In such cases, the directional sequence proceeds from (performance of) *activity in the form of appropriate practices* → (to the activation of) *dunamis* → (to its) *exercise*. *Hexeis* can therefore be interpreted as signifying precisely those mediating practical mechanisms which consist in the performance of activities serving the purpose of activating or awakening a corresponding (dormant) internal capacity.

We may conclude that the notion of *hexis* bears an important structural value for the manner in which dunamis, as a feature of individual practice, is morphologically assembled in classical discourse, since it acts as the mediating link bridging capacities (*dunameis*) with activities (*energeiē*), the potential with the actual, as well as the 'internal' (subjective/individual) with the 'external' (social/collective). Furthermore, it lends itself to the interpretation as a transitory apparatus explaining how capacities are converted into

[65] A characteristic example, noted in the previous chapter, is vision: one possesses the power of sight, by means of direct exercise, hence produces the activity of seeing, rather than vice versa.

exercise of activities, as well as how one proceeds from the possession of a dunamis as potentiality (first-order, 'inert' level) to the acquisition of the capacity to exercise that dunamis actively. While dunamis as capacity, potentiality and origin of change gives the causal (in the sense of generative[66]) principle of power, *hexis*, as a crucial component of dunamis,[67] explains the mediating mechanism or 'the how' a given capacity comes to be actually exercised.

In light of its pivotal structural role, *hexis*—viewed as a process—can be symbolically represented as designating the 'milieu' wherein the internal perceptions, thought-acts and psychological processes of an agent meet, mingle and interact productively with his external context. It may be accordingly interpreted as the practical mechanism which stretches, mediates and settles between a dunamis dwelling internally in the individual and activities which are socially-oriented, at the same time denoting both the process of activation as well as the *standardisation of the exercise* of a given capacity. Yet, since *hexis* simultaneously relates directly to the components comprising an agent's subjectivity—i.e. patterns of behaviour consisting in emotions, thoughts and concrete actions, by means of which individuals are enabled to express their internal capacities or resources into impact-bearing activities—it also constitutes an indispensable explanans of how power relations at a social level proceed from factors and micro-practices which pertain to individual agency. In this manner, it represents the key conceptual link uniting Aristotle's conceptual components into a coherently standing morphological schema.

The generic outline of power discussed in Chapter I could now be modified, becoming invested with the specific meanings pertaining to its particularised adaptation to

[66] See Chapter I on an elaborate analysis on the distinction between power as causal and power as generative.

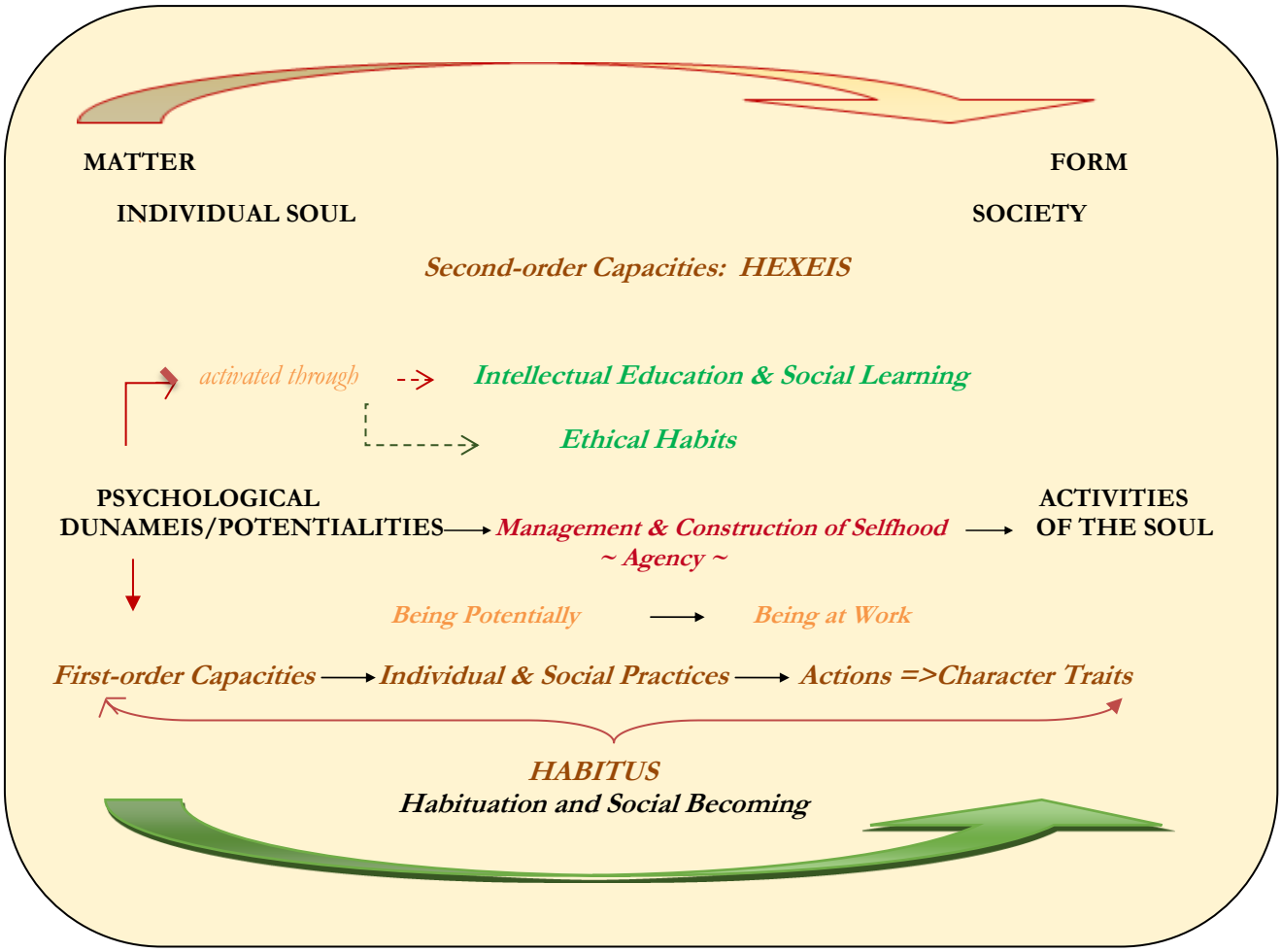
[67] This is why, according to Scaltsas, hexis may be in some sense understood as a branch of dunamis (Scaltsas, pp. 48-49).

the study of anthropological and political affairs. In Chapter II, the procedural field of potency was identified as comprising of the interplay, interchanges and mutual conversions between potentialities/capacities and actualities/practices. In the context of this analysis, this generic definition can be adjusted to claim that, in the case of social interactions, power emerges within the field of transitions and conversions of individuals' latent potentialities or capabilities into social practices and activities.

Nevertheless, the mechanism traced as responsible for those processes of conversion and interchanges between capacities and impact-bearing effects was precisely located as falling within the semantic range covered by the notion of *hexis*. *Hexis* signifies a process and since processes imply duration, *hexis* must involve some relative or symbolic expression of space. Likewise, *hexis* represents a symbolic *site*, namely, the interceding space comprised jointly of the interactions between agents' internal capacities, perceptions, emotions—in short, the pillars constituting subjectivity—and the social context wherein those are exercised in the form of practices. This space forms a field of habituation, at once individual and social in kind, which is constituted by the interweaving of individual and collective practices. Interestingly, this active, fluid middle-ground which assembles the internal with the external, and the individual with the collective, through the practical processes of habituation, seems to resonate with what more recent theories of power have emphasised as a key theoretical framework for approaching and explaining of power relations—the concept of habitus.[68] This idea can be pictorially represented by adjusting the illustration formulated in the previous chapter to the terminological and conceptual specificities of the ethical discourse on power.

[68] Pierre Bourdieu, op. cit..; see also, Lois McNay, 'Gender, Habitus and the Field: Pierre Bourdieu and the Limits of Reflexivity', *Theory, Culture and Society*, Vol. 16 (1) (1999), pp. 95-117.

Illustration 1: *The Habitus as the Field of Power*



In light of their procedural and mediating character between the inert and the actual, the subjective and the inter-subjective, the individual and society, as well as by means of their function of converting capacities into activities and activities into capacities, it can plausibly be maintained that *hexeis*—qua processes—stretch over the procedural field of *social* becoming. Nonetheless, as we saw in the previous chapters, this space of becoming is also identified as the site of formulation and operations of power. In this way, we may plausibly surmise that *hexis* constitutes one of the core and structurally instrumental concepts in the morphology of power perceived as a quality and as a process pertinent to individuals' comportment, psychology and interactions at a micro-social level.

IV. Interpretative Extrapolations: Social and Political Implications of the Ethical – Psychological Account of Dunamis

One of the most important hermeneutic implications arising from this examination consists in acknowledging that the study of the classical conceptualisation of dunamis, as a feature of ethics and psychology, serves to switch our theoretical focus away from a primarily externally oriented approach concerned with practices, institutions and even relations on a socially macroscopic level, back to the crucial personal dimensions involved in this phenomenon. The perspective provided by this relatively unexplored discourse recasts the issue of power at the level of the individual—her behaviour, perceptions and psychology, since, in this discursive context, it is the individual that is both ontologically and epistemologically postulated as the primary actor and source of whatever other aspects, dimensions or tangents phenomena of power may acquire at a grander sociopolitical scale.

The value of this discursively idiosyncratic formulation of power does not merely rest on its historical or historiographical significance. Its examination entails certain profounder insights regarding possibilities of understanding the concept of power today. It points us towards useful alternative theoretical routes for reconceptualising and possibly decontesting in novel ways some of the core conceptual components which structure contemporary readings of the term, as well as elucidating certain subtler underlying problematics (including the agency/structure debate), which have served as points of controversy underpinning, yet often also perplexing, currently predominant interpretations.

In the first place, the psychological/ethical formulation of dunamis offers a helpful reminder of the personal dimension that is constitutive of power relations. It suggests a conceptual dimension of power, which, although a recurrent feature of numerous conceptualisations along the course of its historical evolution, has frequently been

downplayed by significant strands of political thinking.[69] However, Aristotle's emphasis on the indispensable personal dimension of dunamis, which accentuates the role of psychology and agency in the formulation of power relations, does not exactly group his approach amongst other prevalent agency-based understandings of power. This is because, in his discourse, agency is not juxtaposed to structure in the same fashion as in modern debates, which have generally postulated a defining division between them.[70] Rather, agency *explains* structure, notwithstanding the recognition the important role that the latter has in shaping the former. The exchanges between agency and structure are seen as continuously bidirectional[71]—in fact, circular, in the same manner as capacities are perceived to be relating to activities in a constantly convertible and recyclable manner (we shall return to the issue of agency at the end of this section).

Moreover, the classical approach to dunamis as an aspect of human psychology stresses the importance of recognising that, first of all, dunamis is initially construed, experienced and undergone by individuals at the level of their internal psychological experience, in the milieu of their very own personhood. A constructive interpretation of Aristotle's ethical view of dunamis lays bare the significance of the *internality of power*,

[69] For instance, structuralism and certain variants of Marxism. See Mark Haugaard, 'Power: A 'Family Resemblance' Concept', *European Journal of Cultural Studies*, 13 (4) 2010, pp. 419–438. Clarissa Hayward and Steven Lukes, 'Nobody to shoot? Power, Structure, and Agency: A Dialogue', *Journal of Power*, Vol. 1 (1) (2008), pp. 5-20.

[70] For a good discussion regarding the 'agency-structure' debate on the nature of power relations, see Keith Dowding, 'Agency and Structure: Interpreting Power Relationships', *Journal of Power*, Vol. 1 (1) (2008), pp. 21-36.

[71] Although, as explored earlier in the chapter, Aristotelian methodology suggests that the study of the parts precedes the study of the whole, nevertheless, at the same time, Aristotle assumed the political to be *logically* prior to the personal and thus the ethical, since the political is 'a necessary and natural milieu in which human beings develop the characters they need to enable them to live humanly', and the well-being of the individual can only be secured by the well-being of the collective (Coleman, 2000, p. 147). This perspective presents a reconciliation between the importance of structure and the recognition of the significance of self-authorship and hence agency.

i.e. the internal sources, relations and processes involved in the formation of power relations—a conceptual feature which, admittedly, bears critical ontological undertones. This decisive psychological parameter attributed to dunamis discloses a profounder dimension involved in power, thereby producing a more intricate view of the concept escaping its simplifying equation with coercion, domination or even subjectification.

Turning our attention to this key feature of internality, a legitimate concern arises: to what extent is it possible to adequately conceptualise—or, to that effect, theorise on—power as a macro-political phenomenon, as an issue of institutionalised relations, or more generally, as the postulated *modus vivendi* of the polity, and even the hypothetical *sine qua non* of politics as a whole, before first reflecting on those of its aspects which are most immediately and intimately felt by 'its subjects'—the individuals serving as the units of political analysis? This largely rhetorical query brings to the surface a more fundamental issue pertinent to modern interpretations of power, one which has served as a point of controversy between competing ways of looking at power. This concerns the theoretical tension between, on the one hand, the view of power as relational and institutional, i.e. as primarily involving a *relationship between* individuals;[72] and, on the other hand, its conceptualisation as *an internal attribute of* individuals.

[72] As noted in the Introduction, Foucault considers power as relational, i.e. as a kind of current running through the entire body politic, consisting in a nexus of multiple relations of force emerging and circulating within a broader system of socio-political interactions, thereby producing effects of truth, normativity and practice. Power, according to this view, consists in active relationships; it is not a 'thing' nor a 'possession', but, rather, 'a way in which certain actions modify others'—a mode of action that does not act directly upon others but acts upon their actions (Michel Foucault, 'The Subject and Power', *Critical Inquiry*, Vol. 8 (4) (1982), p. 789). Thus, Foucault maintained, 'power is everywhere, not because it embraces everything, but because it comes from everywhere' (*The History of Sexuality, Vol. 1* (Penguin, 1978), p. 93). Inspired by the Foucaultian interpretation of power, a rich body of feminist scholarship has similarly developed a vigorous reading of power as relational and as residing in the flow of institutional, but also personal and informal, social interactions. For example, Iris Marion

How could the emphasis placed by Aristotle's account on the internal aspect of power be squared with the idea of power as consisting in sets of externally-oriented relationships (or patterns of interrelations) *between* individuals, groups and/or institutions, that has been widely recognized as a veritable and core feature of power? There is a (at least one) possibility of accommodating this perception: through adhering to an interpretation of power's 'internality' feature as suggestive and constitutive of a relational attribute, such that to appreciate the internality of power would not necessarily amount to renouncing or undermining its generally perceived relational nature.

This interpretative possibility unfolds in a twofold direction. In the first place, according to classical discourse, agency offers the source, the originating locus and the 'raw material' from which relations at levels greater than the individual are constituted. The internal dynamics of the individual forms the unit of social relationships, and constitutes them throughout their possible evolutions into institutional structures and the more complex macroscopic interrelationships developed between them. To a considerable extent, the internal dimension of power is already presupposed and assimilated in its relational manifestation.

Young, *Justice and the Politics of Difference* (Princeton: Princeton University Press, 1990); *Throwing Like a Girl* (Bloomington: Indiana University Press, 1990); Amy Allen, *The Politics of Our Selves* (New York: Columbia University Press, 2008); S. Bartky, 'Foucault, Feminism and the Modernisation of Patriarchal Power', in I. Diamond and L. Quinby (eds.), *Feminism and Foucault: Reflections on* Resistance (Boston*:* Northeastern University Press, 1998); Nancy Fraser, *Unruly Practices: Power, Discourse and Gender in Contemporary Social Theory* (MN: University of Minnesota Press, 1989). For an interesting discussion of Foucaultian feminism and the relational reading of power see, Davina Cooper, 'Productive, Relational and Everywhere? Conceptualising Power and Resistance within Foucauldian Feminism', *Sociology*, Vol. 28 (2) (1994), pp. 435-454; Lois McNay, *Foucault and Feminism* (Cambridge: Polity, 1992), J. Sawicki, *Disciplining Foucault: Feminism, Power and the Body* (London: Routledge, 1991).

However, the relational conception of power is itself also presupposed and integrated within its particular reading as an internal attribute of individuals. In this case, this 'relational' element does not refer to an *external* relationship (i.e. a relationship with an 'other'), but, rather, an internal relationship, i.e. a relationship of one to oneself. Based mainly on his reading of the *Metaphysics* Θ, yet in view of the more general appropriations of dunamis' generic definition in the areas of ethics and politics, Ross argues for a similar reading, by distinguishing between two senses of dunamis (which, apropos, he translates directly as 'power'). First, he notes, 'power is a capacity in *A* of producing a change in *B*'. Under this common interpretation, we may argue, power is conceptualised as (i) a relational entity, which is seen as (ii) externally-oriented or directed (i.e. it obtains with respect to an '*other',* in this case, '*B*').[73] Ross, however, further remarks that power can also mean 'the capacity in one part of A in producing a change in another part (in A)', or similarly, 'a capacity of A *of passing into a new state of itself'.*[74] Accordingly, Witt succinctly recapitulates Ross' interpretation by construing the definition of dunamis as 'the capacity for self-change, or development' (the latter being a partial meaning of what is nowadays conveyed by the notion of empowerment).[75] Under this interpretation, power is also perceived as a relationship, nonetheless a relationship of one some part of *A* with respect to another part of the *same* agent.

Dunamis can thus be read as consisting in the *relationships* between an individual's various parts or faculties. Those include the interactions between her various internal psychological faculties and functions (for instance, the interactions between one's

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[73] For instance, Robert Dahl's famous definition, "*A has power over B to the extent that he can get B to do something that B would not otherwise do*".

[74] Ross, op. cit., 1980, Introduction page (CXXIV).

[75] 'Ross thinks that potentiality is what Aristotle calls 'nature' in *Metaphysics* IX, ch 8. (…) Dunamis is an 'internal principle of self-motion''. Charlotte Witt, *Ways of Being: Potentiality and Actuality in Aristotle's Metaphysics* (Cornell University Press, 2003), p. 133.

reason and her 'passions'), her internal psychological experiences, dispositions, thoughts and desires, as well as competing emotions and/or conceptions regarding appropriate and desirable behavior; the outcome, pattern and quality of interrelation between those different parts finds a psychological interpretation in Aristotle, by being viewed as that which produces what we refer to as the aggregate 'character' of the individual. It follows that the internal power processes taking place within the individual, prior to their externalisation onto any '*other*', are also regarded as consisting of an *inherently* relational element. As psychologist Robert Kegan concisely summarises this point, 'the self *is* the relationship'.[76] This reading of power as an internal experience hence integrates its conception as a form of relationship in a manner which serves to debunk the dichotomous contradistinction between power as subjecthood and power as a relation.

Nevertheless, the kind of agency-based focus, which stems as a hermeneutical possibility from the classical perception of the psychic form of power, does not entail a normative or deontological commitment to 'the personal', in the way as, for instance, certain strands of feminist theories have approached the theorising of the role of 'the personal' in power relations and, more generally, in the sphere of the political.[77] Instead, the appreciation of the personal experience of power follows mainly from the more epistemological position endorsed by classical discourse that the individual—including her experience of and input into collective affairs—can never be entirely eliminated nor usurped by structures. We shall return to this issue shortly.

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[76] Robert Kegan, *The Evolving Self: Problem and Process in Human Development* (Cambridge, MA: Harvard University Press, 1983). Italics my addition.

[77] See, for instance, Judith Butler, *The Psychic Life of Power: Theories in Subjection* (Stanford University Press, 1997); Seyla Benhabib, *Situating the Self: Gender, Community and Postmodernism in Contemporary Ethics* (Cambridge: Polity Press, 1992); Lois McNay, *Foucault and Feminism: Power, Gender and the Self* (Cambridge: Polity Press, 1992); Luce Irigaray, *An Ethics of Sexual Difference*, Carolyn Burke and Gillian C. Gill (transl.) (London: Continuum, 2005).

In any event, the appreciation that dunamis proceeds from and is to a large extent rooted within the individual can be utilized in order to elucidate certain tacitly embedded attributes of our own current ways of thinking about power, which, albeit underemphasized, are partially integrated in the very language of power—for instance, the terminological framing of expressions used to convey conceptions and statements concerning power. Let us here take the example of one of the most commonly used idioms of this 'vocabulary of power'—namely the expression "exercise of power". In the first place, the statement 'to exercise power' evokes and conceptually suggests the existence of some locus, internal (re)source or *site* of power, presumably latent within the individual. To say that one 'exercises power' implies a starting point or site within which the activity of exercise is gathered and from which it is instigated and subsequently externally directed. But where exactly is this site found? Where is it grounded? And, far more interestingly, what precisely is *that* which is being exercised?

If we abide by the conjecture explored in the previous chapter, namely that power consists in or results from the joint operation the three stages of 'dunamis/capacity – exercise - effect/impact', then power cannot, strictly speaking, exist *prior* to its exercise. Hence it logically follows that it is not power *per se* which is exercised, since power consists in the *entire* triptych in which (the stage of) '*exercise*' is but one of those included. That which is exercised, then, must be a capacity or a potentiality, which, with its successful conversion into some type of activity, produces *effects* of power.

However, capacities, and particularly second-order capacities, which account for the exercise of first-order capacities, and which, in the case of human affairs incorporate an intelligible component, are *ipso facto* related to internal states that are usually traced back to the individual(s) involved in their performance, such as in the example of *hexeis*.

The key then can be traced in the notion of *hexis*: for, as we saw, *hexeis* signify *at the same time* both the main type of second-order capacities *as well as* particular psychic states or character traits *actively* exhibited by individuals; they refer both to patterns of internal organisation and constitution of agency *and* the key mechanism through which first-order capacities are externally converted into impact-bearing activities. Therefore, *hexis*' twofold signification in the context of classical discourse establishes an indirect yet decisive connection between the concept of power qua exercise of capacities, on the one hand, and the internal structures, states and processes of self-constitution of individuals on the other. Considering the decisive role assigned to *hexis* qua a typical second-order capacity serving as the mediating stage in the capacity-mechanism of power, it logically follows that agency must also be, to a considerable degree, associated with the processes of formulation of power. Particularly in the case of activities more immediately pertinent to the sphere of the political (i.e. as noted before, those involving not merely a 'biological' but also an intelligible component, including perceptions, emotions and reasoning), the capacities serving as inputs to power do not simply concern some inherent, static potentialities of human nature which could be regarded as its abstract or inertial resources, but, rather, those active processes of self-constitution of agency performed by individuals within the site of their psychological being.

It can be surmised that the psychological states or conditions experienced by individuals as a result of the internal function, exercise and reception of power, are not simply the effects or products of, but also the primary *inputs* in the formation of power relations. Based on this understanding of the self as constituted by its *hexeis*, it can be plausibly maintained that what is partly exercised in the exercise of power is, in fact, the self: to a large extent, power consists *in the exercise of the self.*

The above idea is further elucidated by considering the notion of 'self-management' which was identified as integral to *hexis*. This refers to how an individual handles her internal dunameis/capacities, urges, thoughts, emotions, and the patterns of their internal associations—in short, how one structures his 'internality'. Since *hexis* refers both to the patterns of self-management, while also designating the processes whereby 'powers' are exercised, then the manner in which one manages one's selfhood is intimately tied to – and largely determines - the range of impact-bearing actions one is likely to perform externally, the kinds of reactions and thus also the scope of possible *receptions* of externally introduced powers. Therefore, the management of selfhood, as this consists in one's practical, emotional and intellectual *hexeis*, determines to a substantial extent the kinds of power relations one is likely to establish. This interpretation presents us with a probing understanding of power, which may be contrasted to the modern trend to identify power with the attaining, handling, managing and generally, engaging and relating with things *external* to an agent—i.e. with 'who *gets* what, when, how'.[78] Rather, the interpretative possibility here presented suggests that power can be alternatively perceived as concerning the question, 'who *is* what, when and how'.

A second important implication of our investigation pertains to the understanding that power is not necessarily a constraining but rather a productive phenomenon. The idea of dunamis as *origin* obviously reverberates well with the idea that power exhibits a crucial generative, productive, and even creative, aspect. This is a feature which, although underplayed in past discourses, a surge of 20th century theories of power have brought

[78] This is an allusion to Harold Lasswell's famous (though slightly pessimistic, in the author's view) definition of politics, which was briefly touched upon in the introduction. See, Harold Lasswell, *Politics: Who Gets What, When, How* (New York: Whittlesey House, 1936).

back to the forefront of academic attention, especially following Foucault's contribution and reinstatement of this aspect in the discourse.[79]

Yet, unlike some of the more recent predominant readings of this feature, Aristotle's version of the productive aspect of dunamis is associated (via the mediation of the concept of *hexis* defined as *prohairetic* [voluntary]) with the ineliminable degree of autonomy and claim to authenticity which he considers as defining features of human nature. The productive feature involved in the exercise of power does not solely rest in the productive forces of society, which are exercised upon the individual and suggest his production/construction as a subject, but, rather, refers primarily to the individual's share in the production, first of all, of his own self, and then, by extension, his society. Aristotle's view, therefore, does not regard the productive feature of power mainly as a property of structures but also (and perhaps primarily so) as a property of agents—of their (i) psychological functions and (ii) their contribution to the shaping of intersubjective and societal interactions. In the case of Aristotle, then, the subject is not pertinent to power insofar as it becomes an instrument of some superstructural 'power entity', which, through seemingly constructive processes of habituation and standard societal practices, inhabits individuals thereby constituting them as subjects. Neither is the subject—or the individual qua the unit of political analysis—pertinent to the productive facet of power by virtue of it providing the unit or the locus of subjectification.

It follows that the constitution of the self is not regarded as being exhausted by structural mechanisms of social conditioning and collectively mandated patterns of interaction with one's environment. Consequently, neither is it seen as thoroughly produced by the context. The processes whereby an agent interacts with his context—the

[79] Davina Cooper, 'Productive, Relational and Everywhere? Conceptualising Power and Resistance Within Foucauldian Feminism', *Sociology*, Vol. 28 (2) (May 1994), pp. 435-454.

structures of the polity—are not deterministic because they are not regarded as independent of the functioning of one's free will. As we saw, there is an ineliminable degree of autonomy accorded to the functioning of the human psyche, which excludes the possibility of a form of government or a character of social interactions which could *entirely* 'usurp' the individual 'self'—or, to that effect, 'agency'. Granted, this view is largely based upon an ontological assumption relating to Aristotle's interpretation of the soul; yet most theories of power, or to that effect, accounts of 'the political', cannot after all easily do away with such kinds of assumptions, which appear to be their founding presuppositions.[80] We shall return to this point shortly.

A third important implication following from the morphological exploration of dunamis relates to the emphasis Aristotle placed on 'practices' when theorizing about power relations and the constitution of agency. The broader thesis involved in correlating *hexis* and dunamis in a single conceptual formula states that neither dunamis, nor power can obtain outside conditions of activeness, liveliness, exertion, labour and enterprise.

On that account, the semantic and structural performance of this concept consists in connecting as well as integrating the personal 'site' of the individual (the sphere of his innate capacities, psychological functions, particular natural aptitudes and dispositions) with the site of social practices, in this manner designating (at an anthropological level) the major mechanism through which 'the social' is constituted. The idea of social becoming was particularly seen as signifying the ongoing processes of mutual inter-

[80] As Philip Pettit notes, 'every political theory, every theory as to how the polity ought to be constituted and governed, presupposes an account of the relationships and structure in virtue of which individuals in a polity constitute a people, a nation, and a state: if you like, it presupposes a political ontology.' Philip Pettit, 'Rawls's Political Ontology' in *Politics, Philosophy and Economics*, Vol. 4 (2) (2005), pp. 157-74. Also, Colin Hay, 'Political Ontology', in R.E. Goodin and C. Tilly (eds.), *The Oxford Handbook of Contextual Political Analysis* (Oxford, Oxford University Press: 2006), pp. 78-96.

determination of individuals, resources and collective structures through the constant flow of interactions and exchanges between them, which embody, at the same time, a material, emotional-psychological as well as cognitive component. As we saw, these processes yield a common 'space' or milieu, stretching between the subjective or personal and the social, between agents and structures, integrating and merging all those 'binaries' into a common field of inter-becoming, which, as we saw in our previous discussions, it is possible to identify as the field of the exercise of power.

These bring us back to a problematic spotted earlier in the chapter, still awaiting some clarification, which concerns the 'agency-structure' conundrum raised by Aristotle's theory of dunamis. The syllogism, let us recall, reads as follows. Since (i) *hexeis* ensue from *energeiē* (activities or practices) and (ii) every society endorses and prescribes particular varieties and patterns of micro-practices to which one is exposed by virtue of being a member of that society, and since (iii) in the common field of social inter-becoming, which is the site of operation of *hexeis*, the personal merges with the social in such ways that it often becomes hard to disentangle them, it logically follows that (iv) collective practices bear a most crucial role in determining the patterns of management-of-the-self, which are again delineated by the cultivation of particular *hexeis*. This role is moreover accentuated in light of the fact that social contexts tend to suggest, promote and project onto individuals, through shared norms and collective practices, specific prevalent ways or patterns for molding their internal dunameis. They encourage the cultivation and activation of particular capacities, as well as to advance (whether directly or indirectly) certain modes of expression and exercise of capabilities as more common, easily accessible—or even more popular—for individuals to practice. By extension, then, in light of the connection between subjecthood and dunamis, it would also appear to follow that the range of possible expressions of power are correspondingly shaped by situated

standards of conduct and collective patterns of habituation. Appreciating this role of context, however, could be seen as undermining the role of agency and the possibility of original authorship which we saw are central features of the classical account of the psychic dimension of power.

A counterargument to this objection, as briefly examined, is that the emphasis placed on social practices does not necessarily imply that Aristotle's account of power implicitly relapses into some form of social determinism or prioritization of structure over agency. This is because *hexis*, which is specifically defined as voluntary, represents the marking feature that both founds and safeguards the idea of agency for, as we saw, it guarantees the elements of autonomy and self-authorship which are characteristic of, but also necessary for, agency. It furthermore explanatorily grounds the broader theoretical position stating that agents are not simply the subjects but also the actors of power—where this role is not treated as merely owing to their possible structural positioning.

In this way, it is argued that the conceptualisation of dunamis offers a new way of addressing the agent/structure problem—a binary division which has long now dominated the discourse on power in political theory. It suggests a possible account of the relationship between individuals and structural consolidations or collective manifestations of dunamis (such as institutions) which, owing to the integration of *prohairesis* into the very core of the definition of dunamis as an internal/subjective feature of agency, implies that individuals are not *entirely* defined or constituted by social practices. Granted, power structures and power relations do depend upon the psychic life of individuals in order to be, since they operate through its fabrication into particular types of subjectivity and then become anchored in that produced subjectivity. However, this does not necessarily implicate that the latter can be collapsed to the former. In spite of the influence that external inputs, including society and its relevant social practices, bear upon the

formulation of an individual's selfhood, again, there is still something about the processing, organisation, reception and appropriation of these inputs which witnesses—or, at any rate, implicitly necessitates—the presence of an *ex ante* hypostasis, the existence of some internal space or space of internality wherein the norms, tropes or relations are received and processed. The participation of this ineluctable, and perhaps not even entirely definable, 'internality'—what some philosophers in a Hegelian fashion have referred to as the 'inner-life of consciousness'[81]—in the process of the fabrication of subjectivity suggests that the construction of selfhood is underpinned by the presence of some inexorable authenticity. Collective institutions may disseminate and produce *conceptions* of the self which, undoubtedly, play an important role in the manner individuals formulate their self*hood*, but not the *self* itself; and this idea is further reinforced, inasmuch as explicated, by considering that the will, as explored in the previous chapter, is a quintessential feature of individuality and at the same time an autonomous dunamis which therefore always maintains *some* degree of freedom.

Metaphorically speaking, we could compare the nature of the self to the nature of a mirror: the mirror may reflect some of the qualities projected upon it from the external environment, and even be temporarily identified with those reflected images, but, nonetheless, it cannot be entirely reduced to neither precisely identified with them. Likewise, social practices and embedded norms may become reflected upon and through individuals, and, particularly, through constitutions of self*hood*, or, the constitution of the *self as subject*, without however this necessarily suggesting that individuals can be entirely reduced to those 'invested' or 'reflected', as it were, properties. For social practices manifesting particular relations and operations of power may indeed 'mould' individuals

[81] G.W.F. Hegel, *Aesthetics: Lectures on Fine Art, Vol. 1*, T. M. Knox (transl.) (Oxford: Oxford University Press, 1975); Iris Murdoch, *Metaphysics as a Guide to Morals* (New York: Penguin, 1992).

by ‘fabricating’ their subjectivity through shaping their ideas and modalities of selfhood, as well as through offering the mental categories, traits and parameters in reference to which their agency is defined, perceived, constituted and played out; and norms may indeed, via social discourse and practices, become psychically internalised through various forms of interpellation or discursive productivity. But, still, the very idea of ‘moulding’ or ‘internalising’ logically necessitates, inasmuch as it intrinsically implies, the prior existence of *something*—some prior ‘matter’, element, internal space or component—th.at is already *there,* offered to be moulded, offered to *become* subject-*ed*. The psychic process of ‘becoming’ a ‘subject’ via internalising norms and hierarchies, demands, in the sense that it strongly presupposes, the existence of some prior psychic infrastructure or internal space wherein this becoming is gradually produced. This is precisely the reason why certain feminist scholars have persisted on the view that, even if the internality of power is to be seen through the lens of ‘submission’ *or* creation of ‘subjecthood’ or ‘subjection *as* submission’, still, an account of the ‘psyche’ is in all cases indispensable, if not entirely unavoidable. Hence, argues Butler, ‘if submission is a condition of subjection, it makes sense to ask: What is the psychic form that power takes? Such a project requires thinking the theory of power together with a theory of the psyche, a task that has been eschewed by writers in both Foucauldian and psychoanalytic orthodoxies’.[82] Extrapolating hermeneutic possibilities from Aristotle’s intriguing version of the ‘psychic form of power’, we can argue that it is precisely the feature and mechanism of *prohairesis* (along with its correlated notion of *hexis* which semantically incorporates it) that may be taken to account for *that* part or those aspects of individuals which cannot be ‘taken over’ by social mechanisms, external conditions or collective manifestations of power. In this way, *hexis*

[82] Judith Butler, *The Psychic Life of Power*, pp. 2-3.

can serve to highlight but also explanatorily clarify yet another facet of the significance and operations of the 'internal' dimension of power.

A further important corollary pertaining to the feature of *prohairesis* consists in its explanatory function to account for social change and altering power relations within given social establishments. If *prohairesis* was assumed to be absent from the processes of individual self-constitution and internally originating action, i.e. if agency was postulated as entirely a product of social construction molded solely from external structural parameters, and consequently, as inauthentic—ergo, if individuals were not assigned an *originating role* in the formation of their selfhood and actions, then, given the existence of vested interests and the tendency of systems to preserve themselves, how could social change or the overthrow of specific political regimes be accounted for? If power assumed exclusively a structural or collective character, and if individuals were merely the passive embodiments or vehicles occupied by and put to the service of existing structural power dynamics, how could they ever act counter to the status quo and established political patterns? What could account for the transformative potential which societies exhibit, and how could one speak of notions and ideals such as liberty or 'emancipation'?

A probing interpretative repercussion ensuing from the synthesis of the above syllogisms, offering a possible answer to the above questions, is that there is an aspect of power which cannot be accounted for by social practices and which, effectively, resides in the individual. This stresses in yet another way the importance of the internal-psychological dimension involved in interactions of power, without, however, reducing them to it. The psychological reading of dunamis offers a useful explanatory framework that can account both for the social determination of actors *as well as* the agency determination of structure; and this possibility is engendered precisely because this account is theoretically founded on the notion of *prohairesis*.

We could further expound the heuristic and hermeneutic significance of the notion of *prohairesis* by noting that it additionally establishes a subtle, yet crucial, distinction between power and domination. If power, as the range of effects of impact ensuing from the successful conversion of capacities into actions and vice versa, is formed and vested within the domain of *hexis*—the field or habitus, and since *hexis* is *prohairetic* [voluntary], then it could also be logically asserted that relations of power are characteristically marked by an element or degree of voluntariness. In other words, anything ranging from a practice, an activity, a pattern of behaviour, a type of conduct, or even an ideology, which is not, in some degree or form, *chosen* voluntarily, cannot be considered as a *hexis*. Hence, strictly speaking, it cannot qualify as a relation or effect of *power* in its Aristotelian sense.

This line of interpretation leads to the interesting—perhaps somewhat unusual—corollary that relations of *power* cannot be imposed against one's will or choice: they also have to be, at least to some degree or even tacitly, *prohairetic* [voluntary]. This serves to reinforce the key distinction between power and domination and, to that effect, also coercion, suppression and other relevant conceptual modalities often associated with power—all of which are marked by the fact that they involve some element or degree of imposition against one's willing. Whence, the above interpretation demonstrates why definitions which portray power mainly as a matter of 'getting' others to act in manners *contrary* to their own willing, or, alternatively, according to Weber's definition, as a capacity to impose one's will 'despite resistance'—meaning, effectively, contrary to others' volitions—in reality evoke a definition of power as *a priori* domination, as a form of coercion, whether it be subtle or blatant, which, however, *need not* be equated with power *per se*.[83] It becomes obvious that such definitions account merely for *one* possible

[83] In this respect, this interpretation concurs with Lukes' criticism against the pluralist-behavioural and liberal approaches to the concept of power—what he refers to as the one-dimensional and two-

modality of exercising one's capacities/resources/psychological features, which is precisely demarcated by the fact that it functions contrary to an individual's *prohairesis*. But it also becomes evident that this is but *one* modality of power expressions, which cannot by any logical or deontological necessity be seen as exhausting the rich semantic load and possible practical manifestations of power. This hermeneutic approach elucidates fruitfully the conceptual variation between power and domination, while avoiding their conflation by allowing for a much broader interpretation of the former, of which the latter can be regarded as only one possible trope or modality.

Conclusion

In this chapter, our examination focused on the ethical and psychological construal of dunamis, as an instance of a historically distinct conceptualisation of power which, albeit relatively unexplored by the current literature, was shown to offer a rich, diverse and thought-provoking interpretation of the concept's various facets and dimensions. Two important concluding remarks may be noted which are immediately relevant to the mapping of the central conceptual features of the classical version of power, since they disclose two key theoretical pillars that structure its hermeneutic articulation in that discursive context.

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dimensional views of power respectively—on the grounds that they fundamentally associate power with 'actual observable conflict'. Lukes argues that both these major strands in the discourse of power postulate actual conflict as necessary to power. Since conflict suggests a relationship of struggle between agents, where one party strives to dominate *over* the other, such readings of power as conflictual necessarily imply that power intrinsically involves some form of coercion or antagonism, and thereby the view of power as 'power over'. Steven Lukes, *Power: A Radical View*, 2nd ed. (Basingstoke: Palgrave Macmillan, 2005), pp. 14-30, esp. 21-27). For a critical discussion on the limitations of the reading of power as 'power over' see Thomas E. Wartenberg, *The Forms of Power: From Domination to Transformation* (Philadelphia: Temple University Press, 1990); Michael Karlberg, 'The Power of Discourse and the Discourse of Power: Pursuing Peace through Discourse Intervention', *International Journal of Peace Studies*, Vol. 10 (1) (2005), pp. 1-23.

The first concerns the understanding that the primary dimension at which power relations are experienced is an *internal* personal level, not *inter-personally* but rather as parts of the internal constitution, interweaving, struggles and processes of correlation and harmonisation between the various parts of the individual—i.e. the psychic level of formulation and experience of selfhood. This consideration, which does not exactly amount to an agentic reading of power in the modern sense, opens the space for another possible interpretation of the ontological dimension of dunamis, as pertaining to the level of authenticity, the psyche and character formation of the individual.

It follows that whatever modalities power relations may assume at a greater political and institutional level, and whichever their particular functions and formal configurations may be, it is still individuals who are regarded as offering the main sites and sources of power. Of course, this is not to deny the collective, structural and systemic dimension that power phenomena and relations assume, neither to underplay its crucial importance in shaping the latter. However, it does serve to point out, as an epistemological repercussion, that the rating of individuals' role as secondary or peripheral in discussions of power (even when those are more concerned with macroscopic manifestations of power where that role appears to unfold at the backstage of greater institutional operations of power) does not come without some loss in descriptive and analytical precision.

Moreover, further to the interpretation of power as a capacity or as a relation to 'others', the above reading of dunamis entails the hermeneutic possibility that power involves a relationship *to oneself*. The 'relationship to oneself' includes the building of one's selfhood, through the internal psychological mechanisms earlier examined, the patterns of managing oneself that ensue from how individuals handle and behave towards their very own internal dunameis, as well as their interactions with external powers disseminated in their context. More simply put, the 'self' is the first reflection or

indication of an individual's status of power. Yet, at the same time, it is also one of the major determinants of the range, magnitude, kinds and quality of power relations that an individual is likely to develop within her greater social and political sphere of interactions.

From this consideration stems the further observation that the external manifestations of power relations, and their synthesis into an emerging social-systemic experience of power, are *rooted* in the relationship to oneself, since that relationship is primarily construed by the set of *hexeis*—principles and mechanisms of self-management—exhibited by the individual. Hence, as we saw, although many influential definitions have focused upon power as a function of what 'one gets' or how one is 'affected', or even 'subjected to' or 'exploited' by particular interactions, our constructive analysis presented the possibility that power may be treated as an issue concerning what one *is*, what one *does*, performs and practices, as well as *what* one *gives*, *produces* and disseminates in one's environment, not by virtue of being merely a 'mouthpiece' or instrument of structural power relations, but rather, their authentic author. This brings us closer to some feminist readings of the term.

Finally, our investigation explored the key Aristotelian notion of *hexis* as signifying the pattern of individual as well as collective practices. The notion was traced in some sense representing a *modality* of power, or the principal *way* through which individuals may *experience* and participate in the active operations of power. Moreover, *hexis* helpfully explains the interrelation between the material and cognitive aspects of power, including the inter-determination and constant exchanges between agents and structures. One of the features which was identified as both semantically and structurally crucial, was the building-in of the notion of *prohairesis* into its definition. *Prohairesis* was shown to safeguard the notion of self-authorship, since, in light of its function, neither agency nor selfhood can be reduced to mere outcomes of embedded norms and power

structures. As we saw, there is an ineliminable degree of authenticity granted by the idea of *prohairesis*, which does not permit collapsing the 'self' to the fabricated subjectivity produced by relations and structures of power. This offers a new perspective from which the 'agency/structure' conundrum can be fruitfully addressed. In this respect, *hexis* also effectively informs us about the main manner in which one can contribute, perhaps more consciously, to the formulation of power relations in society: that is, through standard activities and actions, the everyday 'habits' chosen, the patterns of behaving and thinking, which suggest the quality of selfhood one develops, and which are thus offered as primary inputs in the collective processes of social becoming.

In this way, Plato's words, quoted at the beginning of this chapter, may now sound a bit more profoundly pertinent and accurate: habit as *hexis*, as a way of expressing one's selfhood in the interactive context of social becoming, is indeed no small matter at all; not only for one's individual experience, but also, very importantly, for society, as well as the character and operation of its particular structures, modes and practices of power.



CHAPTER IV.

PHYSICS AND POLITICAL THEORY:

A CONCEPTUAL APPROACH

'The word 'politics' has an unfortunate reputational problem. (...) Politics is not something vaguely unpleasant that occurs in a particular, remote place and is then superimposed on the rest of us. (...) Politics is far nearer than many people think: there will always be dimensions of human thinking and behaviour that are political. Nor is politics about one big thing, to recall the adage of the Greek poet Archilochus about the hedgehog and the fox, recounted by Isaiah Berlin: it is about many things —albeit not about little things. It is not just about power, or antagonism, or conciliation, or decisions, or oppression, or enablement, or ruptures, or solidarity, or the public realm, though it is about all of those as well. It is about a series of distinct, fundamental, and crucial collective practices, including the thought-practices that accompany, foreshadow, and trail material and physical collective actions.'

(Michael Freeden, '*The Political Theory of Political Thinking'*)[1]

[1] Michael Freeden, *The Political Theory of Political Thinking: The Anatomy of a Practice* (Oxford: Oxford University Press, 2013), pp. 1-2.

> *'The whole science is nothing more than a refinement of everyday thinking. It is for this reason that the critical thinking of the physicist cannot possibly be restricted to the examination of concepts of his own specific field. He cannot proceed without considering critically a much more difficult problem, the problem of analysing the nature of everyday thinking.'* (Albert Einstein, *Physics and Reality*)[2]

Introduction

The analysis has so far focused on the examination of underappreciated aspects of the discourse on power 'across time'—i.e. by approaching the concept from a conceptual-historical perspective. Now the investigation moves the same analytical lens across disciplinary boundaries in order to explore alternative conceptual treatments of power in a different intellectual space, and particularly, what appears as a 'remote' epistemic area—the discourse of physics. This chapter lays out the theoretical foundations demonstrating the relevance and usefulness of the proposed interdisciplinary examination, before proceeding to a more rigorous analysis of the ways in which power has been conceptually approached in this fairly unfamiliar—to the political theorist—area of study. Although, at first, the connections between the discourses of physics and politics may appear sparse, this chapter shows that this is not the case. Instead, it argues that the two fields share a common discursive space, delineated by their subtle, mutually-informing semantic and conceptual interactions taking place within the greater discursive environment of the societies encompassing them. This reinforces the relevance of the proposed approach, as well as its usefulness for drawing out creative interpretative potentials that may contribute to a refreshed understanding of the concept of power.

[2] Albert Einstein, 'Physics and Reality', (transl. J. Piccard), *Journal of the Franklin Institute*, Vol. 221 (3) (1936), pp. 349-382.

Before exploring the discursive confluences between politics and physics, it is first important to clarify the understanding of 'the political' upon which the present analysis is premised. It is true that many traditional approaches to politics have tended to conflate 'the political' with its macroscopic manifestations—i.e. phenomena or institutions such as authority structures, law and government. Moreover, as Freeden informs us, '*political* thought' has been widely considered as a distinct area of intellectual practice whose configuration and study can be more or less exhausted by examining its two main 'celebrated' approaches: the various normative perspectives on political issues, which 'usually attempt to impose value structures that emanate from the dictates of reason' and offer 'remedies' to 'flawed' political realities;[3] as well as the domain of the history of ideas, which seeks to trace 'notable trends of thinking over time' by focusing specifically upon 'the thinking of major individual theorists' and *their* views regarding 'the political', thereby inexorably equating (if not delimiting) *political* thinking to the thought of acknowledged political thinkers.[4]

Nevertheless, more recent theories, including Freeden's, have emphasised that the qualitative stretch of the 'political' is, in fact, much broader than the range of political institutions or the study of explicitly acknowledged 'political' thinkers, such that areas of human activity that may appear insulated from it, in reality embody practices - including, very importantly, *thought-practices* and discursive practices - which bear a strong political dimension.[5] What is more, those apparently 'non-political' thought-practices

[3] Michael Freeden, 'Thinking Politically and Thinking About Politics: Language, Interpretation, and Ideology', in David Leopold and Marc Stears (eds.) *Political Theory: Methods and Approaches* (Oxford: Oxford University Press, 2008), pp. 196-197.

[4] Ibid. 197.

[5] Michael Freeden, 'Thinking Politically and Thinking About Politics: Language, Interpretation, and Ideology' as well as Elizabeth Frazer, 'Political Theory and the Boundaries of Politics', both in David Leopold and Marc Stears (eds.) *Political Theory: Methods and Approaches* (Oxford: Oxford University

often serve themselves as crucial inputs to the shaping of the patterns of thinking, semantic tools and norms through which the political is lived out at the level of its more obvious macroscopic manifestations.

At this point a critical distinction arises between the 'practices' of thinking *politically* and thinking *about* politics. According to Freeden, thinking politically is an all-pervasive human discursive activity which 'refers to a range of particular thought-practices of, and concerning, collectivities. They include the construction of collective visions of a good society, the exercise of power through speech and writing, the distribution of significance and the ranking of priorities, the languages through which support for political entities is offered or withheld, and the endeavours to justify the exercise of ultimate control over the boundaries and jurisdictions of all fields of social activity'.[6] Thinking *about* politics refers to thought-practices explicitly concerned with questions and issues of immediate political interest. It concerns 'the patterns and ranges of views that people hold when their thoughts concern the central issues and challenges their societies encounter: the core domain of politics'.[7] Those patterns of thinking are shaped by ideologies, considered here as 'ideational configurations', patterned clusters of concepts which serve to produce, articulate and establish collective interpretations of the nature of the political world.

Press, 2008), respectively pp. 196-215 and pp. 171-95; Michael Freeden, 'What should the "Political" in Political Theory Explore?', *Journal of Political Philosophy*, 13 (2) (2005), pp. 113-34; S.R. Clegg, *Frameworks of Power* (London: Sage, 1989), p. 153; Amitai Etzioni, *What is Political?* (2003), available at CSA Worldwide Political Science Abstracts, 2006, SSRN: https://ssrn.com/abstract=2157170 https://www2.gwu.edu/~ccps/etzioni/A312.pdf ; Noel O'Sullivan, 'Difference and the Concept of the Political in Contemporary Political Philosophy', *Political Studies*, 45 (1997), pp. 739-54; Chantal Mouffe, *On The Political* (London: Routledge, 2005).

6 Michael Freeden, 'Thinking Politically and Thinking About Politics', op. cit., pp. 197-8.

7 Ibid. 198.

In our days, there is a growing recognition in the field that 'everyone engages in political thinking at some level or other, although at different degrees of sophistication, intensity and frequency'.[8] The same can be said regarding the activity of thinking *about* politics, although, admittedly, this thought-practice proceeds at more palpably asymmetric degrees of frequency, sophistication and systematisation. In both cases, *language* and *concepts* provide the two main dimensions, as well as types of 'resources', through which those thought-practices become assembled semantically, embodied structurally and expressed practically in and through communication and action.

Appreciating the ubiquity of 'the political' serves to dissolve the outdated constriction of what is to count as politically relevant to what is ordinarily recognisable or self-defined *as* 'political', thus expanding the dialectical scope and variety of discursive domains which are potentially pertinent to the student of political thought. Capitalising on the insights of this new awareness within the discipline, it no longer makes sense to confine our research to the study of the *prima facie* or 'self-acclaimed' political; rather, it becomes obvious that our inquiries can be greatly benefited – analytically, philosophically and innovatively - by allowing our critical sight to reach out beyond the obviously relevant in order to discern previously underappreciated factors, subtler inputs and 'hidden variables' contributing to the configuration of the anatomy of political thinking and practice.

Based upon those epistemological considerations, the following discussion sets out to explore a particular example of a 'distinctive, crucial, collective thought-practice'[9] which can be traced to function 'politically'. Its political operation concerns both the quality of patterns of its internal organisation, *as well as*, more importantly, its implicit

[8] Ibid. 196.

[9] Michael Freeden, *The Political Theory of Political Thinking*, p. 2.

operation as a 'dialectic contributor' to the configuration of thought-practices *which are* more immediately and conspicuously relevant to the 'core realm' (or the more 'obviously political' aspects) of the political. The analysis focuses on science, and particularly physics, which is here recognised as an area of intellectual activity that has bears upon the formation of collectively shared worldviews and philosophic systems. The main argument that the rest of this chapter shall seek to expound is that the discourse of physics, apart from exhibiting political features in the way it operates both qua organised discipline and qua thought-practice, can furthermore be traced as politically relevant because it exerts a second-order influence upon the way societies and their members come *to think about* politics. By 'second-order' is meant that physical discourse affects political discourse *indirectly*, via affecting the intermediate factors which shape the constitution and content of the latter: namely, concepts and their meanings, as well as the structuration of meanings into concepts—or in other words, semantics, and the structuration of concepts into patterned ideational clusters—in other words, ideology.

This chapter elaborates on the argument that physical concepts and discursive insights penetrate our social semantics, patterns of collective thinking and thus, eventually, the ways in which we think about political matters too. As Heisenberg points out, scientific ideas 'penetrate deeply into the mind even of the common men on the street'.[10] One of the most discursively pervasive functions of physical theories consists in that they 'outpour' into social discourse key intellectual and hermeneutic insights regarding the nature of reality, as well as interpretations of certain primary concepts that are immediately relevant to providing an understanding of the structure and foundations of everyday life. Although, evidently, scientific questions such as, 'how does a beam of

[10] Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science*, Paul Davies (introduction) (f.p. 1958) (New York: Penguin Books, 1962), p. 116.

electrons exhibits wave-like properties?', could hardly be interpreted as bearing any relationship to politically imminent questions (such as 'is constitutional democracy the best way to organise our polities'?'), there are, nevertheless, other crucial, more philosophically profound problematics dealt with by the sciences, which relate to the very ontological fundamentals of our everyday social and political lives. For example, questions such as 'what is the nature of space and time?', or 'is the indeterminacy principle a natural law?', entail crucial notional repercussions and primary exegetic *presuppositions* that 'spill-over' ideationally to other areas of thought and which, eventually, come to affect the way we *think about*, *organise* and *engage in* social and political affairs.

Through their hermeneutic and, essentially, conceptual interactions with the broader ideational fabric of the society hosting them, and via their important contribution to the configuration of collectively shared semantics, including the social construction of key scientific concepts (such as, *evolution*, *law*, *information*, *survival*, *heredity*, *power*, to name a few), physical theories come to shape collective paradigms in crucial, albeit often subtle, ways. A 'paradigm' is here defined, in line with the classical Kuhnian definition, as standing for 'the entire constellation of beliefs, values, techniques and so on, shared by the members of a given community.[11] According to Vasquez's interpretation, drawing heavily from a critical re-examination of Kuhn's definition, a paradigm is 'neither a method nor a theory (…) The heart of the paradigm concept must be substantive and not methodological, but a paradigm is not necessarily the same things as a dominant theory. (…) [It] is in some sense prior to theory. It is what gives rise to theories in the first

[11] T.S. Kuhn, *The Structure Of Scientific Revolutions* (2nd ed.) (f.p. 1962) (Chicago: The University of Chicago Press, 1970), p. 175.

place.'[12] This leads Vasquez to the concise definition of a paradigm as consisting in 'the pre-theoretical assumptions scholars make about the world they are studying'.[13]

> These assumptions provide answers to the questions that must be addressed before theorizing even begins. (…); such questions include, what are the fundamental units of which the world is composed? How do these units interact with each other? What interesting questions may be asked about these units? (…) The answers to those form the picture of the world the scholar is studying and tell the scholar what is known about the world, what is unknown, how one should view the known if one wants to know the unknown and finally what is worth knowing.[14]

Yet most of those assumptions are not only held by scholars working in the positive sciences, but also scholars in the social sciences, the humanities, and eventually, non-scholars too, but any individual who engages in political thought-practices.

Since physical theories are primarily based upon a conceptual deciphering of reality, involving the conceptualisation of a set of cardinal concepts employed to describe it, and since in our times societies turn mostly to science as the appropriate and epistemically 'legitimate' source from which to receive the proper semantic inputs for the configuration of those concepts, including the answers and the empirically substantiated 'facts' explaining the nature of our everyday experience, it would be an unduly oversimplification of reality to suppose that the intellectual insights of physics affect *only* the worldviews of scientists. The findings and especially the evolving conceptual interpretations provided by scientific discourse do not remain contained

[12] John A. Vasquez, *The Power of Power Politics: From Classical Realism to Neotraditionalism* (Cambridge: Cambridge University Press, 1998), pp. 22-23.

[13] Ibid. 21-23.

[14] Vasquez, *The Power of Power Politics*, pp. 21-22.

within the boundaries of the relevant disciplines. This is because the ontological presuppositions and the core concepts employed in and deciphered by science are pertinent to, and at variable levels employed by, almost all other epistemic discourses. As a result, new concepts, meanings and ideas offered by physics infuse into social discourse, offering the rubrical semantic contents of primary concepts and pre-theoretical assumptions underpinning collectively held worldviews. In this way, as shall be argued, the semantics of physical concepts condition the foundations of our everyday thinking, including the patterns of thinking about politics, the pre-theoretical assumptions of research, and thus the deeper semantic layers of social discourse.

This chapter endeavours to show how the study of possible relationships between scientific and political thinking opens a research domain that can offer important contributions to our understanding of political thought. In what follows, the aim will be to explore how physics, which has been widely considered as detached from 'the political', is not only relevant to it, but in fact an active determinant of its operations—especially at the level of discourse. Particularly, since power is a concept which has been equally central in politics and physics, the discussion adumbrates some theoretical and epistemological foundations for a possible comparison between their respective conceptualisations of the term in the following chapters.

The discussion begins with shedding light on the major ways in which the two discourses have been brought into contact in the past. It identifies four principal grounds upon which existing exchanges between the two disciplines have been based: (i) ontological (ii) epistemological and (iii) practical. Following their examination, it proceeds with an elaboration of the proposed *conceptual approach* to the discursive interrelations between politics and physics, arguing that the interdisciplinary dialogue between the two fields can be fruitfully addressed from the perspective of conceptual and

ideological analysis. It is thus argued that both physics and politics can be examined as mutually interacting *discourses*—i.e. as distinct areas of human thinking that jointly contribute to a shared social discourse, which, in turn, provides the common milieu wherein their *conceptual* interactions occur.

I. The Nature of the Comparison: A New Take on the Politics-Physics Dialectic

To begin with, a few words ought to be said regarding the nature of the proposed comparison between approaches to power provided by the fields of politics and physics. This explication is deemed necessary since interdisciplinary perspectives (especially comparisons between perceivably unconnected areas) often make contemporary political theorists feel somewhat uneasy. This uneasiness can be traced to the fact that past interpretations of this epistemic relationship (such as, positivism) had fashioned a style of research which political theorists found it hard to feel comfortable with.[15] It is, therefore, important to clarify the ways in which the present attempt of interdisciplinary dialectic differs from previous ones.

a) The Nature of the Comparison in Past Discourses

Exploring the possible dialectics between physics and politics is not a new undertaking in the history of political thought, neither as far as the study of politics in general, or power in particular, is concerned. The idea that physics and politics *do* or *should* epistemically communicate is in fact a recurrent trend in the history of political thought. Consequently, there have been many attempts to interpret the alleged interrelations between them, which have varied according to the contingencies, as well as the epistemological and philosophical 'regimes' pertinent to specific historical contexts.

[15] Freeden, op. cit., p. 11.

Overall, we can identify three main types of grounds upon which attempts to interrelate the two subjects (including their respective accounts of power) have been based.

(i) Ontological Premises

A major way of relating physics with politics has been attempted on ontological grounds. A typical example of such approach is encountered in Plato's political thought and is vaguely encapsulated in his broader philosophical stance, nowadays commonly referred to as 'naturalism'.[16] Naturalism is the theoretical position which states that human beings are not qualitatively distinguishable from nature. Rather, they belong to nature *in an ontological sense*, as its inherent and organic parts. Consequently, the structures that human beings create—for example, polities—are also regarded as yet another manifestation of nature, since both themselves, and the '*political animals*' who institute them, are assumed to constitute integral aspects of natural life. One of the most important theoretical repercussions entailed by this position has been the conjecture that the laws of political societies can—as well as *should*—be modelled in accordance to natural laws.[17]

The idea that there is an ontological correspondence between the laws of physics and the laws of human activity is also encountered in later discourses, especially during the post-Renaissance period. During that period, however, its derivation obtained from different theoretical premises and argumentative routes than in classical thought. An important reason accounting for this early modern position concerns the need to preserve the possibility of communication between the '*res extensa*' and the '*res cogitans*', whose partition had been introduced with the Cartesian 'mind/body' dualism. A way to

[16] For an excellent discussion of the philosophical stance of 'naturalism', and its influences upon the development of later American philosophical thought, see John P. Anton, *American Naturalism and Greek Philosophy* (New York: Humanity Books, 2005).

[17] A typical example of this argument is provided in Plato's *Republic*, Books 3-4. *The Republic*, Desmond Lee (transl.) (London: Penguin, 2007).

establish their connection was by assuming that the functions of the intellect 'were also determined by laws which corresponded to the laws of physics and chemistry'.[18] A similar approach to the relationship between physics and the social sciences can also be traced in the work of John Stuart Mill, who considered that 'human beings in the social state are, no doubt, entirely governed by psychological laws', where those laws often bear a direct relation to natural laws.[19]

(ii) Epistemological Premises

More recent attempts to create a dialogue between physics and politics were formulated not on the basis of ontological considerations concerning the nature of their respective subject-matters, but rather with respect to the epistemological apparatuses that could possibly be shared between the two disciplines. A notable example of such endeavour is the 1950s and 1960s discourse on power—or, as its commonly referred to, the 'positivist' or 'behaviouralist' turn to the study of power. Given that this current of thinking offered one of the most influential contributions to the interpretation of power in the previous century, but also in light of its strong ongoing influence in political studies (especially in American social science),[20] its approach to the politics-physics relations merits a more extensive analysis.

During the early decades of the 20th century, a new 'wave' developed in the field of political studies, mainly in the U.S. It included theorists such as Charles Merriam, Harold Lasswell, Bachrach and Baratz, etc.[21] This novel 'turn' sought to establish

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18 Werner Heisenberg, *Physics and Philosophy*, p. 68.

19 J. S. Mill, *The Logic of Moral Sciences* (f.p. 1843), A. J. Ayer (Ed. and Intro) (London: General Duckworth and Co Ltd, 1988), Chapter 6, esp. pp. 63, 84. For a more general reading of his position, see John Stuart Mill, *A System of Logic* (f.p. 1843) (London: Longmans, Green and Co Ltd, 1959).

20 Freeden, *The Political Theory of Political Thinking*, p. 11.

21 Sarah Joseph, *Political Theory and Power* (Leiden: Brill, 1988), pp. 8-10.

politics *as* a science that can exhibit objectivity and deliver concrete policy calculations, predictions and results. It comes as no surprise that this new approach in the field specified the 'teleology' of political science in such terms, since its growth coincided with the aftermath of the turbulent periods of World War II and the Cold War, which necessitated concrete policy-making models and the delivery of accurate political consultation. One of its core theoretical tenets was that all politics can be reduced to a 'struggle for power'; hence, the quest for decontesting power's meaning and arriving at a precise way of measuring and predicting it became one of its central objectives. Placing the concept and aim of 'power' at the very heart of the discourse's conceptual apparatus implied that the aim to provide an accurate, objective and universally applicable model for power took centre-stage.

Largely influenced by the empiricist model of science, the positivist project imported methodologies from physics and mathematics into the study of political phenomena. Mathematics was considered the most objective and reliable of all sciences, while physics had at the time been placed at the centre of scientific and public attention, attaining a heightened epistemological status. The astonishing progress and discoveries that physics was making at the time (referred to as the 'new Golden Age of Physics'[22]), the amount of public debate generated around it, as well as the celebrity status enjoyed by some of its representatives (e.g. Einstein and Heisenberg), had gradually turned physics into a popular and rather 'prestigious' science. Accordingly, it was thought that politics could also enjoy the epistemological benefits of quantification, measurement and calculation, which had skyrocketed physics to a 'golden age'. As such, the quantification of political variables, the use of equations, the gathering of empirical data and the employment of statistics, were a few of the methods that politics 'imported' from the

[22] See Paul Davies' Introduction in Heisenberg's *Physics and Philosophy*, pp. 1-14.

prevalent scientific regime of the time in physics as a kind of 'borrowed scientific legitimation'. Quite expectedly, the same current soon became dominant in International Relations, and especially in strategic and military studies,[23] where the 'scientizing' of policy-making was postulated as the key to delivering sound policy suggestions and results that would greatly facilitate pubic administration, or at least so it was thought.[24]

Nevertheless, it can be argued that a deeper motive underlying this epistemological turn in political studies concerns what has recently been identified as the 'finality drive of politics' and the search of conclusiveness in social affairs.[25] The professed objectivity of scientific methods and their claim to universal definitions appeared as an excellent solution to the quest for conclusiveness, which individuals, nations and politicians alike, diachronically exhibit—especially in areas where that is hardest to achieve, such as in the field of social and political matters. It was hoped that the acclaimed universality of physical methods could be extended to the examination of political affairs, such that the protracted quest for definiteness could at last come to fruition. The use of positivist methods from physics and mathematics thus effectively

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[23] A typical example is Gary King, Robert O. Keohane and Sidney Verba's, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (New Jersey: Princeton University Press, 1994). For a critique of the use of positivism in International Relations see Steve Smith, Ken Booth and Marysia Zalewski, *International Theory: Positivism and Beyond* (Cambridge: Cambridge University Press, 1996). A typical example of the appropriation of physical models by strategic studies is Ray Cline's formula for 'power potential', in his *World Power Assessment: A Calculus of Strategic Drift* (Washington: Center for Strategic and International Studies, Georgetown University, 1975). An interesting and relevant analysis can also be found in Michael David Parsons, *Power and Politics: Federal Higher Education Policymaking in the 1990s* (New York: State University of New York Press, 1997), Preface and Chapter 1.

[24] Sarah Joseph, *Political Theory and Power*, p. 10; R. A. Dahl, 'Power', in *International Encyclopaedia of Social Science*, David L. Sills (ed.) (New York: Macmillan, 1968).

[25] Freeden, *The Political Theory of Political Thinking*, p. 5; particularly Ch. I (esp. pp. 22-26).

served as a means of *decontestation* and legitimisation of the various concepts, theories, and policy lines construed by political scientists at the time.

There were additional reasons why the epistemic boundaries between the two fields opened up to each other during the mid-20th century; as well as, why it was specifically politics which sought epistemological 'grafting' from physics. The aspiration of political scientists to establish their field as a proper science was not only due to instrumental (i.e. policy-related) considerations, but also because such a positivist orientation was thought to be the only way forward for an academic field that wished to keep up with its time. What was at stake on a more substantive level was the discipline's internal self-definition and self-perception. After all, there was no *prima facie* reason why the use of methodological apparatuses employed by other sciences (especially physics, but also economics)[26] and, particularly, the novel models provided by mathematics and logic,[27] should be exclusively reserved for some academic fields and not others. The adoption of positivist methodologies by political researchers was thus a kind of internal 'epistemological reform' that would bestow on political research the aspired reputational 'upgrading', which was seen as the calling of their times.

Yet it is useful to clarify some further reasons why it was physics in particular, and not another field, that exercised the greatest influence upon the formulation of the positivist approach to political studies. In the first place, due to its successive revolutionary discoveries, by the mid-20th century physics had gained the status of a

[26] Albert Einstein, 'On the Method of Theoretical Physics', *Philosophy of Science*, Vol. 1 (2) (Apr. 1934), pp. 163-169, esp. p. 167.

[27] These sciences are supposed to lend themselves to the examination of any phenomenon or subject matter, irrespective of its nature and general ontological features. In addition, it was partly thought that it was 'mathematical method [that had] given modern physics its predictive power', Hans Reichenbach, *The Rise of Scientific Philosophy* (Berkeley: University of California Press, 1958), p. 103.

'prototypical science'[28]—the status of 'science proper'. As the English physicist John Ziman notes, 'the most astonishing achievements of science, intellectually and practically, have been in physics, which many people take to be the ideal type of scientific knowledge'.[29] Physics' predominance at the time was also largely owed to the *nature* of the revolutionary theories it had produced during the 20th century. The two most prominent theories—Einstein's relativity and quantum theory—had radically transformed key notions, such as matter, power, space, time, upon which collective visions regarding the nature of both the physical *and* the social worlds were construed.

It is important to stress (as shall be further explored in the following chapters) that physicists at the time were particularly preoccupied with providing new meanings for the key concepts of space and time, including ground-breaking explanations regarding the nature of their operations. However, as noted earlier, those concepts constitute core features not only of physical, but also of philosophical and political theories;[30] they are immediately pertinent to the practical aspects of our lives, the direct interpretation of our sensory experiences, as well as our most fundamental *perceptions* regarding the nature and structure of our existence. Hence, our interpretations of those concepts are—so to speak—the 'glasses' through which we view the world. Their understanding forms part of the pre-theoretical apparatus underpinning the construction of individual and collective worldviews or *Weltanschauung*[31] of a given society. By

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[28] James T. Cushing, *Philosophical Concepts in Physics: The Historical Relation between Philosophy and Scientific Theories* (Cambridge: Cambridge University Press, 1998), p. 359.

[29] John Ziman, *Reliable Knowledge: An Exploration of the Grounds for Belief in Science* (Cambridge: Cambridge University Press, 1991), p. 9.

[30] The importance of the concept of space in political thought is specifically explored in Chapter VI.

[31] The term '*Weltanschauung'* is often employed by political theorists and sociologists to denote the idea of a shared social worldview. Einstein also refers to this notion using the term 'Bücher Weltanschaulichen Inhalt'. See also David K. Naugle, *Worldview: The History of a Concept* (Michigan: W.B. Eerdmans Publishing Co., 2002).

transforming the meanings of 'space' and 'time', 20th century physics also amended individuals' existing perceptions regarding the nature of the world, the possibilities imminent in their existential structure, and so the range of possible patterns of action within it. The radical semantic amendments to those core concepts functioned as crucial conceptual 'connecting points' between the two epistemic areas. Consequently, the 'scientific revolutions' of physics were not merely *scientific*, but also, more significantly, philosophical, *ideational* and *semantic* revolutions.[32]

A final point regarding the positivist turn concerns the emphasis it placed on the concept of power and the central position it assigned it within the idea-environment of positivist thinking. Power was rendered almost synonymous with politics, since 'the struggle for power' was declared as 'the distinctive, unifying element of politics'.[33] Its centrality qualified it as the most popular candidate for applying positivist models of quantification to its study. Given its purported significance in political discourse, plenteous attempts were made to provide an objective definition for power, specify its empirically verifiable variables and thus come up with a solid 'power formula' that could be universally applicable.

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[32] It is important to note that these considerations are not immediately ontological. What changes, following the dissemination of a scientific revolution, is the *ideas* or *perceptions* about certain key concepts which individuals have presumed as foundational. It is thus, primarily, an issue of interpretation. This point is further elaborated in the following section.

[33] In this sense, positivism presents a fine example of the broader current of 'power-centricism' discussed earlier in the Introduction. For example, in Lasswell's and Morgenthau's view. See Harold Lasswell, *Politics: Who Gets What, When, How* (New York: Peter Smith, 1950). Also Hans Morgenthau, *The Concept of the Political* (f.p. 1933), H. Behr and F. Rosch (eds.) (London: Palgrave Macmillan, 2012), and H. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace* (f.p. 1948), (New York: Knopf, 1973). For a more extensive discussion, see the Introduction in Sarah Joseph, *Political Theory and Power*' and Mary Hawkesworth, 'Contending Conceptions of Science and Politics, Methodology and the Constitution of the Political', in Dvora Yanow and Pelegrine Schwartz-Shea (eds.), *Interpretation and Method: Empirical Research Methods and the Interpretative Turn*, 2nd ed., (New York: M.E. Sharpe, 2014), pp. 27-49.

The quest was to derive a working equation of power, which could enjoy an epistemological status equivalent to its counterpart equation of power in physics. As Sarah Joseph points out, 'it was felt that power could play an analogous role to the concept of cause in the natural sciences. Nevertheless, the project was hampered by a number of shortcomings. Power, like cause, could be used to describe the connections between empirical phenomena'.[34] Leaving aside all problems regarding the very notion and definitional specification of 'cause', as well as the widely debated problematic concerning its role and place in specifying nomology,[35] the analogy between power and cause turned out to be not only clouded, but, moreover, internally self-defeating. The attempt to make the concept of power function in the same explanatory fashion as the concept of cause, while its own definition still remained fairly indeterminate, turned out to be an unduly axiomatic venture that could not escape the pitfalls of methodological deficiency, parochialism and incompleteness. For if power is conceptualised as the cause of all political behaviour and, at the same time, as positivists maintained, it is taken as synonymous with politics, then what is it that accounts for the existence of 'power struggles' in the first place? The most probable explanation could be an allusion to some intrinsic, inherent and incessant function of human psychology. However, it was

[34] Sarah Joseph, *Political Theory and Power*, p. 10.

[35] There is a major strand in positive and social sciences and epistemology, which interprets 'law' as the configuration of a universally valid causal sequence. Weber, who was particularly interested in the epistemological status of the social sciences, claimed that nomological knowledge concerns 'recurrent causal sequences'. The question which arises with such definitions concerns whether a 'law' is necessarily defined in terms of causality or whether causality is only *one* interpretation of nomology. However, it is plausible to uphold a less strict conceptualisation of what a 'law' is. A possible argument is that 'causality' is not a necessary or a sufficient condition for defining a scientific law. Instead, laws can be interpreted as standardised, patterned relationships between parameters, without this necessarily suggesting a strictly causal relationship between them. Therefore, to claim that a nomological relationship is a causal relationship, seems to partly involve the postulation of a further metaphysical argument regarding the nature of the interrelationship between variables, which, however, is not necessary in grounding the universal applicability and validity of their observed patterned interrelation.

precisely these kinds of ontological postulations which positivists sought to circumvent and eliminate from the axiomatic basis of their projects.

In any event, the positivist school of thought interpreted power as a capacity: the ability to bring about specific outcomes either in inter-personal interactions or in political decision-making. Studies of inter-personal power focused on measuring 'the relative power of individuals as their *differential* ability to influence outcomes'.[36] Issues of 'difference' in 'ability to power' implied *ipso facto* issues of distribution of power among individuals, classes, communities and nations. The theme of measurable, quantifiable 'distribution of power' dwelled at the heart of positivist theories (and still does), irrespective of whether their positions agreed on a common interpretation of *what* this distribution empirically consisted in (or what it *should* consist in), and regardless of their policy recommendations framed in light of their variable normative ideals. [37]

In conclusion, the dialogue that opened up between the two academic fields during the 20th century was principally epistemological in nature. In fact, those types of exchanges still persist, as studies in politics continue to employ physical and mathematical models for conducting research.

(iii) Practical Grounds

Although the positivist turn represents the most systematic attempt to relate the fields of physics and politics in the history of modern political theory, nevertheless, there have recently been some new studies devoted to the examination of the interactions and inter-

[36] Sarah Joseph, *Political Theory and Power*, pp. 10-11. Italics my addition.

[37] Interestingly enough, the same concern with 'distribution' is also present in accounts which have been traditionally thought as anti-positivist, such as the Weberian as well as the Marxian accounts of power, both of which assume that the distribution of power in society acts as the major determinant of social stratification. In some sense, we can claim that the notion of 'distribution of power' serves as the connecting point between individual or inter-personal and collective aspects of power.

determinations between the two disciplines, which are framed in a different fashion. Those include analyses of the political dimensions of scientific discoveries and the influence of scientific practice upon practical political affairs.[38] The possible interrelations between the two fields have thus been addressed at the level of sheer practicality, without much consideration of the deeper discursive connections underpinning them. For example, numerous studies have focused on how scientific discoveries alter political practices and modes of governance (e.g. how the internet is affecting society),[39] or how scientific inventions contribute to tackling issues of social significance (for instance, how advances in biomedical technology play a crucial role in welfare policy).[40] Those have occasionally included the inverse examination of the influences that politics—for example, governments and interest groups—exerts on scientific research, as a result of the latter's acknowledged significance for the former.[41] Yet, such readings of the relationship between science and politics have not addressed the issue from a profounder theoretical perspective, and thus have not, on the whole, focused on tracing any deeper epistemic and discursive interactions between them.

Finally, it is worth making note of a relevant, yet slightly alternative approach, which has incorporated in its study the practical connections between politics and the natural sciences. This is the study of 'biopolitics' developed mainly by Michel Foucault.

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38 For example, Peter Weingart, 'Scientific Expertise and Political Accountability: Paradoxes of Science in Politics', *Science and Public Policy*, 26 (3) (1999), pp. 151-161; Andrew Dessler & Edward A. Parson, *The Science and Politics of Global Climate Change: A Guide to the Debate* (Cambridge: Cambridge University Press, 2009).

39 Barry Wellman et al., 'Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment', *American Behavioral Scientist* 45 (3) (2001), pp. 436-455.

40 Sarah M. Holbrook, 'Adoption, Infertility, and the New Reproductive Technologies: Problems and Prospects for Social Work and Welfare Policy', *Social Work*, Vol. 35 (4) (1990), pp. 333-337.

41 William Bennett Munro, 'Physics and Politics—An Old Analogy Revised', *The American Political Science Review*, Vol. XXII (1) (Feb. 1928), pp. 9.

In addition to examining certain general practical interactions between these two areas of human activity, Foucault also paid attention to their interactions at the level of ideas and mentalities. His analysis limited its scope to a historical study of how, from the 17th century onwards, political science and practice imported key scientific notions from the positive sciences in order to guide its operations, such as the notions of 'population', the use of 'averages', the idea of optimality, etc. 'Biopolitics' explored the ways in which political authorities' use of scientific models and insights conduced to the emergence of novel forms of governance—for instance, what he calls the model of 'biopower' and the 'governmentality' of 'security'.[42]

Nevertheless, Foucault's 'biopolitics' presented a primarily historically oriented study. Its focus was limited to how post-17th century liberalism, and ensuing models of governance, extended their political control and 'jurisdiction' over multiple dimensions of human life, especially areas relating to its biological condition (such as health). In this way, he argued, liberalism politicised issues which had previously been considered beyond the scope of political governance. Foucault's investigation was more concerned with how science was *deliberately used* and practically appropriated by *authorities* in organising collective behaviour. It studied the effects of science from the perspective of

[42] Security is a particular type of 'governmentality', where 'governmentality' refers to the different sets of methods, ways, technologies and mentalities pertinent to particular modes of governance. According to Foucault, 'security' arose in Europe around the 17th century, having political economy as its major form of knowledge and influenced by the physiocratic mentality as well as the scientific and technological advancements of the time. This new 'wave' in political governance imported from the positive sciences (i) the tendency to numericalise political and economic practices, (ii) the prominence of statistics as both an appropriate heuristic and an authoritative indicator of governmental decision-making; and (iii) the notion of a bandwidth of optimality. Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977-78*, Michel Senellart (ed.), Graham Burchell (transl.) (Basingstoke: Palgrave Macmillan, 2007), pp. 4, 6, 30, 36, 40-43.

their *practical* ramifications for political governance, which he saw as consisting in control of human biological processes as part of the 'arsenal' of political tactics.[43]

b) The Nature of the Comparison in the Present Study: A Conceptual Take on the Politics-Physics Dialectic

It becomes evident from the previous discussion that none of the above readings have not approached the 'politics-physics' relationship from the perspective of *conceptual* analysis, at least not in an adequately analytical and systematic way. As we saw in the Introduction, already from the 1920s and 1930s, founding figures of historical epistemology (e.g. Ludwick Fleck, Gaston Bachelard, Ernst Cassirer, Georges Canguilhem), as well as the various waves of interdisciplinarity in the field of intellectual history, had recognised the transdisciplinary formulation of disciplinary semantics, stressing that the birth and development of an idea which acquires its hypostasis in the form of a concept, and a subsequent corresponding semantic schema, cannot be confined within the barriers of any one particular discipline.

This analysis identifies and discusses the inadequately recognised *semantic*, *conceptual* and *ideational* liaisons between politics and physics. In this way, it aligns itself with a broader research venture currently rising in the fields of conceptual analysis and intellectual history that seeks to expose the permeability of disciplinary boundaries and unveil the crucial semantic transfers between the two disciplines, which, as a mechanism of the social community of thought, transcend the tribal identities of the disciplines.[44] The examination methodologically oscillates between an intellectual

[43] Thomas Lemke, 'The Birth of Bio-Politics'—Michel Foucault's Lecture at the Collège de France on Neo-Liberal Governmentality', *Economy and Society*, Vol. 30 (2) (2001), pp. 190-207.

[44] Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', *Contributions to the History of Concepts*, Vol. 6 (2) (Winter 2011), pp. 42-52. Irmeline Veit-Brause, 'The

historical perspective and ideological analysis. It is grounded in the hermeneutic circle which discerns that insofar as intellectual historians, or in that respect, researchers of political concepts and ideology, 'do not study only explicitly articulated ideas, but may also direct their attention to background conditions of intelligibility and more or less unarticulated assumptions that at their farthest remove form "mentalities," they may find themselves excavating what amounts to the unconscious of other disciplines'.[45]

The rest of this chapter proceeds on the grounds of the following key considerations. First, both politics and science, viewed as particular modes of discourse, relate directly to society and its cultural and discursive 'production' via their mutual contribution to the formulation of collective social worldviews. Second, physics and politics need not be treated as disciplines *per se*; rather, they may be regarded as areas of discourse and modalities of human thinking.[46] By virtue of taking place within the shared discursive context of society, these two types of thought-practices communicate, overlap, interact, or even clash, thereby giving rise to a common discursive sphere which hosts the mutually productive conceptual cross-fertilisation occurring across their putative disciplinary boundaries.

II. Physics and Society: A Two-Way Street

> *'It has been said that no metaphysical implications are necessarily involved in the quantum theory or in the doctrine of relativity, but it is difficult to believe that this can be the case. A revolution so amazing in our ideas concerning the physical world must*

Interdisciplinarity of History of Concepts—A Bridge between Disciplines, *History of Concepts Newsletter*, 6 (2003), pp. 8-13.

[45] Warren Breckman, 'Intellectual History and the Interdisciplinary Ideal', in Darrin M. McMahon and Samuel Moyn (eds.), *Rethinking Modern European Intellectual History* (Oxford: Oxford University Press, 2014), pp. 276-291.

[46] 'Science is much more than a body of knowledge. It is a way of thinking', Carl Sagan, 'Why We Need to Understand Science', *The Skeptical Inquirer*, Vol. 14 (3) (Spring 1990), pp. 263-269.

> *inevitably carry its echoes into other fields of human knowledge. New truths cannot be quarantined. No branch of knowledge advances by itself. In its progress it draws others along. By no jugglery of words can we keep Mind and Matter and Motion in watertight compartments; hence it is inconceivable that a greatly changed point of view, or a series of far-reaching discoveries, in any one science can be wholly without influence upon the others, even upon those which are not closely allied'.*
>
> (William Bennett Munro, *Physics and Politics: An Old Analogy Revisited*)[47]

Ideological analysis can disclose valuable insights regarding the contribution of scientific thinking to the constitution of worldviews, the formulation of concepts and thought-patterns that underpin modes of thinking about politics, and thus the importance that scientific discourse bears for the ways in which political concepts and ideologies are assembled. It is argued that particular paradigms of scientific thinking[48]—especially those coming from physics—influence the ways in which we develop our patterns of thinking about politics; they shape the way we approach the conceptualisation of political concepts, the range of meanings we assign them, as well as the variable 'logics' through which we organise them into patterned clusters. Often, scientific paradigms affect social semantics by altering the very presuppositions on the basis of which meanings are imputed to concepts, as well as our perceptions regarding the possible relationships through which those can be structurally arranged into conceptual constellations.

In the first place, scientific thinking influences our perceptions regarding the nature of our world. Ideas of the nature of the natural world itself—or 'material

[47] William Bennett Munro, 'Physics and Politics—An Old Analogy Revised', *The American Political Science Review,* Vol. XXII, No. 1 (Feb. 1928), pp. 3.

[48] The term 'paradigm' is used here in the Kuhnian sense, referring to 'universally recognised scientific achievements that for a time provide model problems and solutions to a community of practitioners', at all levels of 'law, theory, application and instrumentation together'. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, pp. x, 10.

cosmologies'—have an impact not only upon our epistemological but also our political practices, because 'material cosmologies set the stage for cultural contacts'.[49] They guide our understanding and determine our position in the world, shaping the range of activities we view as possible or impossible to be performed in its context, thereby, ultimately, affecting the ways we come to exert ourselves in it as social and political beings.

Recent research in the field of intellectual history has focused precisely on demonstrating how 'cosmological ideas from physics, information science, business (…) [have been] assembled, more or less comfortably, into new forms of life'.[50] 'Positioning natural knowledge within stratified global political economies is a challenge being taken up by scholars not just of the recent past but of all periods. As a result, the contours of "Western science" have begun to shift. In 1931 Boris Hessen demonstrated the connections between the "pure science" of Newton's age and the rise of commercial and professional classes, European states' military and administrative apparatus, and the extension of empires. Much of today's most interesting scholarship arguably continues Hessen's work, showing the entanglement of natural knowledge with trade networks, state formation, class conflicts, and imperial ambitions'.[51] Researchers across epistemic fields are increasingly waking up from the long lingering idealisation of science as a pristine area of thought and its mythology of independence—or detachment—from questions, concerns, agonies, practices, semantics and interests pertinent to the political realm hosting it. Western science has not been 'a neutral "tool of empire," using value-free facts to accomplish utilitarian ends; it [has] carried culturally specific values (not

[49] John Tresch, 'Cosmologies Materialized: History of Science and History of Ideas', in Darrin M. McMahon and Samuel Moyn (eds.), *Rethinking Modern European Intellectual History* (Oxford: Oxford University Press, 2014), p. 166.

[50] Ibid. 165.

[51] Ibid.

least accuracy, efficiency, commensuration) and [has] sought to redraw the map of the world, both metaphysically and geographically'.[52]

Nevertheless, in shaping our perceptions regarding the nature of reality, scientific thinking and semantics also affect the manner in which we come to theorise about political affairs. On a more fundamental level, the nature of this interdisciplinary relationship is at once semantic and hermeneutic. Cutting-edge research in the field of intellectual history and the history of concepts is currently focusing precisely on the task of improving our awareness of those profound, yet most of the times elusive, conceptual–discursive interactions between the natural and the social sciences. 'The boundaries between the scientific and political fields are constantly transgressed in the historical development of concepts, such as *entropy*, *cells*, or i*nformation*'.[53]

Many key concepts of modern scientific disciplines are not restricted to their functions within a single discipline, nor can their semantics be defined by means of internal disciplinary categories. On the contrary, the semantics of scientific key concepts are extensively present in transdisciplinary discursive orders. In the process of defining them, the circumstances of their creation are naturally forgotten, and this in its turn almost necessarily leads to profound misunderstandings in the dialogue between disciplines. It is this semantic surplus and the resulting highly controversial status and vague character of such concepts that render them productive for the generation of theoretical and practical knowledge.[54]

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52 Ibid. 166.

53 Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', *Contributions to the History of Concepts*, Vol. 6 (2) (Winter 2011), pp. 42-52; p. 44. Ernst Müller, 'Transferences in the Concept of Information, in *Interdisziplinierung? Zum Wissenstransfer zwischen den Geistes-, Sozial- und Technowissenschaften*, Jutta Weber (ed.) (Bielefeld: Transcript Verlag, 2010), pp. 143–66.

54 Muller, 2011, p. 44.

Accordingly, the way physics—whether directly or indirectly—'guides' us to *interpret* the nature of the world, through the dissemination of its respective 'material cosmologies', as well as its semantic construal of 'universal' concepts, gradually influences the manner in which we engage in the various interpretative procedures pertaining to decontestation, selection, assembling and organisation of political concepts, as well as our interpretations and evaluations of the nature of the political on the whole.

The trajectories of scientific and political theory are mutually interwoven in the conjoint fabric of what we can broadly refer to as the ensemble of 'social discourse' and they both contribute to the 'vector-sum' of a common collective worldview. In this manner, disciplinary findings and practices of one field spill over to the other instigating *inter*-disciplinary effects: physical theories provide and shape the meanings of, and perceived relationships between, key philosophical concepts employed in the vernacular and in political theorising, as well as the basic theoretical premises upon which thinking about politics proceeds. Collective worldviews underpinning political and ideological practices[55] are influenced in important ways by scientific theories which are progressively becoming ever more widespread and accessible to public discourse, given that our times are marked by an increased interest in the latest scientific discoveries, 'popular science', and the accelerating use of rapidly multiplying technologies penetrating every aspect of our social, political and private lives.

At the same time, however, once newly emerged forms of political thinking *and* thinking *about* politics crystallise into a more or less demarcated worldview, in their turn begin to influence some of the postulates, conceptual foundations and norms from which

[55] It is important to note that ideologies are not taken as identical to worldviews; they are mainly their political dimension. See for example, Keith Dowding (ed.), *Encyclopedia of Power* (California: Sage, 2011), pp. 336-338; as well as Karl Mannheim, *Ideology and Utopia: An Introduction to the Sociology of Knowledge* (New York: Mariner Books, 1955), pp. 6-8.

science proceeds. Science is not immune from its political environment. It is embedded in the society in which it is born and hosted, and thus contingent upon its cultural, ideological and discursive particularities, as well as its major social teleologies. Socio-political discourse and cultural norms affect the way 'men and women of science approach their scientific practice',[56] for political and scientific language are intrinsically interwoven such that the social character 'is inherent in the very nature of scientific activity'.[57] Culturally-derived semantics and ideologies impact the types of thinking that are accessible to the individuals acting as scientific practitioners. The modalities those intra-disciplinary arrangements assume define not only the structure of scientific practice but also the *contents* of scientific theories (for, as we shall see, the former influences the latter), as well as they exercise some form of regulation over the extent of acceptance towards scientific findings and practice.[58] Therefore, scientific thinking and political thinking interpenetrate each other in multifarious, intricate and, very often, intriguing ways: their relationship is a two-way street.

(i) From Politics to Physics: Science as a (politically relevant) Thought-Practice

Let us begin by examining in more detail the discursive relationship between political and scientific thinking from the perspective of political theory, intellectual history and ideological analysis. This part of the chapter shall demonstrate the philosophical,

[56] Social discourse and widely circulated concepts within a discursive framework exert influence upon the conceptual infrastructures by means of which 'men of science' approach their science, since, as Kuhn's study showed 'conditions outside science may influence the range of alternatives available to the man who seeks to end a crisis by proposing one or another revolutionary reform'. Kuhn, *The Structure of Scientific Revolutions*, 1996, p. xii.

[57] Ludwik Fleck, *Genesis and Development of a Scientific Fact* (f.p. 1935) (Chicago: University of Chicago Press, 1982), p. 43.

[58] Regulations regarding the nature and scope of nuclear experiments and development of nuclear technology, as well as the slightly different yet highly politicised issue of animal testing provide two typical contemporary examples of the above.

political and sociological aspects underpinning scientific thought and practice by focusing on the elements of *interdisciplinarity*, *cognition*, *worldviews* and *political thinking* as the major connecting links between these two key areas of human thought.

Interdisciplinarity

First, the connection between the two research areas is given by and embodied in the inherent interdisciplinarity underlying the formulation of scientific, socio-political and cultural discourses. The broader collective thought environment—encapsulated under 'the political' *as* the practice-*and*-thought-collective social sphere—grounds, underprops and enables the emergence of subsequently individuated and focally specialised modes of thinking and knowledge-production. This is because, regardless of how easily it becomes forgotten, 'thinking is a collective activity'. Its product, in Fleck's words, 'is a certain picture, which is visible only to anybody who takes part in this social activity, or a thought which is also clear to the members of the collective only. What we do think and how we do see depends on the *thought-collective* to which we belong'.[59]

Cognition

The 'forces of mental society' affect science in yet another way: by means of conditioning and defining 'normal' everyday thinking; or, in other words the very structure of *cognition* prevalent within a given political community. As Fleck wittingly argues, 'it is nonsense to think that the history of cognition has as little to do with science as, for example, the history of the telephone with telephone conversations. At last three-

[59] For an elaborate discussion of interdisciplinarity in intellectual history see the Introduction. Ludwick Fleck, 'Scientific Observation and Perception in General' (f.p. 1935), in Robert S. Cohen and Thomas Schnelle (eds.), *Cognition and Fact: Materials on Ludwick Fleck, Boston Studies on the Philosophy of Science*, Vol. 87 (Dordrecht: D. Reidel Publishing Company, 1986), pp. 59-78.

quarters if not the entire content of science is conditioned by the history of ideas, psychology and the society of ideas and is thus explicable in those terms'.[60]

Let us return to Albert Einstein's statement quoted at the beginning of this chapter: 'the whole of science is nothing more than a refinement of everyday thinking; it is for this reason that the critical thinking of the physicist cannot possibly be restricted to the examination of concepts of his own specific field. He cannot proceed without considering critically a much more difficult problem, the problem of analysing the nature of everyday thinking'.[61] In Einstein's view, all science essentially rests upon a particular thinking process, which consists in meaning ascription, concept formation, attribution of significance and establishment of notional interrelations. What is crucial is that these thinking processes, and the ensuing conceptual constructs arising from them, form an integral part of *social discourse* too, and not solely nor exclusively an aspect of scientific production. This is why the cognitive foundations of physics overlap with the processes of worldview-creation pertinent to socio-political and cultural discourse.

The 'real external world' studies by the physicist, along with the 'bodily objects' constituting it, is primarily a *concept*, which, through a series of processes of observation and interpretation, ranking and organising of recurrent sense experiences, is mentally attributed a particular meaning. 'Considered logically', he argues, 'this concept is not identical with the totality of sense impressions referred to it; but it is an arbitrary creation of the human mind'.[62] It would not be unreasonable to consider this process of 'concept use' as pre-scientific; for it is a process in which all individuals engage, a process which proceeds whatever form of epistemic research and observation they may engage in.

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60 Ludwick Fleck, *Genesis and Development of a Scientific Fact*, pp. 20-21.

61 Albert Einstein, *Physics and Reality*, pp. 349.

62 Ibid. 350.

However, Einstein does not separate science and conceptual analysis. For him, advancements in science can only come through a reflection upon those basic concepts which structure the entirety of human thought-practices. This process is not exactly pre-scientific or meta-scientific, but a cardinal aspect of scientific theorising.

The second step involved in scientific thinking consists in the attribution of significance to intelligibly constructed concepts (i.e. to sense experiences that are assigned meanings, such as the 'bodily object'). This imputed significance demarcates qualitatively the object in view, thereby projecting an identity upon it—i.e. a set of features and connotations which, in his view, are largely independent of the sense-impressions that originally triggered them into them. The processes of meaning-ascription appear to proceed successively and cumulatively, such that a central object—the stimulus of experience—becomes vested with what could be referred to as 'layers of meaningfulness', whereby each level of meaning is superimposed upon the other in a continuous fashion. Beginning from an object of experience—such as a physical object—a series of successive layers of meaningfulness 'build up' the primary sense-experience, investing it into a notion which bears multiple significations. For instance, an observed extended curved surface (the primary object) is assigned the meaning of a 'physical body' (first layer of meaning). Subsequently, this becomes vested with further features of signification: the 'physical body' is interpreted, or further conceptually specified, as the body of a 'human being' (second layer), who, moreover, may further be specified as 'male' (third layer), but then also as a particular person (fourth layer), with a particular name, say 'John' (fifth layer), or, at a later stage along this process of significance imputing, also 'an excellent professor of mathematics' (sixth and seventh layers). Scientific thinking is established upon this process of concept-formation, meaning-ascription, significance-attribution and, finally, the overall interrelation or

weaving-together of the various concepts into one coherent whole, which, taken together, provide the fundamentals of a view of the world.

According to Einstein, these primary conceptual structures (or the 'core') making up a worldview are so important to our experience of everyday reality that 'these notions and relations, although free statements of our thoughts, appear to us as stronger and more unalterable than the individual sense experience itself'.[63] Similarly, Fleck's reverses the modern empiricist maxim that 'there is nothing in the mind that was not first in the senses' by claiming that 'there is nothing in the senses that was not first in the mind', adding that 'what is in the mind' bears an ineliminable social or collective component. Indeed, 'we walk around without seeing any points, lines, angles, light or shadows, from which we would have to arrange "what is this" by synthesis or reasoning, but we see at once a house, a memorial in a square, a detachment of soldiers, a bookshop window, a group of children, a lady with a dog, all of them ready forms. (...) We look with our own eyes, but we see with the eyes of the collective body, we see the forms whose sense and range of permissible transpositions is created by the collective body'.[64]

The processes of conceptualisation and semantic construction are not performed by the scientist in isolation from the rest of his social environment, neither are they performed *solely* by scientists. The reflection upon the structure of everyday experience is as much of a crucial thought-practice to the scientist as it is to the philosopher, the

[63] Einstein, *Physics and Reality*, p. 350. Of course, we know that worldviews usually additionally involve a great variety of further specialised relationships between significance-attributed concepts, which come to be expressed in values, norms, et cetera—i.e. the formulation of normative structures as well. But these may be regarded as second-order structures or progressed layers of signification in the total mental construction, which we define as a worldview.

[64] Ludwick Fleck, 'To Look, to See, to Know' (f.p. 1949), in Robert S. Cohen and Thomas Schnelle (eds.), *Cognition and Fact: Materials on Ludwick Fleck*, Boston Studies on the Philosophy of Science, Vol. 87 (Dordrecht: D. Reidel Publishing Company, 1986), pp. 134-135.

political thinker, and, in fact, to any thinking individual. As such, it is anticipated that the foundations of scientific thinking performed by members of the scientific community will exhibit numerous points of identification, intersection and commonality with patterns of thinking exhibited by the greater social context in which they participate—i.e. everyday social thinking patterns, which are, doubtless, notably influenced by philosophical, social and normative considerations. And this is because:

> Every cognition is a social act (…) for during every lasting exchange of thoughts there appear and grow ideas and standards which are not associated with any individual author. A communal mode of thinking develops which binds all participants, and certainly determines every act of cognition. Therefore, cognition must be considered as a function of three components: it is a relation between the individual subject, the certain object and the given community of thinking (*Denkkollektiv*), within which the subject acts; it works only when a certain style of thinking (*Denkstil*), originating in the given community is used.[65]

The same understanding is found at the crux of the epistemological premises of political theory and intellectual history, since in our field too the ideal of objective empiricism has been gradually overturned. Indeed, 'scarcely anyone nowadays believes in the possibility of building up structures of factual knowledge on foundations purporting to be wholly independent of our judgements'.[66] Of course, individuals within the collective 'are never, or hardly ever, conscious of the prevailing thought style, which almost always exerts an

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[65] Ludwick Fleck, 'Crisis in Science: Towards a Free and More Human Science' (unpublished 1960), in Robert S. Cohen and Thomas Schnelle (eds.), *Cognition and Fact: Materials on Ludwick Fleck*, Boston Studies on the Philosophy of Science, Vol. 87 (Dordrecht: D. Reidel Publishing Company, 1986), pp. 153-160, 154.

[66] Quentin Skinner, *Visions of Politics: Regarding Method (Volume I)* (Cambridge: Cambridge University Press, 2002), p. 1.

absolutely compulsive force upon his thinking',[67] and which underpins not only their approach to normative concepts, but also, more generally, their cognitive functions. In any event, the very patterns of thinking underpinning scientific (as well as political) thought are contingent upon historically particular constellations of discursive dynamics—what are often referred to as 'prevalent worldviews'.

Worldviews

As discussed earlier, the general discursive infrastructure of a society, which is an intrinsic part of what we referred to as the prevalent worldview, provides the conceptual and philosophical premises upon which scientific thought is structured. The culturally characteristic and socially prevailing patterns of thinking, norms and beliefs, common concepts, dominant ideologies, and even the ways of thinking about politics per se, permeate and inevitably come to shape individuals' thought-patterns and interpretative structures. Those patterns and, of course, the sets of historically relevant and philosophically prevalent concepts—including their distinctive synchronic meanings, to which individuals are habituated by means of partaking in a particular historical discourse—naturally influence the kinds of specialised types of thinking, thought-practices and intellectual pursuits in which they engage.

How is that done? First, through the social construction of the concepts, methods and objects of scientific research. State-of-the-art research on ideology and the history of concepts has recently brought into serious question the hitherto putative boundaries

[67] Fleck, *Genesis and Development of a Scientific Fact*, p. 41.

between political-social language and concepts in natural sciences.[68] As Muller pithily argues,

> The object of science is not nature as given, but the human manufacturing activity, our intervening in and transformation of nature which are inescapably penetrated by interests and objectives. Technology and language are not mere epiphenomena of the scientific research process; rather, they prove to have been of constitutive importance for our knowledge of nature. Only through linguistic construction work do the so-called scientific facts acquire their meaning for us as objects of research (…) As with reference to the terms of the humanities and social sciences, many scientific concepts too are characterised by surplus dimensions of meaning in which antecedent experiences, cultural values, and political interests are reflected.[69]

The boundaries between politics and science are constantly being transgressed in the historical formulation of key concepts which acquire *hybrid concept forms* (including *entropy*, *information*,[70] and even *power*), attesting to the fictitiousness of detaching conceptual developments in one field from those in the other.

A second way in which collective worldviews interact with scientific knowledge is through embedded philosophical and cosmological presuppositions. In his ground-breaking treatise, entitled *Physics and Philosophy*, the physicist and architect of quantum mechanics, Werner Heisenberg, examined the ways in which the dominant philosophical

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[68] The Center for Literary and Cultural Research in Berlin is particularly focusing on the examination of interdisciplinarity in intellectual history, and particularly the forms of overlapping between political and scientific concepts. See http://www.zfl.gwz-berlin.de/forschung/kulturgeschichte-des-wissens/begriffsgeschichte/. Also, Ernst Müller (ed.), *Begriffsgeschichte im Umbruch? Archiv für Begriffsgeschichte, Sonderheft Jahrgang 2004* (Hamburg: Meiner Verlag, 2005).

[69] Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', pp. 47.

[70] Ibid. 44.

discourse of each historical era conditions the conceptual, ontological and metaphysical premises of scientific thinking. His discussion investigated how prevalent philosophical perceptions during particular historical periods become internalised by scientists, determining the ways in which they assemble their definitions of physical concepts, the perspective from which they approach the nature of physical phenomena, as well as the sets of problems they identify as important and pertinent to scientific inquiry.

An example Heisenberg provided is that of classical physics, which was drastically influenced by the Cartesian distinction between mind and body. This distinction, argued Heisenberg, functioned as the implicit underlying foundation of scientific thinking dominating physics even up until the late 20th century. 'In natural science', he wrote, 'the [Cartesian] partition was for several centuries extremely successful. The mechanics of Newton and all the other parts of classical physics constructed after its model started from the assumption that one can describe the world without speaking about God or themselves. This possibility soon seemed almost a necessary condition for natural science in general'.[71] The impact that the dualistic mode of thinking entailed by the Cartesian division exerted upon the shaping of human thought, and its range of available interpretations of the world, was so profound, that Heisenberg classified it as a *trend* in *human thinking* accounting for the development of physics up until his times. In his view, 'this partition has penetrated deeply into the human mind during the three centuries following Descartes and it will take a long time for it to be replaced by a really different attitude towards the problem of reality'.[72]

In fact, the 'revolutionary' aspect of quantum mechanics—the latest paradigm in physics succeeding Einstein's Theory of Relativity, which was partly introduced by

[71] Heisenberg, *Physics and Philosophy*, p. 69.

[72] Ibid. 69.

Heisenberg himself—consisted precisely in questioning this philosophical foundation of the mind/body dualism which, *as a mode of thinking*, had penetrated almost all kinds of discourses of the time, including politics. Interestingly enough, this new scientific paradigm also opened our eyes to the apprehension of the subjective and sociological aspects of science. One of the major contributions of quantum theory was that it stressed the inherent subjective element involved in science. In quantum physicists' view, 'we cannot disregard the fact that natural science is formed by men. Natural science does not simply describe and explain nature; it describes nature *as exposed* to *our* method of questioning. This is a possibility of which Descartes could not have thought, but it makes the sharp separation between the world and 'the I' impossible'.[73] This foundational onto-epistemological assumption is succinctly summarised in the popular maxim commonly employed to describe the quantum mode of scientific thinking, which states that 'the observer affects the observed', in the same that observer plays an essential role in determining the outcome of experiment and observation.[74]

Nevertheless, a profounder issue at stake raised by the quantum interpretation is that, if scientific observation is so radically affected by the observer, as contemporary scientists argue, then the study of the parameters affecting and contributing to the formulation of the cognitive traits, patterns of thinking and interpretative tendencies and structures of the observer, becomes a research topic of paramount importance, not only for natural scientists, but equally for students of ideology. This is because the general patterns of thinking underlying scientists' observational modalities are gradually developed and cultivated within given social and political discourses, classroom education, public discussions, collective social and discursive practices, and are thus

[73] Ibid.

[74] James T. Cushing, *Philosophical Concepts in Physics: The Historical Relation between Philosophy and Scientific Theories* (Cambridge: Cambridge University Press, 1998), p. 371.

inexorably penetrated by the various ideologies at work in given social contexts. Ideologies, in this respect, shape the very *identity*, but also, as we saw earlier, the *cognitive functions* of the observer; they shape the 'I'—the 'personal conceptual universe' and thought-patterns of the scientist—which, as quantum physicists argue, form a most crucial and active input to the physical experiment and its results. The above considerations justify the plausibility of addressing science as a social phenomenon, contingent to the prevalent ideologies at work in a given society and thus also pertinent to the study of ideology and political thinking.

What does the element of 'subjectivity' involved in science specifically refer to? Interestingly, for the most part, it concerns the kinds of entities that we as political theorists are interested in: the sets of norms, preconceptions, value-judgements, interests, and perceived goals—in this case, of those individuals who act as the agents of science. Viewed from the perspective of agency, science is as much of a human science as the humanities: it is performed, produced and disseminated by human beings (the 'men of science'), who belong to a greater social context wherein their scientific vocation takes place. Scientists carry along in their scientific research their particular mentalities, mind-frames and social preconceptions regarding what counts as meaningful, relevant, reasonable, important and urgent.

The above feature is reinforced by that fact that, especially in our times, scientific research is usually carried out in a manner destined for practical use by other human beings. This instrumental and teleological aspect of science is very often tied to the fulfilment of specific social, political and economic interests and aims. For example, the development of nuclear technology was spurred on by the need for technologically advanced methods of warfare. Since its motivation and starting point is very frequently interwoven with social needs and factors, it is plausible to wonder how science could

remain uninhibited by normative and subjective elements, similar to those which epistemologists and sociologists, such as Weber, have often assigned as distinct characteristics of social—in contrast to 'positive'—scientific research.[75]

Political Thinking

The appreciation of the philosophical, sociological, psychological but also political aspects of science has been a matter of increasing concern amongst academics, especially since the publication of Thomas Kuhn's renowned '*Structure of Scientific Revolutions*'. Kuhn's contribution to the history of science consists in that his *magnum opus* offered one of the first systematised attempts to address science in an agent-centred manner, with the aim of exposing the ineliminable social and political aspects involved in the domain of scientific production. In what follows, our analysis shall focus on how, according to Kuhn, (i) the two respective fields share common modes of conceptual decontestation; (ii) scientific practice exhibits crucial political traits. Particularly, the argument is elaborated that political thinking penetrates scientific thinking, in a manner that politicises the latter; and finally (iii) how Kuhn's paradigms can plausibly be compared to political ideologies.

[75] Weber's rejection of the possibility of laws in social sciences rests largely upon the understanding that since social scientific theories are 'agent-centred stories', the issue of selectivity of events and factors taken under consideration in formulating social scientific explanations will always remain an arbitrary and subjective procedure, as it will always depend upon the scientist's personal motivation and extra-scientific value-judgements. The present chapter presents a counterargument to this position. For instance, it is useful to consider the strong repudiation of Weber's distinction between the two fields which is provided by a theory coming from natural science itself. As noted, quantum theory has experimentally validated that science is inherently agent-centred, not only at the level of choice of topic and data, but also at the more fundamental level of the very nature of observation and the results that possibly ensue from it. Those have been proven as intrinsically depended to the subjectivity of the observer—in reality, to the very fact that *there is* an observer. The repudiation of those arguments serves to the opening up of the boundaries between the two disciplines, thereby contributing further to the appreciation of the *de facto* and potential exchanges and communications between them.

Kuhn challenged the widely held view that science is a 'constellation of facts, theories and methods collected in current texts', whose development is a process of accretion—i.e. a 'stockpile' process of data and experiment accumulation.[76] Rather, he stressed the personal and social factors which inevitably and substantially influence the development of science. The fundamental question for Kuhn was how beliefs, ontological and epistemological presuppositions, inter-personal interactions with other members of the scientific group and with society on the whole influence the process of scientific development, including the evolution of key notions and concepts. His work demonstrated that 'positive' science is drastically influenced by the worldviews of its practitioners. He acknowledged the latter as playing a vital role in the formation of science and particularly in its evolutionary progress; ruptures from old paradigms, what he called 'scientific revolutions', fundamentally depend upon radical changes in the underlying patterns of thinking and understanding of key—in fact generic—concepts.

It is important to stress that the Kuhnian approach to the extra-disciplinary determinants of scientific disciplines does not treat the matter from a strictly philosophical perspective. Many studies have been devoted to the connections between physics and philosophy, as well as the investigation of the influences that great thinkers have had on great scientists.[77] Yet, Kuhn's main objective was not to provide another plainly historical account of this relationship, but rather to reveal the *sociological* and *political* aspects and dynamics at work within the field of science. It would therefore be

[76] Kuhn, *The Structure of Scientific Revolutions*, pp. 2-3.

[77] For example, Einstein had been particularly influenced by philosophers, such as Schopenhauer, Kant, Plato and Hume, especially in his theorising about space and time. He generally demonstrated a fondness for philosophy, from which he had claimed to be drawing inspiration for his scientific activities. See Anton Reser and Rudofl Kayser *Albert Einstein: A Biographical Portrait* (New York: Albert and Charles Boni, 1930), pp. 55, 194.

fallacious to assume that those considerations belong to the field of the philosophy of science or epistemology, rather than to political theory.

The political dimension of science—including physics—concerns how scientists engage in the ubiquitous 'master thought-practice of thinking politically', whether they are aware of it or not. Indeed, 'the political dimensions of human thought-practices, like their cultural and psychological dimensions, interpenetrate all forms of discourse, from the specialized to the common, from the professional to the vernacular, from the institutionalized to the informal'.[78] In order to clarify this proposition, it is helpful to revisit the crucial distinction between 'thinking about politics' and 'thinking politically', explored in the first part of this chapter, in order to utilise it as an apparatus for explicating in greater rigour the inherent political dimension of positive sciences.

As we saw, according to Freeden, 'thinking about politics' concerns the cognitive practice of explicitly reflecting upon what are considered as political issues. 'Thinking politically' refers to thinking about any topic in a manner that demonstrates the following six key features:

(i) The distribution of significance and ranking of aims 'in order of importance or urgency',

(ii) Decisions regarding collective priorities and objectives,

(iii) The articulation of 'cooperative, dissenting, competitive, or conflictual arrangements for groups',

(iv) The setting and projection of collective goals and visions,

[78] Freeden, *The Political Theory of Political Thinking*, p. 4.

(v) The internal organisation, arrangement and self-definition of collectivities, and so forth.[79]

It also incorporates,

(vi) A crucial dimension of power, understood as 'discursive, argumentative and expressive attempts to exercise power' in the key areas, which involves

'(α) the self-defined incontestable exercise of decision-making as trumping and the assertion of the capability and (additionally) the right to exclude individual and group claims from consideration (...) or the controlled suppression of such claims prior to their articulation;

(β) A listing of priorities that strives to be indisputable, and the elimination of other priorities;

(γ) The expression, eliciting, or utilizing of the flow of consent, acquiescence, or opposition towards political systems, processes, groups, and leaders'.[80]

It can furthermore be argued that particular expressions of political thought-practices are interrelated with sets of particular beliefs and concrete conceptualisations about politics; as well as that, vice versa, ideas about politics exhibit correlations with particular styles or *modalities* of political expression. This suggests that the contents of thinking, on the one hand, and the method and style of their expression, on the other, are found in a form of dialectical correlation, which exhibits, inasmuch as it establishes, at least some degree of qualitative uniformity between them.

Similarly, the contents of particular ideas and conceptualisations regarding 'the political' are related to particular structures, expressions and styles of political practices—including thought-practices bearing one or more political features. Therefore,

[79] Ibid. 5, 9, 10, 34-37.

[80] For a rigorous and more detailed discussion regarding the difference between 'thinking about politics' and 'thinking politically', see Freeden, op. cit., Introduction and Chapter 1, especially pp. 34-37.

it can be argued that different ways of *thinking about politics*, including particular conceptualisations of political notions, often influence the *modal* expressions of *political thinking*. Given that those expressions penetrate scientific thinking as well, it follows that political notions cannot be entirely irrelevant to the thought-patterns conducing to the development of scientific theories, even if their agents would often like to perceive themselves as detached from this 'master thought-practice'. Therefore, various forms of discourse (in this case, physics) include, reflect and are shaped, at variable degrees and intensities, by the ways in which individuals perceive the realm of the political.

Let us make the above reflections a bit more concrete by importing them back to the study of our main subject-matter and considering their repercussions vis-à-vis the conceptualisation of power. What the above considerations suggest is that the manner in which one thinks about power, including the perceptual/semantic attributes one assigns to the concept, are most likely to influence the way in which one interprets and experiences power, both on a practical and normative level. If, for example, our conception of power is constructed primarily out of primary semantic components such as conflict, cruelty, antagonism and suppression, it is highly likely that our very practical power interactions, as well as our interpretations of discursive, argumentative and expressive attempts to exercise power, will also be coloured and even impelled by the same characteristics that we had conceptually presupposed as its defining features. This means that ideas (in the sense of preconceptions or assumptions) about power—i.e. sets of beliefs regarding its nature and functions, subtle nuances and primary attributes assigned to the concept—become projected upon concrete instances of power, both in the ways those are received and interpreted, as well as the ways in which they are likely to

be practically approached by individuals.[81] In the present example, then, 'negative' interpretations of power may elicit qualitatively similar experiences—or, more accurately, *interpretations* of experiences—of power dynamics, e.g. as antagonist or conflictual experiences; or make agents vigilant and alert towards the manifestation of such features, which their prior preconceptions project before them as imminent possibilities. The caution is to stay aware of the contingency of the variable nuances attached to highly normative concepts, such as power, as well as alert to the danger of mistaking our socially conditional intellectual commitments for universal truths.[82]

Admittedly, the above remark relates directly to a more general—and currently widely accepted—understanding amongst social scientists, namely, that our *interpretation* of events forms one of their most crucial substantive dimensions. In line with this view, events are better understood as 'occurrences given meaning',[83] rather than objective facts impervious to the impressions, judgements and meanings their observers

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[81] This idea aligns with the epistemological view of projectivism, which states that part of the properties we perceive as belonging to objects or situations are our projections upon them. For an interesting discussion on projectivism, including a succinct historical overview of its evolution from Hume to today, see Bence Nanay, 'Philosophy of Perception: The New Wave' and Andy Egan, 'Projectivism without Error', both in Bence Nanay (ed.), *Perceiving the World* (Oxford: Oxford University Press, 2010), Oxford Scholarship Online, 2011, http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780195386196.001.0001/acprof-9780195386196-chapter-5 [Accessed: 19 June 2015]. Similarly, our normative stance towards situations or events, is already shaped by our perceptual experience, and hence by the conceptual 'lenses' or frames through which perception is constructed and approached; as Kelly notes, 'perceptual experience already involves a kind of normative self-referentiality (…), in other words [perception] already involves a normative engagement with the object perceived'. S.D. Kelly, 'The Normative Nature of Perceptual Experience', op. cit. (Chapter 7). As Kelly reminds us, this thesis is extensively elaborated by Merleau-Pointy in his *Phenomenology of Perception*.

[82] Skinner, *Visions of Politics*, p. 6.

[83] An interesting application of this philosophical idea is found in Rodney Barker's Weberian-inspired analysis of legitimacy in *Legitimating Identities: The Self-Presentation of Rulers and Subjects* (Cambridge: Cambridge University Press, 2001), particularly Introduction, Chapters 1 and 2.

assign them. 'Events' are not independent configurations of reality, but, rather, also dependent upon their agents/observers' reception and perception: they incorporate a subjective element. Linking this general feature of human thinking to the particular modality of 'political thinking', it is a tenable inference that since our perceptions about reality influence the way our thought-patterns are assembled in observing and interpreting reality, equally, the ways we think about the political—i.e. our perceptions about particular political features or phenomena, including our political norms—affect decisively the ways in which we practice and experience political dynamics.

In accordance with the above criteria, it can be argued that the structure of modern science as an area of thought demonstrates many of the features which delineate a thought-practice as political. Their active presence in the structure of scientific discourse shall be gradually exposed as we proceed. Scientists engage in the practice of thinking politically when conducting their research, yet they cannot escape incorporating political norms into their research. This statement deserves a brief clarification.

Let us revisit Kuhn. As he states, the personal motive behind his research was his observation that the internal dynamics of scientific groups exhibit intriguing political traits. In the preface to the 1962 edition of his *magnum opus*,[84] Kuhn acknowledges that the source of his inspiration for suggesting a new explanatory theory of scientific advance consisted in his observations of the differences between group dynamics of social scientists and natural scientists, when the redefinition of legitimate problems and methods in their fields was respectively at stake. Despite important differences in the extent, intensity and style of disagreement between the members of each respective field, Kuhn showed that positive sciences, likewise social sciences, similarly demonstrate the element of contestability over their main concepts, methods and theories.

[84] Kuhn, op. cit., p. x.

The political aspects involved in scientific practice and organisation are much more substantial than scientists are usually inclined to recognise. As Kuhn informs us, scientific discourse proceeds via periodically achieving a general consensus between its members with regards to the *distribution of significance* of concepts and the ranking of research priorities [which relates to feature (i) listed above]; *decisions over* which experiments are worth performing [relevant to feature (ii)]; as well as a *common shared vision of the goals and purposes* of science [feature (iv)]. This includes the demarcation of scientists' internal—and collectively shared—*self-perception regarding their role, status, position and duties* in relation to the academic, but also social, context to which they belong [which pertains to feature (v)], and the *delineation of the internal organisation* of the discipline, including the allocation of roles and posts among its members [features (iii) and (v)]. All of the above constitute integral structural aspects of what Kuhn refers to as 'established scientific paradigms', yet at the same time, as we saw, stand as the major characteristics which, according to Freeden's taxonomy, demarcate a thought-practice *as* political. It follows as a logically tenable conjecture, despite its seeming radicality, that scientific thinking is a form of political thinking—or at least, in an understated fashion, that it exhibits a pivotal political undercurrent.

Another crucial political feature integral in scientific practice concerns the role and importance of *consensus* in the formulation of scientific knowledge. Contrary to what many may think, scientific knowledge is not validated by logic alone; rather, 'the goal of science is a *consensus* of rational opinion over the widest possible fields'.[85] The establishment of a given paradigm, derived through consensus between members of the

[85] Cushing, *Philosophical Concepts in Physics,* p. 371. Similarly, Einstein had argued that 'pure logical thinking can give us no knowledge whatsoever of the world of experience; all knowledge about reality begins with experience and terminates in it (…) Conclusions obtained by purely rational processes are, so far as Reality is concerned, entirely empty'. Einstein, 'On the Method of Theoretical Physics', p. 164.

scientific community, implies that scientists 'have to accept and take a common body of beliefs for granted', including the principles that 'permit selection, evaluation and criticism'. However, those beliefs are often meta-scientific, since they are 'externally supplied, perhaps by a current metaphysic, by another science, or by personal and historical accident'.[86]

Paradigms in the field of positive sciences can be interpreted as the equivalent of 'ideologies' in the realm of politics, whether ideology is understood according to its functional or morphological definition. According to the functional approach, political ideologies are 'sets of ideas, beliefs and attitudes that reflect and shape understandings of the social and political world' exhibiting 'recurring patterns (…) held by significant groups' functioning with the aim of 'justifying, contesting or changing the social and political arrangements and processes of a political community'.[87] Similarly, scientific paradigms provide those basic sets of concepts, ideas and beliefs in line with which scientific research is approached, organised and conducted. Those concepts and beliefs reflect and shape agents' understandings and interpretations of the natural world and the nature of reality, as well as the appropriate role, functions and principles of the scientific community. Paradigms exhibit recurring axiomatic, conceptual and ideational patterns held by identifiable groups of scientists (those who become its adherents and agree to 'convert'—as Kuhn notes—and conform to its assumptions and goals), which function so as to explain, justify or decontest scientific theories and practices. Finally, they serve as a kind of ideational infrastructure, in reference to which scientists formulate plans of action for present and future research, and prioritise experiments in line with some given set of preconceived goals and criteria of significance, urgency, and legitimacy.

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[86] Kuhn, op. cit., 1969, pp. 13, 17, 18.

[87] Michael Freeden, *Ideology: A Very Short Introduction* (Oxford: Oxford University Press, 2003), p. 32.

Effectively, paradigms define what is *important*, *permissible* and *legitimate* in scientific research. Every definition of 'science' implies a definition of legitimate (a) problems, (b) concepts and (c) methods through which one may arrive at 'legitimate' answers. Those criteria clearly inject political dynamics in the field, since the very notions of 'legitimacy' and 'consensus' suggest rudimentary political qualities. They relate to the political feature of 'power' ((vi) of the above), which 'cuts across' all other political features. After all, the very notion of a 'discipline' refers to the organisation of a group in such manner that, according to Freeden's criteria, effectively amounts to its politicisation.[88] As Kuhn remarks, 'sometimes it is just its *reception* of a paradigm that transforms a group of previously interested merely in the study of nature into a profession or, at least, a discipline'[89]—interestingly, very much like the institution and reception of 'law' (the establishment of a legal framework), or the initiative act of a collectively agreed 'social contract', transforms a group of people into a clearly-defined political collectivity.

The introduction of a new paradigm affects the structure of the group of practitioners, as it institutionalises new criteria of permissiveness in research, as well as new criteria and processes of inclusion and exclusion in the group: those who 'convert' (interestingly, Kuhn uses intentionally this word) to the new set of beliefs and regulative principles may still be qualified as its practitioners, while, 'those unwilling or unable to accommodate their work to it must proceed in isolation or attach themselves to some other group'.[90] One of the two 'essential criteria' which qualify a theory as a paradigm is

[88] Ibid. 18-19.

[89] Ibid. Italics my addition.

[90] Ibid.

that of being 'sufficiently unprecedented to attract an *enduring group of adherents* away from competing forms of scientific activity'.[91]

Still, the scientific community has not hitherto adhered to any one incontestable paradigm: previous paradigms are constantly being challenged, leading to the emergence of new ones. Scientific practices seem to exhibit a surplus of meaning, such that new interconnections between previously established concepts emerge out of an institutionalised paradigm. In studying their functions, Kuhn was not so much interested in discerning the political features of science, but in answering the following key question: faced with a multitude of possible epistemic concepts and methods available to him, what is it that determines the particular choices between alternatives that a scientist makes in putting forward a novel idea?

With this question, and the answer Kuhn provided, we are brought back to the point from where we started: for those choices—which are, to a considerable extent, choices over concepts and meanings—are radically determined 'by the scientist's prior experience in other fields, by the accidents of his investigation and by his own individual makeup'.[92] The latter factor ('individual makeup') has already been discussed in some length, while the middle factor ('accidents') concerns what is usually referred to as 'chance'—a casual factor which scientists recognise as important and legitimate in research, and which mathematicians and statisticians alike attempt to incorporate into their formulae in the form of the 'imponderable factor'.

As far as the first factor ('prior experience') is concerned, Kuhn attempted to approach its explanation by asking the following questions: 'what beliefs about the stars does [the scientist] bring to the study of chemistry or electricity? Which of the many

[91] Kuhn, *The Structure of Scientific Revolutions*, p. 10. Italics my addition.

[92] Ibid. 4.

conceivable experiments relevant to the new field does he elect to perform first?' Although such questions may, at first glance, appear remotely relevant to the formulation of an explanatory account of scientific theories, Kuhn successfully defended the argument that it is 'answers to questions like these [that are] essential determinants of scientific development'. In line with the Kuhnian approach, our analysis interpolated and explored the further, though related, question of 'how political thinking and political conceptions influence the process of scientific production'. It addressed the issue mainly from the perspective of political theory and ideological analysis, paying particular attention to the political attributes of scientific practice, as well as the role of political conceptions in the shaping of mentalities that conduce to scientific thought and practice.

To conclude, even a science such as physics, which public opinion widely idealises as a rationally bound, logically stringent area of knowledge, presumably based solely on empirical data, has been shown to be largely determined by extra and intra-disciplinary factors. Those shape the conceptual structure of physical theories as well as the epistemic environment in which those theories emerge and develop. Those factors can only be appreciated by exploring scientific thinking from a wider, interdisciplinary perspective which enables the discernment of subtler conceptual interactions with other fields (such as political discourse) that conduce to the configuration of the qualitative traits of physical theories. Yet, if that has been successfully shown to be the case with the purportedly 'stricter' scientific disciplines, then what would preclude us from extrapolating this corollary in order to apply it the other way round?

ii) From Physics to Politics: A Conceptual Approach

The expression 'from physics to politics' is here employed to introduce the idea that science contributes to the formulation of the general intellectual and conceptual frameworks through which 'thinking about politics' is assembled. At the same time, it

indicates a possible research direction, one which, however, the current academic literature has left comparatively uncharted. Fear of drifting into some kind of obscure deterministic holism? Reservations about engaging in bold metaphysical statements? Impermeable technical disciplinary boundaries? All of the above suggest possible reasons explaining theorists' general reluctance to explore this probing interdisciplinary connection. Nevertheless, walking along this fairly unexplored path with clear-cut premises may be proven a worthwhile venture: its exploration can provide a novel perspective on our journey along the 'two-way street' joining the two disciplines, as well as valuable insights regarding the inter-fertilisation of their conceptual apparatuses.

A similar concern to that of Kuhn's project echoes at the background of the present study; only that, in our case, the research focus is directed towards ascertaining the extra-disciplinary parameters contributing to social semantics and political thinking, particularly those 'beliefs' and 'concepts' coming from scientific thought, which, either consciously or unconsciously, explicitly or tacitly, enter into the interpretative and intelligible processes of conceptualisation and the ensuing conceptual configurations of power in political thought. Thus, Kuhn's research question, which concerned primarily the status and operation of physics, can be adjusted and reformulated as follows: 'what beliefs about physics, and the constitution of the primary notions of matter, space and time, does the political theorist bring into the study of politics, and, particularly, her various interpretations and conceptual formulations of power?'

The impact of scientific views on conceptions of politics is reinforced by considering the *de facto* ways in which science discursively converses and conceptually fuses with politics, through the ever-increasing frequency with which scientific concepts and theories penetrate our vernacular and thus become absorbed by 'men and women' of all fields. This occurs via primary and higher education, textbooks, the media, public

discourse and the prevalent literary genre of 'popular science'.[93] The latter has resulted in a considerable increase of scientific awareness in our societies, such that new scientific ideas gradually have become an important part of our social discourses. In this way, scientific concepts are transferred to 'social and political constellations', acquiring an interdisciplinary character; it is precisely their 'vague, indefinable character' that 'allows political concepts to tie into such interdisciplinary concepts in a strategic sense'.[94]

In the following and last part of the chapter, the discussion will lay the foundations for exploring the scientific construction of political concepts, and the interactions between scientific paradigms and political worldviews or ideologies, before setting out to explore those connections in greater detail in Chapters V and VI. Let us recall that the purpose of this exposition is to create the particular background against which the concept of power moves towards a dynamic, relational and gradated concept. At this stage, the analysis provides a groundwork discussion regarding the general liaisons between scientific paradigms and the foundations of different modes of political thought, which will be preceded by a short discussion regarding the impact of scientific worldviews upon different aesthetic expressions of society. The discussion of art, which forms a crucial aspect of social and political life, but also ethics, will be used as a key example illustrating the broader social discursive interactions between physics and societies. In the following chapters, the trends in physical thinking examined in this discussion will be shown relevant to different ways of *thinking about power* in modern

[93] In fact, the contemporary experience of the growing publicity, social relevance, status and authority of science, features usually summarised under the term 'popular science', is genealogically traced by Fyfe and Lightman as having its roots in 19th century Victorian Britain. During this time, science begun to be placed in the wider 'cultural marketplace', promoted as a social good, through the use of variable means, such as shows, exhibitions, museums, media publications, and so forth. See Aileen Fyfe and Bernard Lightman, *Science in the Marketplace: Nineteenth-Century Sites and Experiences* (Chicago: University of Chicago Press, 2007).

[94] Muller, *Interdisciplinary Concepts and their Political Significance*, p. 51.

political discourse, including the modern reinterpretation of the concept of power as no longer a fixed attribute, but rather a property which fluctuates according to the relationships in which a person participates.

Scientific Paradigms, Political Cosmologies and the Case of Aesthetics

In an almost century-old study—a presidential address delivered before the American Political Science Association in 1927—and inspired by Walter Bagehot's book '*Physics and Politics*', William Benner Munro was one of the first (and few) theorists of the last century to explore and argue in favour of the idea that physical theories and concepts have a decisive effect upon the theoretical foundations of political science and the structure of political thought. Munro suggested an original perspective for addressing the physics-politics relationship: a conceptual view, which sought to trace how physical notions, such as conceptualisations of nature, the structure of matter and the foundations of the natural world, have a direct bearing upon the ways in which political theorists conceptualise the foundations of government and the institution of political societies.

'Science', argues Munro, 'begins by altering the day's routine and ends by transforming our whole orientation toward the social cosmos'.[95] The conceptual mediations between positive sciences and politics occur, first and foremost, at an ideational level, as we saw, through everyday discourse, often resulting in a radical recasting and reconceptualisation of the basic premises upon which political theories are founded. Drawing from the field of biology, Munro discusses the impact that the theory of evolution has had on political ideas:

> The acceptance of the doctrine of evolution (to take an obvious illustration from the past) did not confine its effects to biology, or even to the natural sciences as

[95] William Bennett Munro, 'Physics and Politics', p. 3.

> a whole. It compelled a general recasting of the older ideas concerning the origin of the state and of government; it threw political science into a new dependence upon history, and led Sir James Seeley to declare in one of his famous epigrams that history without political science could have no fruition. It impelled the student of politics to look upon public institutions as part of the whole evolving order of things, like the protoplasmic cell and the living organism.[96]

The conceptual appropriations from natural science, highlighted by Munro, do not exactly represent an *ontological* reframing of thinking about politics seeking to align itself with the findings of natural sciences. Political theorists do not necessarily *intentionally* design their theories to reflect the conceptual structures and features of science because they regard society as a micrography of nature. Of course, engaging in discussions concerning writers' intentions can be a tricky venture, one from which the present discussion would prefer to abstain. However, what can be argued with greater certainty is that political theorists tend to relate, and in some sense simulate, the *conceptual* constructs that natural sciences employ in explaining the function of the natural world upon their own theorising and explication of the nature of human societies, while not inevitably consciously relating the two on premises of ontological character.

Let us revisit the example of scientific revolutions. As we saw, the overthrow of a previously established scientific paradigm does not only entail drastic alterations within science alone. It also involves crucial repercussions at a greater macroscopic level, since a scientific revolution serves to 'alter the historical perspective of the community that experiences it'. It does not take long until a newly introduced perspective in a science, such as physics, becomes disseminated within existing social discursive structures. This

[96] Ibid.

occurs through affecting 'the structure of post-revolutionary textbooks and research publications',[97] which serve as sources of standard education in society; and then, also, through rapid information networks—including the media and, nowadays, importantly, the internet. Consequently, the newly emerging paradigm begins to gradually shift society's given *Weltanschauung*. This influence is growing in scope and intensity during our times, as science is increasingly becoming more popular, while religion is rendered more silent, in the context of public discourse.

The discursive significance of scientific paradigms and the social diffusion of science is helpfully exemplified in studying the case of aesthetics—a core bastion of politicisation and a crucial domain of social becoming for any political community, including its ethical structures, since, in many respects, 'ethics and aesthetics are one'.[98] Treating the arts as a crucial case study for illustrating the impact that physical ideas bear upon the multiplicity of social domains, Merleau-Ponty explored some of the effects that the rise of the paradigm of modern physics had on altering modern and post-modern patterns of social thinking, as those are revealed by the transformations occurring in the structure and contents of modern and post-modern aesthetics.[99]

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97 Kuhn, *The Structure of Scientific Revolutions*, Preface p. xi.

98 Ludwig Wittgenstein quoted in Diané Collinson, 'Ethics and Aesthetics Are One', *The British Journal of Aesthetics*, Vol. 25 (3) (1985), pp. 266-272; B.R. Tilghman, *Wittgenstein, Ethics, and Aesthetics: The View from Eternity* (Basingstoke: Macmillan, 1991).

99 Berle considered that the fields of science, philosophy and theory, as well as the arts, have always been crucial to politics, and especially to the exercise of power. As he noted, 'historically, power has always sought the assistance of the arts. Why, it is difficult to tell. Attempt at alliance nevertheless has been constant; one finds it whenever one encounters power (…) Aphorisms aside, we find power associated invariably with two external forces: a system of ideas and, more hesitantly, a system of art'. A. Berle, *The Three Faces of Power* (New York: Harcourt, Brace & World, 1967), pp. 9-11. The example of art is thus as remote as it may first appear.

In a relevant collection of essays, Merleau-Ponty remarks that 'it is intriguing that the findings of science should coincide with those of modern painting'. The relinquishing of the classical Newtonian conception of space, which interpreted space as an 'absolute entity', as an objective, linear and empty container wherein physical objects occupy an absolute location at a given time, a space where 'the form and the content of the world do not mix';[100] as well as the advent of Einstein's relativity theory, which portrayed space as curved, dynamic and interactive, entailed crucial transformations in the way individuals discursively and practically came to approach the structures of everyday experience.

Merleau-Ponty correlates the classical Newtonian conceptualisation of the world with the classical approach to painting.[101] Classical paintings presuppose a well-ordered, linear, three-dimensional space, where the form of objects and their surroundings are clearly demarcated, their boundaries clearly distinguished, as their contours (i.e. the limits of their discrete—atomistic—being) are carefully drawn, as well as where the painter distinguishes between outline and colour by drawing the spatial pattern before filling it with colour.[102] In some way, this 'artistic paradigm' represents an adaptation or manifestation of the 'atomic theory' (we shall return to this point in the following chapter). In the context of the painting, its drawn objects constitute the 'atoms': they are represented as distinct, unitary and solidly demarcated from each other—their contours serving as their 'membranes', as it were. Moreover, in classical painting, the painter draws from one particular perspective, thereby clearly differentiating between himself and the object of his painting. In this way he assumes the role of the detached, external observer that influences what is going on in it. He chooses one particular and uniform

[100] Maurice Merleau-Ponty, *The World of Perception*, Oliver Davies (transl.) (London: Routledge, 2009), pp. 15-38.

[101] The Newtonian worldview is discussed in greater detail in the following chapter.

[102] Merleau-Ponty, op. cit., p. 39.

point of view throughout the painting, fixes his 'gaze' 'at a particular vanishing point on the horizon, a point in relation to which 'the landscape is then arranged along lines running from the painter to the horizon'. Merleau-Ponty calls this functional principle 'the law of geometrical perspective'. 'Landscapes painted in this way', he adds, 'remain at a distance and do not involve the viewer.'[103]

This approach to artistic observation and practice presents compelling similarities with the idea of 'absolute observation' in physics. The notion of an 'external observer', which constituted an integral part of classical physics up until the rise of quantum theory, went hand-in-hand with the idea of an 'absolute' external perspective from which the object of observation (which, similarly to classical aesthetics, is assumed as external and separate from the observer) lends itself to the process of observation. This idea of an observer who is clearly separated from the well-ordered and geometrically absolute landscape, including the objects within it, reverberates quite strongly with the old classical atomic-paradigm of physics—the paradigm of 'absolutes'. According to this paradigm, external conditions and internal constitutions are distinctively separated,[104] while the observer and the object of observation are regarded as detached and independent, i.e. as not interacting nor influencing one another.

'But this is not how the world appears when we encounter it in perception', Merleau-Ponty accurately remarks. 'When our gaze travels over what lies before us, at every moment we are forced to adopt a certain point of view and these successive snapshots of any given area of the landscape cannot be superimposed one upon the other. It is only by interrupting the normal process of seeing that the painter succeeds in

[103] Ibid. 40.

[104] Similarly to how the 'extended corporeal' objects of the external world (*res extensas*) had been regarded as radically and dualistically separated from related perceptions (*res cogitans*) developed against the backdrop of corporeality.

mastering this series of visual impressions and extracting a single, unchanging, landscape from them (...) a representation of the landscape which does not correspond to any of the free visual impressions.'[105] The rupture from the tradition of 'geometrical perspective' takes place with the gradual development of modern art, which, tellingly, coincides with the overthrow of Euclidian geometry in the field of mathematics and with the introduction of Riemannian geometry and field theory.[106] This newly introduced geometry offered a radical re-conceptualisation of space as *curved*, instead of linear, according to which it was demonstrated that 'things can change simply by being moved'. Furthermore, its findings induced the discovery that space is not uniform or contiguous, but, rather, composed of 'a variety of different regions and dimensions, which can no longer be thought of as interchangeable'. Riemannian geometry, coupled with relativity theory, essentially construed and promulgated a new set of conceptions and understandings regarding the nature of the world. 'Instead of a world in which the distinction between identity and change is clearly defined, with each being attributed to a different principle, we have a world in which objects cannot be considered to be entirely self-identical, one in which it seems as though form and content are mixed, the boundary between them blurred (…) We can no longer draw an absolute distinction between space and the things which occupy it'.[107]

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[105] Merleau-Ponty, op. cit., p. 41.

[106] R. Torretti, *Philosophy of Geometry from Riemann to Poincaré* (Netherlands: Springer, 1978), esp. pp. 67-107.

[107] Merleau-Ponty, op. cit., p. 39. Merleau-Ponty extends this analogy to what he refers to as 'intellectual space' as well. As he remarks, 'the space of the perceived world is not the unique space of a 'disembodied intellect', but, like physical space, has different regions which are structured by our expectations concerning the things which we find in them'. The juxtaposition between intellectual and physical space does not purport a sharp, dualistic distinction between them and it is not built upon premises of correspondence, but, rather, analogy.

The novel conceptualisation of space and the nature of our interaction with it, underpinning this newly emerging 'view of the world', became expressed, according to Merleau-Ponty, in the paintings of modern artists such as Cezanne (and the expressionist movement), but also in the entire modern tradition of Cubists, such as Picasso, and Surrealists, such as Dali. The modern approach to painting effectively reflected the newly introduced 20th century understanding of space-time. Indeed, in modern art, space is no longer portrayed as absolute, objective, uniform: rather, its portrayal, its use and representation becomes deconstructed, segregated, regionalised; boundaries between form and content, and between entities and their surrounding environment gradually become indistinguishable. The traditional laws of shape, colour, physiognomy, and the presumably standard relations between drawn objects, as well as the relationship between the painter and the painting, are all overturned, discarded and transformed. The artist is no longer detached from his work, functioning as the external, objective observer; rather, he begins to *interact* with the objects of his observation, in manners which are reflected in the style and contents of his visual representations. The new paradigms of relativity and quantum physics, which provided a new outlook regarding the nature of the world and possible patterns of relating to it, gradually infiltrated, albeit subtly and tacitly, the collective 'thought environment', finding a channel of expression and reflection through society's artistic production.

The discussion leads us back to Munro's analysis regarding the connections between views on the nature of nature provided by scientists and views of the political cosmos. From the late 19th and early 20th century onwards, political theorists gradually distanced themselves from efforts of establishing a comprehensive theory of politics. Instead, their attention was redirected towards the articulation of a political model wherein the contingent—rather than the *a priori* absolute—would be attributed a greater

role, and which, as far as normative ramifications are concerned, could also be rendered into the regulating and procedural principle of political organisation. Similarly to the case of science and the arts, political thinkers also acknowledged that 'our perceived world is structured by a plurality of overlapping perspectives within which different aspects are somehow seen together, as aspects of just one world'.[108] Consequently, we also observe during the same period the emergence of a set of intellectual currents in political theory, which recognised the more complex, multifarious nature of political reality and thus explicitly readjusted the epistemic focus upon the multiple functions of which a single political order is constituted. Those intellectual currents acknowledged the existence, but also the importance, of the plurality of perspectives, interests, social and cultural norms, and ideologies, as well as the multiplicity of power shares and power holders, which shape the quality and functioning of political communities.

This ensuing form of social pluralism was significantly contrasted to the notion of the absolute sovereign of the 17th and 18th centuries (including Hobbes), which, scholars have argued, was a direct consequence of 'political Copernicanism'.[109] As Campion notes, 'until the seventeenth century, the consequences of astronomical thought for politics tended to be authoritarian, either because it was designed to support royal power, or on account of the presumed subordination of human action to celestial law (…) The

[108] Merleau-Ponty, op. cit., p. 16. See also Kenneth Thompson, 'Social Pluralism and Post-Modernity', in S. Hall, D. Held and T. McGrew (eds.), *Modernity and its Futures* (Cambridge: Polity, 1992), pp. 221-55, and Michael G. Smith, 'Social and Cultural Pluralism', *Annals of the New York Academy of Sciences*, 83 (5) (1960), pp. 763-785.

[109] Nicholas Campion, *Astronomy and Political Theory*, in D. Valls-Gabaud & A. Boksenberg (eds.), *The Role of Astronomy in Society and Culture Proceedings IAU Symposium*, No. 260 (2009), Available from: https://www.researchgate.net/publication/231750227_Astronomy_and_political_theory. K. Hutchison, 'Towards a Political Iconology of the Copernican Revolution', in P. Curry (ed.), *Astrology, Science and Society* (Woodbridge: Boydell Press, 1987); M. C. Jacob, *The Newtonians and the English Revolution 1689-1720* (Brighton: Harvester, 1976).

argument was that, if the Sun was the unquestioned centre of the cosmos, so the King was the unquestioned centre of the state, and had therefore to be obeyed without question'.[110]

With the advent of Newtonian and subsequently the relativity paradigms, the political state gradually ceased being interpreted as a monolithic, superimposed *Leviathan* that provides the single objective perspective on social affairs and the ultimate oversight of the entire community—a view of the state that had been largely embedded upon a solar-centred, 'mechanical' view of the universe.[111] Notions such as 'absolute power', 'absolute sovereign', 'absolute rights', postulated as given by nature, which were previously held as prevailing axiomatic and normative features of modern political theory, were slowly debunked, gradually giving way to modern human rights theory (which carried evident implications of political equality), polyarchy, and eventually democracy. With the advent of the relativity paradigm and its radicalisation of the concept of space, the dialectical construction and collective imaginary of western societies begun to portray the political community as a multi-faceted, multi-dimensional, versatile space, wherein a multiplicity of perspectives groups, voices, cultures and interests—each of them, figuratively speaking, delineating smaller regions within the totality of public space—interact dynamically and mutually shape each other. [112]

[110] Campion, op. cit., p. 598.

[111] Douglas M. Jesseph, 'Galileo, Hobbes, and the Book of Nature', *Perspectives on Science*, Vol. 12 (2) (2004), pp. 191-211.

[112] `The pluralist conception of social structure has been voiced and endorsed by numerous theorists and ideological traditions (especially liberals). Some of its major articulations have come from American theorists, such as Dahl (in the form of his polyarchical model), but there have also been more recent approaches, such as Mouffe's radical pluralism. See also, Mark Bevir (ed.), *Modern Pluralism: Anglo-American Debates Since 1880* (Cambridge: Cambridge University Press, 2012), M. Walzer. 'The Communitarian Critique of Liberalism', *Political Theory*, Vol. 18 (1) (Feb. 1990), pp. 6-23, Robert A. Dahl, *Polyarchy: Participation and Opposition* (New Haven: Yale University Press, 1971), Chantal

According to scholars, this was a newly emerging view of the political world, directly derivate of the newly emerged view of the natural world provided by the relativity discourse, which read that 'if the universe has no single center, neither does culture'.[113] The discussion in the following two chapters of the thesis will turn to a more elaborate examination of the above interdisciplinary conceptual and ideational dynamics.

Conclusion

This chapter presented the argument that the fields of politics and the positive sciences (especially physics), and their interdisciplinary interactions, can be plausibly addressed from a conceptual perspective. As the discussion demonstrated, the exchanges between the two fields are, primarily, semantic, conceptual and discursive. Changes in the semantics of key concepts provided by physical advancements permeate—via discourse—through to the structures of political semantics, where they begin to interact in productive ways with other concepts and ideas, slowly transforming their meanings, the morphologies of their interrelation, and thus the ideational foundations upon which political thinking and thinking about politics are embedded. The processes of semantic interaction and the ensuing conceptual transformations are usually gradual; this explains why time-lags are often noticed between the introduction of a new scientific paradigm and the manifestation of its 'spill-over' effects in other areas of human thinking. Due to epistemic divergences and idiosyncrasies, in the case of political theory, the adaptations take longer compared with more closely-related fields (e.g. chemistry), precisely because they require prior processes of decodification, simplification, semantic transcription,

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Mouffe (ed.), *Dimensions of Radical Democracy: Pluralism, Citizenship, Community* (London: Verso, 1992), Avigail I. Eisenberg, *Reconstructing Political Pluralism* (New York: State University of New York Press, 1995).

[113] A. Sokal, J. Bricmont, *Intellectual Impostures* (London: Profile Books, 1998).

'translation' of findings, and a general adjustment to the particularities of political discourse, before they can be intelligibly useful. Eventually, as the following analysis discusses, the result is often the eliciting of a conceptual modification, the enrichment or the reframing of key notions and the radicalisation of the theoretical assumptions underpinning political thought. Chapters V and VI discuss this conjecture in greater detail, focusing on the evolution of the conceptualisation of power in political thought.

CHAPTER V.

THE MORPHOLOGIES OF POWER IN PHYSICAL THEORIES

> '*True revolutions in science involve more than spectacular discoveries and rapid advances in understanding. They also change the concepts on which the subject is based*'.
>
> (Werner Heisenberg*, Physics and Philosophy*)

> *'A complete system of theoretical physics consists of concepts and basic laws to interrelate those concepts and of consequences to be derived by logical deduction' (...) What science strives for is an utmost acuteness and clarity of concepts as regards their mutual relation and their correspondence to sensory data'*.
>
> (Albert Einstein*, On the Method of Theoretical Physics*)

Introduction

The previous chapter explored some key discursive interrelations between political theory and physics. The analysis conducted a critical conceptual investigation by approaching the two epistemic areas primarily as *discourses*, representing two distinct yet closely correlated systems of thinking and illuminated some of the subtler, mutually-informing conceptual exchanges performed between them at a discursive level. Particularly, it was shown that the two epistemes interact productively at a semantic-conceptual level by mutually contributing to the construction of collective worldviews—or pre-theoretical paradigms. A crucial point is that collective worldviews, which emerge as the end-products

of the various complex processes and permutations of amalgamation, interweaving, and interaction of the two epistemes' joint discursive inputs, delineate the fundamental assumptions scholars make about the nature of the world they are studying.[1] Those collectively held worldviews, in turn, bear important influence upon the perceptions and mind-sets through which members of both disciplines approach their respective epistemic endeavours. In this way, Chapter IV laid the theoretical foundations for the unfolding of an alternative interdisciplinary hermeneutic route through which we can creatively inform the scope and content of our political theorising—especially our approaches to conceptual analysis and, particularly, the study of the concept of power.

Proceeding upon those grounds, Chapter V sets out to explore the concept of power in the context of physical theories in a conceptual-morphological fashion. First, the chapter substantiates the plausibility of applying a morphological examination to theories of power in physics, by exploring their structure and uncovering their essential conceptual-morphological nature. Premised upon the insight that basic concepts of science exhibit the same feature of essential contestability as concepts in the social sciences, the analysis applies methods originally born within the discursive cradle of the social sciences and the humanities—such as conceptual morphology, illuminated by insights of conceptual history—to a discourse which has for a long time been considered as disciplinary distant from the above research areas.

In light of the epistemological considerations propounded in the Introduction, the analysis proceeds to offer, second, a short outline demonstrating the essential contestability of the concept of power in physical discourse. Third, the chapter moves on to explore a short genealogical overview of 'force' in physics, by tracing its origins back to

[1] John A. Vasquez, *The Power of Power Politics: From Classical Realism to Neotraditionalism* (Cambridge University Press, 1998), p. 23.

the classical notion of 'dunamis'. It studies the various ways and key moments of continuity and discontinuity, alteration and transformation, through which 'dunamis' unfolded and evolved hermeneutically within the discourse and in relation to its parallel development as a concept of political and psychological relevance. Fourth, the discussion moves on to explore the morphology of the three main paradigms of thinking about power in physics: the Newtonian theory of force, Einstein's relativity theory and the latest paradigm of quantum theory. The analysis attempts to extract the main conceptual attributes each discursive tradition assigns to power, discerning the underlying hermeneutic patterns, philosophical implications and ontological assumptions underpinning but also emanating from them.

This chapter, therefore, is partially devoted to the exploration of what was detected as a parallel, and epistemologically underpinning, thesis of this project: namely, that our understanding of power and the processes of its conceptual 'fermentation', and generally its evolution in the history of political thought, can be assisted by the following two modes of analysis. First, by taking into consideration key aspects of the epistemically broader—or transdisciplinary—conceptual history of the term. Second, by exploring its features not only synchronically and diachronically—i.e. in a *temporally-oriented* fashion focusing within the confines of one discourse—but also *diachorically,* through the more spherical interdisciplinary study of the concept's configuration across *epistemic spaces*. This enables us to perceive in a more insightful manner certain core features that the concept of power has been assigned in the field of political thought by understanding how, in its circulation between different disciplines and via the crucial linguistic transfers between them, the concept acquired variable yet frequently concomitant semantics in each discipline.[2]

[2] Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', *Contributions to the History of Concepts*, Vol. 6 (2) (Winter 2011), pp. 42-52; 43-45.

I. A Morphological Approach to the Structure of Physical Theories

The common idea most people have about physics—including both laymen and physicists themselves—is that physics constitutes an experimental, empirically-based and technologically-driven science. Nevertheless, if one studies carefully the work of some of the greatest physicists in history, one observes that pioneers of physical science themselves held quite a different view regarding the nature of their discipline. For instance, Galileo, Newton, Leibnitz, Maxwell, Einstein, Heisenberg, Feynman—to mention a few examples—approached physics not only through the spectrum of experience and experiment, but also through the spectrum of conceptual investigation and philosophy. They conducted their science starting from the fundamental understanding that advances in natural sciences cannot proceed without a prior interpretation of the nature of reality and the nature of human experience within it. They recognised that all science is axiomatically, epistemologically and ontologically founded upon a particular *perception of the nature* of reality; and that the way the nature of reality is perceived is, for the most part, a function of the *concepts* through which the formulation of those perceptions is constructed in the minds of scientists. The majority of leading scientists have thus underlined the crucial role of concepts in the formation of scientific theories, stressing the importance of engaging in conceptual theorising when studying or practicing science.

A noteworthy attempt to substantiate the idea that the development of physical theories in the course of history can be approached conceptually - or, put differently, that the evolution of physics can be explained by studying the conceptual developments and transformations occurring at the level of scientific thinking- was made by one of the most prominent scientists of the previous century, the so-called 'father' of quantum theory, Werner Heisenberg. His insightful book, *Physics and Philosophy,* was devoted to the exploration of the ways in which the core concepts employed by physicists ever since

antiquity have evolved over time. His main argument was that scientific discoveries consist in—or effectively result from—a radical reconceptualisation of certain basic, core and perennial concepts which dwell diachronically at the heart of scientific thinking.

A similar argument has also been elaborated in some of the theoretical works of Albert Einstein. Einstein argued that the foundation of all physical theories does not consist in the practices of observation or experiment, nor any set of logical or mathematical operations: the foundation of physical theories consists in *concepts*—and more specifically, in basic, philosophically fundamental, ontologically laden concepts.[3] Although it has always been known that physicists are concerned with the observation and systematised explanation of the 'external world', nevertheless, Einstein sought to make our understanding of science penetrate through those ostensible, apparent scientific functions. Instead, as he briefly saw in the previous chapter, he stressed the cardinal importance of the *perceptual* or cognitive processes through which the 'external world' becomes experienced and comprehended. He argued that it is those *intelligible* and *conceptual* procedures involved in sense-perception which act as the key determinants of scientific practice, discourse and discovery. Those insights appear to have been particularly favourably endorsed by scientists during the past almost three decades, when the conceptual approach to physics has been increasingly gaining ground amongst relevant scientific circles. Although, for reasons of concision, the following analysis will focus only on Einstein's approach, it should be mentioned that a growing subfield in the discipline of physics has recently emerged, which focuses exclusively on the study of physical theories

[3] Albert Einstein, 'Physics and Reality' (transl. J. Piccard), *Journal of the Franklin Institute*, vol. 221 (1936), pp. 349-350.

qua conceptual networks, consequently orienting the ongoing epistemological research pertinent to the field around theories and models of conceptual analysis.[4]

According to Einstein, every experience is constituted by the interaction between an external occurrence and its internal intelligible reception and processing on the part of the observer. Effectively, experiences *as such* are construed *internally* through a series of diverse and complex processes of decodification and interpretation of sensory inputs. Hence, what we refer to as 'external experiential events' are, in fact, never really nor entirely 'external', in the sense that they intrinsically incorporate our *perception* of them, where perception refers to a set of internal intelligible processes.

Einstein argued that this status of 'external events' obtains because, although the external world is perceived through our senses, nonetheless our senses cannot be detached from the processes of reasoning and meaning-ascription performed by the human mind; sensory inputs are processed *intelligibly*. Furthermore, the 'unit' or, as it were, *modus* of intelligible processing is meaning, and the unit of meaning is a concept.[5] The whole 'game' of sensory perception is thus played at the level of conceptual processing, apprehension, decodification and interpretation; which, in other words, means that the old empiricist quest to ascertain a world consisting in directly perceived, intelligibly

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[4] J.D. Bransford, A.L. Brown & R.C. Rocking (eds.), *How People learn: Brain, Mind, Experience, and School* (Washington, DC: National Academy Press, 2000). P. Duhem, *The Aim and Structure of Physical Theory* (Princeton: Princeton University Press, 1954). M.A. Ruiz-Primo, R.J. Shavelson, 'Problems and Issues in the Use of Concept Maps in Science Assessment', *Journal of Research in Science Teaching*, 33 (6) (1996), pp. 569–600. F. Safayeni, N. Derbentseva & A.J. Cañas, 'A Theoretical Note on Concepts and the Need for Cyclic Concept Maps', *Journal of Research in Science Teaching*, 42 (7) (2005), pp. 741-766. I.T. Koponen, 'Models and Modelling in Physics Education: A Critical Reanalysis of Philosophical Underpinnings and Suggestions for Revisions', *Science & Education*, 16 (7-8) (2007), pp. 751-773.

[5] Michael Freeden, 'The Morphological Analysis of Ideologies', in M. Freeden, L.M. Sargent, M. Stears (eds.), *The Oxford Handbook of Political Ideologies* (Oxford: Oxford University Press, 2013), p. 120.

unmediated and 'uncontentiously described' data has long now been discarded, even by areas of research which had traditionally been considered as the major agents and citadels of empiricism. Indeed, 'scarcely anyone nowadays believes in the possibility of building up structures of factual knowledge on foundations purporting to be wholly independent of our judgements'[6]—and not least so in the natural sciences. Therefore, to state that the science of physics is based on observation of physical events by means of sensory perception, not only does not immunise physics from considerations of ideational or ideological (in the Freedenian sense) significance, but on the contrary, serves to highlight its inherent—albeit often neglected and certainly underplayed—dialectical nature.

Indeed, even the most seemingly self-evident concept of a 'bodily object', which has unequivocally served as the very focal point of physical research, is not as sensorially bound as it might appear; 'considered logically (….) [a bodily object] is not identical with the totality of sense impressions referred to; but it is an arbitrary creation of the human mind. On the other hand, the concept owes its meaning and its justification exclusively to the totality of the sense impressions which we associate with it.'[7] There is, undeniably, an inextricable relationship between concepts and sensory data—or sense impressions, such that it would almost be impossible, or at the very least misleading, to attempt to entirely disentangle concepts from material experience and material experience from concepts. For this reason, Einstein claimed that our sense-perceptions are better understood as 'psychic experiences of a special kind'.[8] The concepts and thinking patterns through which our sense impressions become intelligible, and our representations of the world formulated (which, as seen in the previous chapter, are often pre-theoretically and/or socially

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6 Quentin Skinner, *Visions of Politics Volume I: Regarding Method* (Cambridge: Cambridge University Press, 2002), p. 1.

7 Einstein, *Physics and Reality*, p. 350.

8 Ibid.

determined) decide the very nature and content of scientific observations, and so the content and quality of science.

Further to stressing the importance that concepts and the processes of their semantic alteration and evolution bear for scientific reasoning and practice, both Heisenberg and Einstein developed an intricate thesis regarding the epistemological nature and structure of physical theories. As the quotation at the beginning of the chapter reads, Einstein maintained that physical theories can basically be described as closed, coherent systems of carefully defined concepts, interwoven together by means of a group of patterned interrelations. Those patterns of interrelations are established through sets of axioms and laws and are represented by mathematical symbolism.[9] The meaning, or semantic content, of a theory's core concepts—or 'primitive concepts',[10] as referred to by some scholars—is often construed in light of their interrelations with other units in the conceptual construct, i.e. relationally.[11] The fact that core or 'primitive' concepts 'assume a precise meaning only relative to the deductive system into which they are incorporated, can be aptly referred to as *the relativity of concepts*.[12]

Those concepts are not only necessary in navigating us through the world of phenomena, but, in fact, imperative in defining the nature and content of our sense-experience than the 'objective' data received through our senses. It is 'by means of such concepts and mental relations between them [that] we are able to orient ourselves into the

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9 Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (f.p. 1958), Paul Davies (introduction) (New York: Penguin Books, 1962), pp. 95-96; Einstein, ibid.

10 Peter Rowlands, *The Foundations of Physical Law* (Singapore: World Scientific Publishing, 2015), p. 31. Albert Einstein, *The Evolution of Physics: The Growth of Ideas from Early Concepts of Relativity and Quanta* (Cambridge: Cambridge University Press, 1938), p. 294; Laszlo Tisza, 'The Conceptual Structure of Physics', *Reviews of Modern Physics*, vol. 35 (1) (1963), pp. 151-184.

11 Heisenberg, op. cit., p. 2.

12 Laszlo Tisza, op. cit., p. 153.

labyrinth of sense impressions. Those notions and relations, although free statements of our thoughts, appear to us stronger and more unalterable than the individual sense experience itself, the character of which as anything other than the result of an illusion or hallucination is never completely guaranteed'.[13]

However, the scientist strives to discern order and functional patterns out of this 'labyrinth of sense impressions'. He does so by aiming at defining his primary concepts with the greatest possible accuracy, cementing their interrelations with the greatest possible clarity, cohesion and logical unity, at the same time while employing a minimum amount of primary concepts and relations.[14] Einstein specifically recognises a tripartite conceptual structure of scientific theories. First of all, he sees theories as consisting of a first core layer of 'primary concepts' that are 'intuitively connected' with sense experiences and not logically reducible any further, including their correlative bonds, which are called 'laws' or 'theorems'. This constitutes the 'indispensably and not rationally deducible part of the theory'.[15] Interestingly, Einstein reduces the first stages involved in the formulation of science to this primary conceptual formation, thereby identifying the foundation of science as consisting in a purely conceptual activity; 'in the first stage of development, science does not contain anything else'.[16]

Nevertheless, the demands for more complex and accurate models sooner or later lead to the development of a 'secondary system' or a secondary conceptual layer to form part of the theory, which becomes superimposed upon the primary layer. This new level consists in its own 'elementary concepts', along with their connecting nodes. Those

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13 Einstein, *Physics and Reality*, p. 350.

14 Ibid. 350-354.

15 Albert Einstein, 'On the Method of Theoretical Physics', *Philosophy of Science*, Vol. 1 (2) (1934), p. 165.

16 Einstein, *Physics and Reality*, p. 352.

'elementary concepts' are no longer directly connected with sense experiences, but derived purely from logical abstraction. Finally, a tertiary layer is eventually formed, which consists of auxiliary concepts and relations and whose function is to logically and deductively support the secondary layer. It remains an open possibility that this level may in due course become itself invested with a further peripheral conceptual layer.[17]

The conceptual layers making up a physical theory, though analytically distinct, are not always clearly separated. To use a relevant analogy, their concepts resemble electrons occupying variable positions along the multiple shells (orbits) of an atom. Like electrons, concepts can move across from the inner to the outer shells of the theory. Thus, with the exception of the primary concepts—which dwell at the 'nucleus' of a theory—the rest of the concepts may interchange positions, approaching closer to or farther from the core.

Einstein acknowledges that the fixation of interrelations between concepts can never be final.[18] In support of this position, Heisenberg also surmises that it is doubtful whether any given set of concepts will be able to describe natural reality conclusively.[19] As such, the conceptual construct, in which a physical theory consists, is always liable to be discarded, or modified, either due to endemic reasons, or due to the interaction of the theory with external factors. In the former case, a theory may collapse, or at any rate be seriously challenged, because the links between its core concepts may be proven inconsistent or because new meanings may be construed for them. In the latter case, the theory becomes endangered because the correspondence of its concepts to empirical observations may be disrupted—a possibility which is always open since, in Heisenberg's view, concepts cannot in any instance be sharply defined in their relation to nature. As new

[17] Ibid. 350-355.

[18] Ibid. 351.

[19] Heisenberg, op. cit., p. 96.

phenomena become observed, new concepts are required, or old concepts require revision, in order to account for the new revelations of our expanded observational capacities.[20]

What is interesting is that, despite variations in the particular natures of respective discursive contexts, concepts appear to rise and fall for quite similar reasons. Heisenberg's exegesis, for instance, is not far from a description of the state of affairs in social and political discourses, where, according to Koselleck, 'only when a word has lost its capacity to bundle together enough of the experiences arising from the concept and to express all its pent-up expectations in that single common term has it [*sic*] been drained of its power to represent a fundamental concept. Then the word will slowly be taken out of circulation'.[21] This suggests that, in the case of physical discourse too, observed phenomena tend to exceed the descriptive and hermeneutic capacities of existing concepts, leading to what in our terminology is often referred to as a 'surplus of meaning'[22]; a situation where standardly defined concepts and their patterned operations within the greater semantic environment of a theory bring rise to new meanings and patterns that cannot be accommodated in their current configuration. What then becomes necessary is a radical revision of the concepts employed by the theory. And that is precisely why, as noted above, scientists have insistently argued that every great revolution in physics has been a revolution in the conceptual apparatus used to describe natural phenomena.

Two critical repercussions follow from the exposition of the structure of physical theories. The first concerns a key remark briefly noted above, namely, that the scientific

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[20] Ibid. 85.

[21] Reinhart Koselleck, 'On the History of Concepts and the Concept of History', in Dan Diner and Moshe Zimmermann (eds.), *Disseminating German Tradition: The Thyssen Lectures* (Leipzig: Leipziger Universitatsverlag, 2000), pp. 29-49; 40.

[22] A useful term coined by Paul Ricœur, *Interpretation Theory: Discourse and the Surplus of Meaning* (Fort Worth: TCU Press, 1976).

process can be reduced to a *conceptual* activity—i.e. to the discernment, creation and logical interrelating of concepts. The second concerns the observation that the structure of physical theories exhibits a striking similarity with the morphological interpretation of the structure of political thinking and ideologies.

Let us look a bit more closely into the latter point. According to Freeden, political ideologies are 'those systems of political thinking (…) through which individuals and groups construct an understanding of the political world they, or those who preoccupy their thoughts, inhabit, and then act on that understanding'.[23] Precisely by virtue of approaching them as 'systems of thinking', as modalities or systematised of thought-behaviour, and not merely as misleading propagandistic devices contrasted to 'truth' or 'true knowledge',[24] it becomes possible to interpret ideologies as ideational constructions by means of which individuals navigate through the world of social experience.[25] By debunking the enduring pejorative connotations attached to the term[26] and by rigorously demonstrating ideology as an 'entity' *as well as* an epistemic possibility, extending beyond normative, functionalist, 'instrumental', 'dissimulative', 'illusionary', 'fallacious' and

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[23] Michael Freeden, *Ideologies and Political Theory* (Oxford: Clarendon Press, 1996), p. 3, and 'Ideology and Political Theory', *Journal of Political Ideologies*, 11(1) (2006), pp. 4, 5, 6, 8, 18. For a more general discussion on the relationship between 'ideology', 'truth' and 'philosophy' see Gerald Gaus 'Ideology, Political Philosophy, and the Interpretative Enterprise: A view from the Other Side', in Ben Jackson, Marc Stears (eds.), *Liberalism as Ideology: Essays in Honour of Michael Freeden* (Oxford: Oxford University Press, 2012), pp. 178-198. For the various uses of the term 'ideology' see Terry Eagleton, *Ideology: An Introduction* (London: Verso, 1991), pp. 1-2.

[24] Aletta J. Norval, 'Review Article: The Things We Do with Words—Contemporary Approaches to the Analysis of Ideology', *British Journal of Political Science*, 30 (2) (2000), p. 315.

[25] Freeden, *Ideologies and Political Theory*, p. 48.

[26] For paradigmatic pejorative uses of the term see D. Bell, *The End of Ideology: On the Exhaustion of Political Ideas in the 1950s* (New York: Collier Books, 1962), K. D. Bracher, *The Age of Ideologies: A History of Political Thought in the Twentieth Century* (London: Methuen, 1984), and of course Karl Marx and Friedrich Engels, *The German Ideology* (f.p. 1932), C. J. Arthur (ed.) (London: Lawrence and Wishart, 1974).

'deceptive'[27] motives, traits and considerations, the ground-breaking contribution of the morphological approach consists in introducing the far more epistemically sober and sophisticated view of ideologies as 'universes of meanings' comprising of 'particular patterned clusters and configurations of political concepts'.[28]

According to the semantic-morphological study, concepts are interpreted as providing the building blocks of political thought and its ensuing conceptual 'edifices', called 'ideologies'. Those basic concepts are linked together in a patterned manner through theoretical ties, which perform a cohesive function and which consist in the postulations of individuals and/or theorists regarding the concepts' purported significance, order and ranking vis-à-vis each other, as well as their correspondence to the 'extra linguistic' reality that they are employed to represent. Thus, through a specific pattern of interrelations, those concepts become clustered together into a system of meanings which, commonly, and in a very similar manner to the Einsteinian interpretation of physical theories, aims for internal consistency, descriptive accuracy and coherence.

Interestingly, just as under the Einsteinian and Heisenbergian interpretation scientific systems of meaning (i.e. theories) are seen as comprising of three major layers or components, so does the morphological approach identify a three-tier formation of ideologies qua semantic fields. Ideologies are composed of (a) a set of concepts (expressed in the form of words—signifiers), (b) the semantic components of those concepts (the

[27] An excellent example illustrating the common act of interpreting ideology as intrinsically delusionary is definition (m) from Eagleton's selection of most common definitions of the term, where ideology is a priori defined *as* confusion–namely, 'the confusion of linguistic and phenomenal reality'; as well as definition (i) where it is disparagingly pronounced as a 'socially necessary illusion'. Not least representative in this respect are definitions (d) where, under a more sinister description, ideology is defined as 'false ideas which help to legitimate political power' and (e) as 'systematically distorted communication'. For a thorough account on the oddities of use and abuse of the term see Freeden, 2006, op. cit., pp. 3-6.

[28] Freeden, 1996, p. 54.

meaning contained and disseminated through these words—the signified), and (c) the referents (the corresponding observable 'extra-linguistic' facts to which the above refer). Just as physicists construe concepts in order to interpret their complex sense-experience, similarly thinkers of politics devise concepts which serve to explain and account for the changing social world to which they relate. In both cases, the constituent concepts are largely decontested through their association with their neighbouring concepts,[29] such that the meaning of each concept ensues in a relational fashion from their relative positioning with regards to other units in their semantic environment. The semantic contents of concepts are influenced by their morphological arrangement, since their meaning does not merely obtain from their relation to the 'actual' phenomena or events they seek to signify, but also from their constitutive interrelations, which are vacillating, dynamic and mutable.

Furthermore, Freeden identifies a tripartite structural composition of ideologies qua patterned configurations of political concepts. This suggested structure presents compelling similarities to Einstein's interpretation of scientific theories as assembled in the form of a three-layered conceptual organisation. Let us explore this analogy more analytically. In the first place, the morphology of both political concepts and ideologies consists of an 'ineliminable core', which is not logically but empirically derived.[30] This resembles Einstein's idea that the first layer of physical theories consists in a core cluster of 'primary concepts' which are logically irreducible. Second, ideologies are formed by a layer of adjacent quasi-contingent components relating to the ineliminable core features in variable patterns (for example, those patterns can be either logically or culturally derived). This layer is construed and functions in a very similar manner to physical theories' secondary system of elementary concepts, which serve as auxiliary to the core. Finally,

[29] Ibid. 85.

[30] Ibid. 62-65.

ideologies are composed of peripheral concepts that interact with the external 'environment', and which, comparable to the functions of the tertiary level of scientific theories, are employed to support and enrich the inner layers of the semantic edifice.[31]

Not unlike physical theories, ideologies are also always open to contestation. Some of the possible reasons why their plausibility, coherence and appeal can be undermined include alterations in the semantic contents of their core concepts, transformations in their conceptual liaisons, or extra-systemic factors that impede their effectiveness to correspond to experiences and events performed at the level of concrete social praxis with adequate accuracy. As such, both political and physical conceptual edifices involve the following features: (i) a degree of struggle over legitimated meanings of concepts;[32] (ii) a degree of indeterminacy regarding the precise semantic contents of conceptual components[33] and, therefore, (iii) essential contestability.[34]

Leaving aside the obvious differences between the contents, objectives, methods and respective 'ontologies' of these two areas of human thinking, and approaching them purely from a *morphological*-conceptual perspective, it becomes apparent that the similarities in the structural apparatus through which theoretical constructs in both fields are assembled legitimate and enable the endeavour to approach physics, and particularly its various conceptualisations of power, from a morphological perspective. This is further reinforced by considering that, as in the case of political concepts, 'basic concepts of science often have no clear or generally accepted meaning; they are constitutively indistinct. It is this

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31 Ibid. 60-74.

32 Norval, op. cit., p. 325.

33 As we shall explore in the following analysis, the most recent scientific paradigm of quantum physics has particularly stressed the element of indeterminacy both in the conceptual specification but also the empirical experimentation of physical science. See Heisenberg, op. cit., Chapters III, IV, VIII.

34 Freeden, op. cit., Ch. II; Heisenberg, op. cit., Chapters V and IX.

very vagueness that gives them their productivity, because it is the source of new opportunities of semantic development. The ambiguity or contestability, therefore, is not a feature only of historical or sociological key concepts (as Koselleck characterized them), but is equally constitutive for basic concepts of science'. Therefore, 'it is possible that methods of conceptual history that have been developed with regards to the fields of philosophy, philology, and historical science can be applied also to scientific concepts'.[35]

Granted the plausibility and cogency of framing and treating physical theories as patterned configurations of concepts—as 'entangled webs, which link concepts to other concepts, and embed the basic laws of the structure to these concepts', where 'laws' are but 'relations between concepts',[36] it becomes both possible and plausible to extend the application of the morphological inquiry across epistemic borders; the morphological approach can thus be applied to the study of ideatic structures beyond the boundaries of the explicitly political—in this case, the study of physical theories of power. The following part of the chapter focuses on exploring the basic conceptual patterns and features through which the concept of power has been defined in major physical theories.

II. Power in Physical Theories: An Essentially Contested Concept

It is crucial to begin with a preliminary note on terminology, which will be further elaborated as we move along the discussion. Since the 16th century onwards, the idea of 'power' in physics has been expressed mainly with the use of the term 'force'. Although a measure of 'power' as such exists in modern equations of physics, usually the two terms

[35] Ernst Muller, 'Introduction: Interdisciplinary Concepts and Their Political Significance', pp. 44-45.

[36] I.T. Koponen, & M. Pehkonen, 'Physics concepts and laws as network-structures: Comparisons of structural features in experts' and novices' concept maps', in A. J. Cañas, P. Reiska, M. K. Åhlberg & J. D. Novak (eds.), *Concept Mapping: Connecting Educators - Proceedings of the 3rd International Conference on Concept Mapping*, Vol. 2 (Põltsamaa: OÜ Vali Press, 2008), pp. 540–547; regarding the conceptual reading of laws see also P. Thagard, *Conceptual Revolutions* (Princeton NJ: Princeton University Press, 1992).

are used interchangeably. Einstein considered force, qua expression of the more general notion of 'power', the most imperative objective and thus defining feature of a physical theory: 'a real theory', he claimed, 'exists only when the laws of force are given'.[37]

The first striking observation when studying the historical evolution of the concept of power in the natural sciences is that it has no one concrete, clearly defined and widely accepted meaning delineating its semantic core. Although 'power' has been probably the most crucial and frequently employed concept in the development of technical applications of physics (its related equations underpin literally all technological achievements of our times, from cars and airplanes to laptops, iphones and wireless communications), nevertheless, physicists have not yet converged to one standard definition. 'We do not know what it is' and so 'it is difficult to explain it in the best way'. 'As force is a fundamental concept of mechanics and mechanics is basic in physics, it is not surprising that force is the dominant theme in the misconceptions' literature'.[38] Hertz exposed the semantic confusion around 'force' with impressive candour, claiming that 'it is exceedingly difficult to expound to thoughtful hearers the very introduction to mechanics without being occasionally embarrassed, without feeling tempted now and again to apologise, without wishing to get as quickly as possible over the rudiments, and on to examples'.[39]

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[37] Einstein, *Physics and Reality*, p. 359. A similar view is articulated by Victor F. Lenzen, *The Nature of Physical Theory: A Study in Theory of Knowledge* (New York: J. Wiley & Sons, Inc., 1931), p. 178.

[38] Max Jammer, *Concepts of Force*: *A Study in the Foundations of Dynamics* (NY: Dover Publications, 1957); Ricardo Lopes, 'On the Concept of Force: How Understanding its History can Improve Physics Teaching', *Science & Education*, 19 (1) (January 2010), pp. 91-93; R. Carson, S. Rowlands, 'Mechanics as The Logical Point of Entry for The Enculturation Into Scientific Thinking', *Science & Education*, 14 (3-5) (2005), pp. 473–492.

[39] H. Hertz, *The Principles of Mechanics Presented in a New Form* (f.p. 1899), D. E. Jones & J. T. Walley (transl.) (New York: Dover Publications, 1956), pp. 6-7, quoted in L. Eisenbud, 'On the Classical Laws of Motion', *American Journal of Physics*, 26 (3) (1958), p. 144.

At first, this observation may sound troubling, even peculiar; for we are commonly accustomed to think that the so-called 'positive' sciences operate at far greater levels of precision, accuracy and systematisation than their social counterparts, such that, unlike the latter, their discourses allow no room for vagueness and theoretical obscurity. Indeed, a rather crude 'mythology of coherence'[40] has been largely forged and projected upon scientific writers. Nevertheless, not unlike the state of affairs in the humanities and social sciences, 'power' in physics appears to exhibit the same two-fold conceptual problematic, as explored in the Introduction: it is at once a most fundamental yet, at the same time, one of the most obscure, variably interpreted, indiscriminately used and essentially contested concepts in the history of scientific thought.[41]

The second striking observation concerning the state of the discourse on power is that a substantial portion of the pertinent scientific community doubts the very physical hypostasis of force—in other words, endorses the view that force *is* merely a *concept*. Perhaps to the surprise of the popular image of physics as a realist and strictly empiricist physical science, almost any physicist or philosopher of science who has pondered more than technically on the cardinal issue of force appears to have conceded to the opacity surrounding its existential status. A long-dated argument, still compelling amongst physicists and philosophers of science, states that force is *not* a thing 'out there in the world', but a concept inside our minds; it is not something that we ever directly encounter or observe in real life, but an intelligible construct which *we* assemble intellectually in order to correlate and account for phenomena of which we *do* have immediate experience (such as motion and displacement). Force is 'not a cause of motion'[42] for 'we have no

[40] Skinner, op. cit., pp. 70-72.

[41] R.L. Coelho, 'Conceptual Problems in the Foundations of Mechanics', *Science & Education*, 21 (9) (2012), pp. 1337-1356. Jammer op. cit.

[42] Georg Hamel, *Elementare Mechanik* (Berlin: Teubner, 1912), p. 65.

knowledge of the profound cause of motions',[43] but rather 'only a human concept',[44] 'a thing of thought and not a natural phenomenon',[45] not 'a real text' describing something which exists in reality,[46] and in Russell's view 'force is a mathematical fiction, not a physical entity'.[47] 'The problem is that we do not observe or experience "force" as such', but merely abstract it from experience, as a concept and as a presence, pretty much arbitrarily. [48] Therefore, empirical experimentation is not enough, and perhaps nor even entirely appropriate, for understanding the 'entity called force'; one needs to study the patterns of *thinking about force*, the variations in its conceptual assembling, the permutations in its semantics, and the interpretative possibilities engendered by its more preeminent accounts. Granted this view, it becomes all the more apparent, inasmuch as justified, that a conceptual approach to the study of 'force' in physics is not only possible, but in fact pertinent, appropriate, if not entirely required, for conducting an exegetical investigation into the structure and features of this at once complex and enigmatic notion.

The discourses of politics and physics, then, appear to share two key discursive features: on the one hand, both are structured around the core concept of power; on the other hand, they both exhibit a similar deficit of systematic conceptual investigation, as well as a lack of consensus, regarding the concept's core semantics. Similar to the state of affairs in political discourse, where it appears to be a commonplace practice that theorists employ the term 'power' without providing nor clarifying in advance an adequate definition for it, and where numerous researchers working on empirical aspects of power

43 C. Platrier, *Mécanique Rationnelle, Tome I* (Paris: Dunod, 1954), p. 112.

44 Ibid.

45 Hamel, op. cit.

46 G. Ludwig, *Introduction to the Foundations of Theoretical Physics, Vol. 1,* 3rd ed. (Braunschweig, Wiesbaden: Vieweg, 1985), p. 145.

47 Bernard Russell, The *Principles of Mathematics* (f.p. 1903), (London: George Allen & Unwin, 1937), p. 482

48 Carson and Rowlands, op. cit., p. 479.

assume *a priori* meanings often deriving from embedded cultural and social uses of the term, so do scientists in the field of physics often employ this rudimentary concept without adequate analytical rigour or sophistication. 'The nuclear physicist, for example, who works on exchange forces (…) rarely has ever analyzed the concept of force in general, a concept that is absolutely fundamental to all his work'.[49]

Despite acknowledging its crucial role as a core ingredient in the formulation of most modern physical theories and appreciating its inherently conceptual nature, rarely has 'power' been subjected to a critical historical conceptual investigation—at least not until, and with one of the few exceptions being, Max Jammer's enlightening monograph in the late 1950s. Jammer attests to the state of confusion and the paradoxical lack of committed systematic investigation into the concept: 'though recognized as one of the fundamental and primordial notions in physical theory, the concept of force, it seems, has never heretofore been the object of a comprehensive historical analysis and critical investigation'. And he continues to point out the epistemological deficiency resulting from the disconcerting hiatus between the vast range of its practical applications and the limited scope of its conceptual sophistication. 'In general, the concept is taken for granted and considered as sanctioned by its successful applications. In fact, standard textbooks, and even elaborate treatises, present little information, if any, on the nature of this concept; its problematic character is completely ignored in the maze of practical utilizations'.[50]

Yet, the obscurity surrounding the meaning of power *qua force* appears to have been a persistent feature of the scientific discourse from very early in the modern history of the concept. For example, in 1743, d'Alembert argued against the semantic confusion which had already begun to shadow its meaning, claiming that 'when we speak of the "force of a

[49] Max Jammer, *Concepts of Force*, p. v.

[50] Ibid. 1.

body in motion" either we form no clear idea of what this expression means or we understand by it only the property which moving bodies have of overcoming obstacles encountered in their path or of resisting them.'[51] Similarly, during the International Congress for Philosophy in Paris in 1900, leading mathematician and physicist Henri Poincaré questioned the experimental verifiability of force, attributing this setback to the fact that 'we do not even know what force and mass are!'[52] The nomenclature involved in the variable attempts to express the idea of power throughout the history of scientific thought has ever since been expanding—when in Coelho's words, 'in recent textbooks on mechanics (…) it can also be read that we do not know what force is'[53]—while, the concept has been growing ever more complex and obscure, as it is being increasingly used by various individuals, for various purposes, in various cultural and epistemic contexts.

One of the reasons accounting for the arbitrariness and indeterminacy regarding the definition of 'force' is that the concept evolved *simultaneously* as a core notion in both epistemic areas of philosophy *and* the natural sciences, at a time when the distinction between the two was still rather unclear. This is the case for both contexts of Renaissance thought as well as the earlier period of classical antiquity, where the origins of the notion can be traced. Before proceeding with the examination of the conceptual morphologies of power in physics, it would be helpful to first provide a short overview of force's conceptual genealogy. This shall serve two main purposes: first, it will elucidate the historical journey and evolution of the concept of 'dunamis', which served as the focus of our analysis in the previous chapters. Moreover, it will clarify its historical-conceptual

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51 J. L. d'Alembert, *Traiti de Dynamique* (Paris: David L'Aine, Paris, 1743), p. xvi.

52 Ricardo Lopes Coelho, 'On the Concept of Force: How Understanding its History can Improve Physics Teaching', *Science & Education*, 19 (1) (2010), pp. 91-93; Galina Weinstein, 'Poincaré's Dynamics of the Electron - A Theory of Relativity?', *History and Philosophy of Physics* (2012), pp. 1-16, Cornell University Library, Electronic Resource, accessed at: 'https://arxiv.org/abs/1204.6576.

53 Coelho, op. cit., p. 91.

importance, its crucial dimension of interdisciplinarity, as well as expose aspects of its substantive relevance and correlation with concepts of power in scientific discourse. Finally, appreciating some of the shared theoretical grounds and common genealogical origins of accounts of 'power' in political and physical discourses will provide hermeneutical insight into the conceptual interactions between these two distinct yet often mutually-informed discourses. It will also offer some exegetical grounds explicating why conceptualisations of 'power' in the humanities and natural sciences appear to share certain common core conceptual features, an issue further explored in the final chapter.

The Journey of a Concept: From Classical 'Dunamis' to Modern Articulations of 'Force'

The origin of the notion of *force* in physics can be traced back to its classical articulation—the concept of dunamis, which was rigorously examined in the first three chapters of the present thesis. What is discerned when studying its classical origins is that *the idea of power* first emerged within an ideational environment where the distinction between its natural and anthropological or social manifestations was not drawn as sharply as in later interpretations and approaches. Due to the idiosyncrasies of classical thinking, and certainly the nature of Aristotle's thought,[54] both steadfastly founded upon the epistemological tenet that a set of generic, ontological and often metaphysical notions (qua *categories*) can be employed to classify and explain the entire range of phenomena—including natural *and* social phenomena, all seen as *expressions of life* in its variable forms—'dunamis' was used with a more or less constant set of core meanings, in both analyses of natural and political nature.[55] The 'categorical universality' of certain foundational notions such as 'dunamis' was, interestingly, both an explanans for, as well as

[54] See Chapter I, especially parts I-III; and Chapter III, esp. parts I-II.

[55] See Chapters I and II. Terence Irwin, *Aristotle's First Principles* (Oxford: Clarendon Press, 1998), pp. 1-6, 248-284; Pascal Massie, *Contingency, Time and Possibility: An Essay on Aristotle and Duns Scotus* (Plymouth: Lexington Books, 2011), esp. part III.

a repercussion of, the postulation of the world as a unified and continuous manifestation of certain primary principles and of '*being*' itself.[56] Thus, despite obvious variations in the quality and identity of the contexts where it would be employed, 'dunamis' *qua conceptual* 'category' essentially maintained a relatively uniform conceptual core, whether applied in describing the 'dynamics of the soul',[57] the mechanisms of the polity ('kratos') and social discourse,[58] or the ontological principles governing the world of reason and phenomena.[59]

The following paragraphs attempt to provide a short and concise, yet by no means exhaustive, historical tracking of the development of 'dunamis' from ancient to modern natural-philosophical discourses. The analysis evidently assumes a genealogical character, nevertheless without claiming to pursue a comprehensive or complete genealogical account of the concept; that endeavour would certainly necessitate a far more detailed, complex and historically assiduous investigation than the present project can accommodate, given its objectives and obvious constraints. Rather, the following exposition suffices in tracing certain key moments in the cross-disciplinary genealogy of the concept, where 'genealogy' is here understood, in line with the Skinnerian

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[56] Christopher P. Long, 'The Ethical Culmination of Aristotle's Metaphysics', *Epoché: A Journal for the History of Philosophy*, Vol. 8 (1) (2003), pp. 121-140. For a more general discussion of 'universals', see Theodore Scaltsas, *Substances and Universals in Aristotle's Metaphysics* (Ithaca: Cornell University Press, 1994).

[57] The most influential account in this respect is Plato's in the *Republic*, 477 c-e, 478a; Aristotle, *De Anima* II 1, 412a20; 413a.

[58] Aristotle, *Rhetoric*, 1355b26-30; Fred D. Miller, Jr., *Nature, Justice, and Rights in Aristotle's Politics* (Oxford: Clarendon Press, 1995), pp. 103-105, 160, 174, 238-9, 245-7; Ekaterina Jaskins, 'On the term "Dunamis" in Aristotle's Definition of Rhetoric', *Philosophy and Rhetoric*, Vol. 46 (2) (2013), pp. 234-240.

[59] Aristotle, *Physics* 201a10; Ekaterina V. Haskins, *Logos and Power in Isocrates and Aristotle* (University of South Carolina Press, 2004), esp. Chapter 3: 'Between Social Permanence and Social Change', and pp. 111, 113-122. For modern appropriations of this idea, especially its phenomenological interpretation, see Lawrence J. Hatab, *Ethics and Finitude: Heideggerian Contributions to Moral Philosophy* (Oxford: Rowman & Littlefield, 2000), Chapter 4.

interpretation, as involving the 'uncovering' of 'the different ways in which [the concept] may have been used in earlier times'.[60]

Expanding upon the Platonic and Aristotelian accounts, a widespread appropriation and re-interpretation of the concept of dunamis took place during the following period of Neoplatonism, for instance in the works of Pliny,[61] Plotinus,[62] Iamblichus, Simplicius,[63] where the term acquired a plurality of novel denotations.[64] In some cases, the Aristotelian conceptualisation was considerably modified, to the point of inversion. Findlay argues that 'the Neoplatonists, while they sometimes defer to the Aristotelian subordination of potency to act, really *invert* Aristotle altogether, as every eidetic philosophy must do (…)'.[65] Yet, in other instances, deviations from the original meanings of dunamis were less substantial. Massie contends that some scholars, such as the Arab thinker Avicenna (who

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60 Quentin Skinner, 'The Sovereign State: A Genealogy', in Hent Kalmo and Quentin Skinner (eds.), *Sovereignty in Fragments: The Past, Present and Future of a Contested Concept* (Cambridge: Cambridge University Press, 2010), p. 26.

61 M. Caius, *Plinius Secundus, Naturalis Historia: The Natural History of Pliny*, John Bostock and H. T. Riley (transl.) (Bohn: London, 1856).

62 Plotinus, *The Enneads*, J. M. Dillon, S. Mackena (eds.) (London: Penguin, 1991), V3 (13). David Rehm, 'Plotinus Treatment of Aristotelean Dunamis in Emanation', *Journal of Neoplatonic Studies*, 2 (1) (1993), p. 5.

63 I. Croese, *Simplicius on Continuous and Instantaneous Change: Neoplatonic Elements in Simplicius' Interpretation of Aristotleian Physics* (Utrecht: Zeno, 1998). H. J. Blumenthal, 'Dunamis in Simplicius', in Romano and Loredana Cardullo (eds.), *Dunamis nel Neoplatonismo* (Firenze: La Nuova Italia, 1996).

64 Stephen Gersh, *From Iamblichus to Erigenia* (Leiden: E. J. Brill, 1978); John Sallis, *Being and Logos* (Pittsburgh: Duquesne University Press, 1975). For the new nuances introduced by Plotinus, see Pascal Massie, *Contingency, Time, and Possibility: An Essay on Aristotle and Duns Scotus* (Plymouth: Rowan & Littlefield Publishers, 2011), esp. pp. 157-160.

65 J. N. Findlay, 'The Logical Peculiarities of Neoplatonism', in R. Baine Harris (ed.), *The Structure of Being: A Neoplatonic Approach* (Norfolk: International Society of Neoplatonic Studies, 1982), p. 7. Italics my addition.

would later play an influential role in Western academia) did remain relatively more 'faithful' to the origin meanings of the Aristotelian account.[66]

The journey of 'dunamis' continued in the West throughout all stages in the development of western thought, where Aristotle's ideas concerning the notion and function of forces 'were quite generally accepted'.[67] Its historical protraction was especially mediated by Aristotle's impact upon laying the foundations of early (and Common Era) Christian theology, especially in light of the fact that the distinction between *dunamis/Energeia* persisted as one of the most influential aspects of his philosophy shaping the epistemological underpinnings of western thought.[68] 'Given the preponderance of Aristotelian philosophy in Catholic theology for the last seven hundred years, it should come as no surprise that power has often been understood this way [qua dunamis] in important Catholic histories of doctrine. However, (…) non-Catholic (indeed non-Christian) intellectual thought is just as bent to *this* connotation of power.'[69] Examples of relevant and influential scholars who endorsed Aristotelianism include St. Thomas Aquinas and Duns Scotus (whose work was particularly influenced both by Aristotle and

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66 Massie, op. cit., pp. 161-162.

67 Joseph J. Kockelmans, 'On the Interpretative Nature of Hertz's Mechanics', in Babette E. Babich (ed.), *Hermeneutic Philosophy of Science, Van Gogh's Eyes, and God: Essays in Honor of Patrick A. Heelan* (Netherlands: Springer Science & Business Media, 2002), p. 99.

68 Michel Rene Barnes, *The Power of God: Δύναμις in Gregory of Nyssa's Trinitarian Theology* (Washington D.C.: The Catholic University of America Press, 2010), p. 17.

69 Ibid., italics my addition. Also relevant, Francis M. Cornford, *Plato's Theory of Knowledge* (Indianapolis: Bobbs-Merrill Company, 1957) [reprinted]. On the influence of the concept of 'dunamis' in early modern theology and its conceptual adaptations-transformations see, Richard Sorabji (ed.), *Aristotle Transformed: The Ancient Commentators and Their Influence*, 2nd ed. (London: Bloomsbury, 2016), esp. Sorabji's chapter, 'Infinite Power Impressed: The Transformation of Aristotle's Physics and Theology'.

Avicenna).[70] From then onwards, up until the end of the 16th century, Aristotelianism had secured a 'near monopoly', an 'almost uncontested supremacy, not only within natural philosophy, where no rivals remained, but over mathematical science as well'.[71] The appeal and impact of Aristotle's philosophy was indeed so widespread, that his system of ideas would soon be turned into some kind of 'doctrine' or 'authority' to which most scholars subscribed (or at least 'ought' to), often without adequate autonomous reflection. This intellectual stance provoked reactive criticism, towards the end of the Renaissance, by scholars such as Descartes and Hobbes.[72] As Thomas Hobbes critically contended, 'the universities, indeed, have come to rely so heavily on one particular writer that their teachings no longer deserve to be called philosophy, but merely Aristotelity'.[73]

Of course, it would be a sweeping over-generalisation to assume that the dominance of Aristotelianism amounted to a uniform and unreserved endorsement of his ideas by every single thinker of the time, without acknowledging the crucial variations, frequent objections and independent intellectual novelties beyond and often *against* Aristotle's ideas. Cohen carefully clarifies this point by noting that the assertion of Aristotelianism's 'near monopoly', especially in the field of natural philosophy, does not imply that 'every medieval thinker subscribed to every single tenet of Aristotle's'. On the contrary, as he notes, 'many a daring innovation was to be tried out before the upswing was over. The point is rather that Aristotelianism, once accepted, served as the frame inside which even

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70 Massie, op. cit., pp. 161-163. John Duns Scotus, *A Treatise on Potency and Act: Questions on the Metaphysics of Aristotle Book IX*, Allan B. Wolter (transl.) (Franciscan Institute Publications, 2000).

71 Floris Cohen, *How Modern Science Came Into the World* (Amsterdam: Amsterdam University Press, 2010), pp. 78-80.

72 M. Edwards, 'Aristotelianism, Descartes and Hobbes', *The Historical Journal*, 50 (2) (2007), pp. 449-464.

73 Thomas Hobbes, *Leviathan*, chapter 46, quoted in Quentin Skinner, *Visions of Politics: Volume 3, Hobbes and Civil Science* (Cambridge: Cambridge University Press, 2005), p. 209.

the most striking departures from Aristotle's original teachings were fitted and, hence, acquired their proper meaning'.[74]

Throughout medieval and Renaissance times, the epistemic environment of academia continued to be characterised by the lack of clear and discernible boundaries between research areas. Perhaps some such distinctions were present, but more so in the form of 'membranes', quite permeable and supple themselves, surrounding subject-specific intellectual practices, rather than clear-cut, rigid disciplinary 'boundaries' demarcating separate fields. Not unlike the state of affairs in earlier historical eras, the trend of *polymatheia*—or in Descrates' words '*mathesis universalis'*[75]—i.e. 'universal learning', or academic training aiming at expertise across a wide range of subject areas, dominated as the prevailing epistemological approach.[76] Consequently, some of the most influential thinkers of power during those times were polymath scholars whose range of work extended over almost all epistemic areas, such as, most notably, theology, law, politics, medicine, aesthetics, philosophy and 'physics'—if we may, in recognising the possible pitfall of anachronism involved, call it so, given that, at the time, 'physics' was not conceived as holding a separate hypostasis from philosophy, and thus was generally referred to merely as 'natural philosophy'. Those include prolific thinkers such as Leonardo DaVinci, Galileo Galilei, Johannes Kepler, Robert Boyle, Rene Descartes, Isaac Newton and G.W. Leibnitz. For example, notes Muller, 'what Newton did was by the eighteenth century already called physics; it was however, still considered as part of philosophy'.[77] The fact that 'force' developed *concurrently* as an abstract philosophical

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74 Cohen, op. cit., pp. 145-149, and esp. Chapters I, III and V.

75 D. Garber, *Descartes' Metaphysical Physics* (Chicago: University of Chicago Press, 1992).

76 C. W. Blackwell and Philip Weller (eds.), *Models of the History of Philosophy: From its Origins in the Renaissance to the 'Historia Philosophica*' (Netherlands: Springer Science & Business, 1993), p. 81.

77 Muller, 2011, p. 48.

notion pertinent to theology, politics, psychology, but also to the scientific explanation of natural phenomena, material interactions and celestial motions, suggests that its conceptual genealogy is marked by a unique synthesis of meanings and conceptions coming from all those 'spaces' of human understanding. The result, however, has been a 'vast generalisation'[78] of the concept, which has been indeed characteristic not only of scientific but, as we saw in the Introduction, also political discourses.

With regards to semantics, when natural sciences began to function as a distinct area of intellectual enquiry around the late 16th century, slowly disentangling themselves from philosophy and the other humanities, the main term through which the broader notion of power was expressed was the relatively newly introduced notion of 'force'. 'Force' stood as the English translation of the widely endorsed, at the time, notion of 'vis'. However, the Latin term 'vis' was ascribed a rather different meaning than the one usually assigned nowadays to the concept of force.[79] On the one hand, 'vis' was partly a Latin variation of the classical term 'potentia' [power as potentiality], while on the other, it encapsulated a set of broader, philosophically profound, and certainly more abstruse meanings, such as 'life force', 'nature', 'energy', or even 'psyche'. Pliny had used 'vis' as corresponding to the Greek term 'dunamis', yet took it to denote both physical and occult forces, which he considered as indiscriminately intermingled.[80] Similarly, later in the 19th century, the term 'force' was used to denote the meanings of what our present-day notions of energy and work signify.[81] Equally complex and ambiguous was the standing of the term across

[78] Jammer, op. cit.

[79] Interestingly with respect to the discussion in Chapter II is the observation that the term 'vis' initially derived from the term 'virtus'.

[80] Jammer, op. cit., p. 45.

[81] Ibid. 11-12.

languages, since, for example, it was used homonymously to terms such as the Latin 'potentia' and the German 'Kraft'.[82]

The modern scientific discourse on power (qua force) begins from the rigorous scrutiny and recasting of the older and, until the 16th century, heavily influential Aristotelian concept of dunamis. A new discourse on power develops at that time, which proceeds from a critical engagement with Aristotle's notion of dunamis as a universal concept and coincides with the gradual emergence of modern science as a distinct, quasi-autonomous epistemic area. Largely owning to the impact of Aristotelianism upon medieval and Renaissance thought, 'dunamis' played a crucial role in the emergence of late-Renaissance and early modern theories of force in physics, providing a keystone for the evolution of scientific thinking and the development of novel readings of power, which, at the time, were still infused with multiple philosophical and metaphysical connotations.[83] Of course, this impact was not always direct; in certain respects, 'dunamis' *as a way of thinking about power* was directly influential upon formulations of the new concept of 'force', while in others, it served conversely as a negative (yet still a) point of reference or an outdated model *against which* scientists sought to introduce novel interpretations of power relations that would reveal the inadequacies and shortcomings of the older model. In both events, 'dunamis' served as a kind of conceptual 'raw material' for the modern notion of 'force' which, as we shall shortly discuss, reached its culmination in the first systematised study of power qua force—Isaac Newton's dynamics.

A decisive stage in the development of the scientific concept of force is the work of Johannes Kepler (1571-1630). Kepler sought to arrive at a more accurate, experimentally-

[82] Hermann von Helmholtz, 'Ueber die Erhaltung der Kraft,' Ostwald's Klassiker, No. t., (Engelmann, Leipzig, 1889).

[83] Joyce van Leeuwen, *The Aristotelian Mechanics: Text and Diagrams* (Switzerland: Springer, 2016), pp. 12-18.

oriented definition and a mathematical formulation of 'force', a task underpinned by his endeavour to develop a *quantitative* measure of what had hitherto been largely considered as a qualitative factor.[84] As we saw in earlier chapters, 'dunamis' was already loaded with deeply embedded ontological and metaphysical nuances, which, ever since Kepler and Descartes,[85] modern physical scientists sought to dispense with entirely, gradually modifying their perception of 'power' in ways resulting in a profound mutation of the original concept and the emergence of a new understanding of this perennial idea.[86]

However, despite the efforts of modern scientists to formulate an entirely experimentally-based interpretation of power as force, distilled from ontological, metaphysical and theological vestiges of older conceptual modalities, it appears that it has been almost impossible to do so. To our day, physicists have not managed to dispense with those deeply entrenched 'extra-scientific' meanings with which the term has become historically imbued. It would not be an exaggeration to claim that the concept of force has never been entirely discharged from its ontological, metaphysical, and often anthropomorphic, nuances. 'Only too often', Jammer notes, '(and not only in elementary or introductory courses in physics) "force" is interpreted in the traditional animistic or Peripatetic manner as a "tendency" or "striving." Only too often is it stated that one force "overcomes" another force, an interpretation not unlike St. Thomas Aquinas' comment that the velocity of a moving object has its origin in the "victory" of the moving force over the mobile or its resistance'.[87]

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84 Joseph J. Kockelmans, 'On the Interpretative Nature of Hertz's Mechanics', op. cit., pp. 99-103.

85 According to Kockelmans, Descrates, influenced by Democritus' theory, attempted to eliminate the concept of force altogether, subsuming it under a different exegetic framework. Ibid. 99-100.

86 See Michael Hanby, *No God, No Science? Theology, Cosmology, Biology* (Oxford: Wiley-Blackwell, 2013), pp. 119-122; Daniel Garber, *Descartes' Metaphysical Physics* (Chicago: University of Chicago Press, 1992).

87 Jammer, op. cit. p. vi.

This assertion seems not so surprising if only we are reminded that as late in the history of ideas as the times of Leibnitz and Kant, force was still considered as a living intelligible entity—a 'living force' whose conceptual status was delineated as a 'dynamical principle', 'a phenomenal manifestation of the 'primitive active force''.[88] Even Kepler himself, though pioneer of a quantitative approach, had adhered to the traditional conception of force as being some kind of 'soul animating the celestial bodies'.[89] Elaborating his 'science of dynamics' in his *Specimen Dynamicum*,[90] Leibniz maintained that 'unlike extension and motion', the 'living force' is something real, intelligible and 'substantially present in all corporeal entities'.[91]

What is perhaps more astounding is that this trend in conceptualising power did not become extinct even amongst the greatest 20th century scientists and thinkers of physics, such as the renowned Max Planck, who at the end of his long career, in an invited speech in 1944 summarised the culmination of his wisdom in the following remarkable statement: 'as a man who has devoted his whole life to the most clearheaded science, to the study of matter, I can tell you as a result of my research about the atoms this much: There is no matter as such! All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together (…) We must assume behind this force the existence of a conscious and intelligent Mind. This Mind is the matrix of all matter'.[92] Nevertheless, even in the case of

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88 P. M. Harman, 'Force and Inertia: Euler and Kant's Metaphysical Foundations of Natural Science', in William R. Shea (ed.), *Nature Mathematized: Historical and Philosophical Case Studies in Classical Modern Natural Philosophy (Vol. I)* (Boston: D. Reidel Publishing Company, 1983), p. 232.

89 Kockelmans, op. cit., p. 99.

90 G. W. Leibniz, 'Specimen Dynamicum (1695)', in *Philosophical Papers and Letters, Vol. 2* (Springer: 1989), pp. 435-452.

91 Quoted in Harman, op. cited.

92 Max Planck, 'Das Wesen der Materie [The Nature of Matter]', Speech at Florence, Italy (1944), from *Archiv zur Geschichte der Max-Planck-Gesellschaft*, Abt. Va, Rep. 11 Planck, Nr. 1797.

less ostensibly metaphysical accounts (such as Newton's), the level of abstraction and the nature of the axioms involved necessarily evokes a vision of ontology and metaphysics. extending far beyond the scope and reach of their methodology and, it would be fair to add, their intentions. For instance, Poincaré was critical of the Newtonian explanation of force, claiming categorically that 'to say that force is the cause of acceleration is to do metaphysics';[93] and Ernst Mach, a leading theorist of force in the history of physics, had openly conceded that, despite his strenuous efforts, it was impossible to avoid a subjective and unscientific definition, for the best exegesis of force he saw as available consisted in the juxtaposition of force to volition or a 'volitional act'.[94]

What the above discussion, hence, suggests is that the scientific notion of force still incorporates conceptual traces from broader (and often abstract and indeterminate) philosophical notions, such as the idea of causality (with which force was largely identified during the 16th century),[95] the notion of will,[96] and even to present, according to Jammer's view, certain occult and animistic vestiges which marked the earlier definitions of the concept across cultural traditions.[97] Some of the assumptions concerning force, argues Wilczek, reinforcing the above view, are still 'a sort of folklore'.[98] Studying the concept of power—qua force—in the context of scientific discourse, we thus witness

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93 Henri Poincaré, 'Les Idées de Hertz sur la Mécanique', *Rev Gen Sci* 8 (1897), pp. 734–743.

94 Ernst Mach, *Die Mechanik in ihrer Entwicklung*, 9th ed. (Brockhaus: Leipzig, 1933), p. 74.

95 Isaac Newton, *Isaac Newton's Philosophiae Naturalis Principia Mathematica 1726*, 3rd ed. (Boston: Harvard University Press, 1972), p. 13. J. d' Alembert, *Traité de Dynamique*, 2nd ed. (Paris: Johnson Reprint Corporation, 1758) (Republished 1968). A. F. Chalmers, *What is this thing called Science?*, 3rd ed. (Berkshire: Open University Press, 2008), p. 223.

96 Ernst Mach, op. cit.

97 Jammer, op. cit., p. 7. Also, his Chapters 1 and 2. In all discourses, from classical Greece, to the Romans, Neo-Platonism, Alexandrian Judaism and Christianity, up until Newton, dunamis was also taken to signify an 'infinite divine force' (pp. 48-55).

98 Wilczek, op. cit., p. 10.

similar conceptual problems as those involved in its conceptualisation in political discourse—namely, the problems of conceptual inflation and conceptual reductionism.[99]

Having briefly explored some of the most urgent historical and ideational trajectories enmeshed in the essential contestability of 'power' in physics, the analysis proceeds with examining certain major decontestations of the concept provided by the three predominant paradigms of *thinking about power* in physical theories: Newtonian Mechanics, Einstein's Relativity and Quantum Physics. Approached through the perspective of conceptual morphology, the study of those paradigms aims at identifying the core patterns and features involved in the conceptualisation of power across scientific traditions, with the purpose of expanding our interpretative horizons, as well as extracting useful possibilities that may inform our scholarly appreciation of the concept interdisciplinarily.

III. The Newtonian Morphology of Power

Since every scientific revolution is, primarily, a revolutionary change in the conceptual infrastructure underpinning scientific discourse, so were the revolutionary developments that took place in natural science during the 16th and 17th centuries closely associated with the concurrent evolution and radical recasting of philosophical ideas relevant to the fundamental concepts of science at the time.[100] Great contributors to those developments included Descartes, Leibnitz, Galileo and Newton.

Newton's work is nowadays commonly perceived as the cornerstone of modern physics and recognised as a crucial turning point in the history of the field. Viewing it from a critical perspective of intellectual history, Jammer goes as far as to proclaim Newton's 'dynamical interpretations' (i.e. his interpretations concerning dunamis) as

[99] See Introduction.

[100] Heisenberg, *Physics and Philosophy*, p. 68.

delineating a 'new science' altogether—what is currently known to us as the science of physics in its present form.[101] This position is not without justification. Compared to the state of affairs in historically preceding discourses, which consisted in a mixture of philosophical abstractions, theological insights and empirical observations, Newton's theory attempted for the first time a purely mathematical formulation of physical science.[102] In Kuhnian terms, Newtonian thought introduced a new *paradigm* in the discourse of physics.[103] His contribution to the evolution of the discourse was profound both for his contemporaries but also all for all future generations of scholars; for, as we shall shortly discuss, although his paradigm was 'overthrown' a few centuries later with the advent of Einstein's theory of relativity, Newtonian physics is still applicable and thus extensively employed and useful in almost all areas of science.

The key research issue at the heart of Newton's lifelong scientific inquiry was 'dunamis'. Newton's main research venture consisted in providing a definition of 'force' and systematising the study of 'dynamics', i.e. the search of the parameters and standard patterns through which relations of force manifest in nature. As he noted, 'the whole difficulty of *philosophy* seems to be to discover the forces of nature'[104] (where 'force', in his time, was still translated as '*vis'*). Given the established and enduring influence of Aristotle's theory of dunamis both upon philosophers and natural scientists of the time,[105]

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[101] Jammer, op. cit., p. 14.

[102] Newton's thought was not devoid of theological elements. Nevertheless, his *Principia Mathematica* was a first attempt to articulate an entirely mathematically based theory of physics.

[103] See Chapter IV.

[104] Preface to the First Edition of the Principia Mathematica. Isaac Newton, *The Principia: Mathematical Principles of Natural Philosophy: A New Translation* (f.p. 1687), I. B. Cohen and Anne Whitman (transl.) (Berkeley: University of California Press, 1999), p. 38. Italics my addition.

[105] As Jammer appreciates, most of the discourses of the 17th century were based on Aristotle's definition of dunamis, Jammer, op. cit., p. 9, and Chapter 1.

the area of physics instituted by Newton was introduced appropriately under the newly-coined term 'Thermo*dynamics*'.

The precise 'moment' of this crucial turning point in the history of the discourse is most probably the publication of Newton's magnum opus—the *Principia Mathematica* in 1687. In line with the morphological schema discussed at the beginning of this chapter, the *Principia* exhibits a tripartite morphological structure. It is composed of, first, a set of core concepts, second, an outline of their interrelations in the form of definitions, laws and theorems, and, third, the delineation of their various patterns of arrangement explored in the context of their practical application to the explanation of mechanical and astronomical phenomena. Newton's contribution to the evolution of natural sciences did not only consist in the original *theoretical* ideas articulated in his opus, but indeed also the unique *morphological schema* he attempted to construe in order to express those: that is, an 'algorithm' that would provide a coherent pattern of configuration between key physical concepts within a close system of meanings—a conceptual tactic what was largely unprecedented in his discursive context.

Interpreting the structure of Newton's oeuvre from a morphological perspective, the *Principia* was an attempt to construct a closed system of rigorous and tightly interwoven definitions of physical phenomena, whose perfect cohesion would be derived from the precise and minimal definitions of the concepts employed, as well as the careful assembling of their interconnections. The accurate and flawlessly efficient intertwining of those fundamental core concepts would ensure the formulation of a concrete, self-referential and thus solidly bound theory. In combination with that, the careful logical and empirical derivation of its concepts' semantic contents would further guarantee that their meanings accrue solely and entirely through each other; this would leave no semantic

vacuum which would need to be compensated for by the insertion of new extra-theoretical concepts not already entailed or defined within his system of meanings.

Newton worked hard to formulate cohesive liaisons between those core concepts that were linear, direct and logically derived. Moreover, the close proximity of the core concepts further reinforced their tight interweaving, as well as the theory's overall internal cohesion, conducing to the formation of a strong solid external membrane of the theoretical construct. This tactic aimed at insulating the consistency of the internal 'universe of meanings'. The morphological pattern of his theory implied that if at any point it became necessary to import new meanings from the external semantic environment, in order to either support, complement or justify the theoretical theses of his model, this would entail the breaching of its boundary, and therefore, the undermining of the internal consistency and the aspired self-referentiality of the entire conceptual edifice.[106] Nevertheless, the connecting ties between his clearly defined concepts was proved to be so solidly crafted, and the overall fabric or tissue assembled by his concepts so carefully interwoven that, even two centuries after the publication of the *Principia*, scientists were convinced than any addition to physical knowledge could only come by simply extending Newton's laws onto other fields, excluding the possibility that those laws could ever be modified or substituted by new ones.[107]

Yet no theory, be it in politics or in physics, can do without assumptions. In natural sciences, those assumptions are usually referred to as axioms.[108] Axioms typically concern

[106] Bernard I. Cohen, ''Quantum in se est': Newton's Concept of Inertia in relation to Descartes and Lucretius', *Notes and Records of the Royal Society of London*, 19 (1) (1964), pp. 131-155.

[107] Andrew Janiak, 'Newton and the Reality of Force', *Journal of the History of Philosophy*, Vol. 45 (1) (2007), pp. 127-147.

[108] Hermann Weyl, *Philosophy of Mathematics and Natural Science* (Princeton, NJ: Princeton University Press, 2009).

the definitions of those primary concepts employed by the theory, which, to a large extent, as seen earlier, are intuitively chosen and formulated by the scientist. Nevertheless, being kinds of assumptions, axioms intrinsically involve an element of normativity. Qua non-empirically proven foundational theoretical premises, they do not rest on 'positive facts', but are rather construed on the basis of imaginary projections, pre-theoretical beliefs and patterns of interpretation, which are, to a large extent, culturally and historically derived.[109] Their normative status is partly given by the simple consideration that axioms are postulated by individuals who live and operate within particular historical and cultural conditions—which, as established in the previous chapter, become constitutive of their identity and how they view the world, i.e. the 'worldviews' through which they approach their science. Therefore, any theory, be it in politics or in physics, involves a personal element of selection and a normative dimension of interpretation, shaped by socially-conditioned and normatively-laden interpretation; thus theories in physics always intrinsically involve an element of ideology—in the Freedenian sense.

The same happened in Newton's case. His account of 'force' incorporated some of the older understandings immanent in Aristotle's understanding of dunamis; indeed, 'in his conception of force Newton was deeply rooted in the tradition of his time. However original his own ideas may have been, they too arose in a hermeneutic situation, the nature of which we recognise only after the fact so to speak, in the prejudgements which Newton tacitly accepted from his predecessors'.[110]

[109] Peter M. Heimann and J. E. McGuire, 'Newtonian Forces and Lockean Powers: Concepts of Matter in Eighteenth-Century Thought', *Historical Studies in the Physical Sciences* (1971), pp. 233-306.

[110] Joseph J. Kockelmans, 'On the Interpretative Nature of Hertz's Mechanics', op. cit., p. 100.

What were the main premises forming the axiomatic basis of Newton's theory? Three points are worth mentioning here, illuminating some of the core features of Newton's rendition of the concept of force.

The first major premise concerns the nature of matter. Similar to the concept of power, matter has also been a fundamental and essentially contested concept in the discourse of physics. During the 16th and 17th centuries, when Newton was writing, the discourse had begun to move away from the Aristotelian interpretation of matter as an 'ontological potentiality'. As we saw in Chapter I, Aristotle had distinguished between 'matter' as a potentiality, and 'form' as an actuality, and interpreted objects of sense-perception as actualities of 'formed matter', rather than manifestations of matter *per se*.[111] Evidently, the term referred to something considerably different than the kind of tangible formed matter encountered in everyday life, to which typically the term semantically corresponds nowadays. 'Matter' was understood as a kind of 'indefinite incorporeal substratum' embodying 'the *possibility* of passing over into actuality by means of the form', and precisely because of its inherent 'potential nature' was interpreted as corresponding to and expressing a major form of 'dunamis'.[112]

This crucial shift in the conceptualisation of matter was instigated by Descartes during the 16th century. Descartes suggested an alternative interpretation according to which 'matter' ceased being defined in reference to its opposition to, or differentiation from, 'form'. Its semantic content was radically revised and reformulated to denote precisely that tangible aspect or dimension of objects of sense-perception encountered in everyday life, that was previously understood as the result of a conjunction between two

[111] Harold J. Johnson, 'Three Ancient Meanings of Matter: Democritus, Plato, and Aristotle', *Journal of the History of Ideas*, Vol. 28 (1) (1967), pp. 3-16. Charlotte Witt, *Ways of Beings: Potentiality and Actuality in Aristotle's Metaphysics* (Ithaca: Cornell University Press, 2003), pp. 3-16. 13-16, 86-88.

[112] Heisenberg, op. cit. p. 136. Italics my addition.

distinct categories—'matter' and 'form'. Thus, his version of matter, although novel in the sense that it was founded on theoretical foundations that debunked the previously dominant dichotomy between 'matter' and form', substantially corresponded more closely to what was previously understood as 'formed matter' in Aristotelian terms. Descartes collapsed the two constitutive conceptions into one notion. However, in the place of the old dichotomy, he introduced a new distinction that would come to shape the course of philosophical thinking even up to our times: that between '*res extensas*' and '*res cogitans*'.

The distinction between 'res extensas' and 'res cogitans' was imperative because it entailed the philosophically radical postulation that there exists a sharp contrast between 'matter' and 'cognition'—i.e. between the tangible aspect of the world that forms the object of our sense-perception, and the intelligence through which that aspect becomes interpreted, understood, and very often instigated into manifestation. A clear dichotomy was thus drawn between 'mind' and 'matter'. This dichotomy, on the one hand, reified tangible reality, insofar as it separated it from perception, while on the other, it isolated, and somehow excluded, intelligible perception from the realm of natural phenomena.

Two crucial implications followed from this. First, that cognition could be separated from the bearer of cognition. This further evoked the epistemological repercussion that the observer could be regarded as independent of the object of her observation (we shall return to this point shortly). Second, the Cartesian duality implied that matter could be treated as an objective and autonomous reality of its own, independent of aspects, elements or features of intelligibility. Similarly, this view extended to a parallel epistemological postulation, that matter could be studied as an objective reality in an objective manner, without any reference to the perceptions, qualities and particularities of its observers. Its study could thus circumvent the need to engage in the turbulent waters of the metaphysical and theological discourses of the time, a task which seemed burdening, or at any rate

perplexing, to the research of natural philosophers. The main theoretical ramification of the Cartesian distinction could thus be summarised as follows: 'the body'—the 'corpo-real'—was turned into the primary reality'; moreover, in contrast to earlier theories (including Plato's and Aristotle's) which considered knowledge as necessarily dependent upon the particular intelligible and even moral features of the knower, its study was advanced to an objective epistemological venture that could be free from and irrelevant to epistemological considerations concerning the nature and qualities of the observer.

Being a fond admirer of Descartes, Newton adapted his understanding of matter, which formed a core feature of his theory of force, to the newly emerged exegetical framework of the *res extensas* and *res cogitans* duality.[113] In line with Descartes' position regarding the nature of reality and sensible objects, as elaborated in his *Principia Philosophiae* of 1644, Newton took matter to simply refer to a body's 'density and bulk conjunctly';[114] its definition explicitly excluded any intelligible features or elements of cognition possibly pertinent to the body in question. Moreover, for Descartes, the universe was seen as composed of eternally moving particles which constantly collide, in this manner imparting their motion onto each other[115]—a position also endorsed by Thomas Hobbes in his famous description of nature and man as 'matter in motion'.[116] The Cartesian duality was built into Newton's theory, something which enabled him to treat force purely as an issue of *mechanics*: force was no longer examined in relation to any possible internal principles of motion and change within 'bodies' (such as, for instance, the

[113] On a note regarding some of the subtleties of this distinction, animals were treated by Descartes as inanimate and thereby belonging to the *res extensas*.

[114] Isaac Newton, *Principia Mathematica*, Definition I: 'The quantity of matter is the measure of the same, arising from its density and bulk conjunctly'.

[115] Jammer, op. cit., pp. 8-11.

[116] Hobbes, *Leviathan*, Chapters 1-3.

psyche[117]) but, rather, its study became solely focused upon the externally manifested motion of bodies in space, (i.e. locomotion).

The second main premise of Newton's theory of force concerned the nature of space and time. In line with Descartes' position, Newton perceived space and time as properties belonging to nature and, at the same time, as *a priori*, absolute, eternal and real objective entities existing independently from each other as well independently from our perception of them.[118] The concept of space played a vital role in Newton's theory of force. Space was interpreted as the passive, absolute and unchanging reference framework within which objective relations between bodies (defined solely in relation to their quantity of matter) could form, and in reference to which those relations could be explained. Space was seen, figuratively speaking, as the objective background stage or the arena within which the cosmic drama plays out: the action taking place on the stage cannot affect the stage nor can the stage affect the action. In the Scholium of Definition VIII of the *Principia*, Newton drew an important distinction between 'space' and 'place'.[119] The former was defined as the absolute container of all places, while the latter as the designation of a particular area (or 'moment') in space. Newton saw those different relative 'places' as discretely separated from each other; relative 'places' do not follow each other in a continuous fashion within their broader absolute container, but rather represent parcellised, independent and scattered 'fragments' of space.[120] Therefore, whatever takes *place* within absolute space was seen as separated and isolated, and thus as

[117] Einstein, *Physics and Reality*, p. 360.

[118] Newton, *Principia*, op. cit., Scholium 4.

[119] Op. cit., p. 78.

[120] Arthur Stinner, 'The Story of Force: From Aristotle to Einstein', *Physics Education*, 29 (77) (1995), pp. 77-85.

clearly distinguishable, from whatever else is going on in other particular 'moments of place' within this broader spatial context.

The third main premise of Newtonian "dynamics" concerns a methodological assumption regarding the nature of observation and scientific inquiry. It refers to an idealisation that, according to Heisenberg, underpins all classical physics, and according to which 'we [could] speak about the world as separated from our selves'.[121] As in Cartesian dualism, one could speak about matter ('the observed' or object of observation) as separated from the mind and its perceptions (symbolically represented by 'the observer' or subject of observation), similarly, in the case of force, the external observer of power relations was postulated by Newton as occupying an *a priori*, objective and panoptical position vis-à-vis the objects of observation. The observer of power relations, or 'dynamics', could carry out his observations unaffected by the content of what he observed, and at the same time, without himself in any way affecting the 'act' taking place upon the standard and neutral 'stage' of place and space.

Building upon those three key premises, Newton elaborated some further main concepts comprising the core of his *Principia,* starting from the concept of matter and, immediately after, continuing with the definition of force. In line with his axioms, Newton tried to detach the question of force from cognitive, psychological and theological considerations, which would transpose the locus or nature of force to an animate or intellectual order possibly connected with inanimate matter. Rather, as follows from the above, for Newton, force was seen *a property* of matter itself; thus, it could be explained solely in account of the *mechanical* behaviour of bodies—i.e. their motions in absolute space and time. For this reason, as briefly noted above, in the context of Newtonian thought, the question of dynamics became an issue of *mechanics*: it was reduced to an

[121] Heisenberg, op. cit., p. 94.

exploration of *motion*, while motion, partly breaking away from the traditional Aristotelian reading of this concept, was conceptually reduced to its definition as *locomotion*.[122]

Overall, Newton provides three different definitions of force: (i) force as '*vis insita*', ['inherent or innate force of matter, force of inertia'], (ii) as '*vis impressa*' ['impressed or exerted force'], and (iii) as '*vis centripeta*' ['centripetal force']. Approaching them from a conceptual perspective, let us attempt to decipher the main meanings and theoretical postulations involved in those three definitions.

The first kind of force (provided in Definition III of the *Principia*) reads as follows. 'The *vis insita*, or innate force of matter, is a power (*potentia*) of resisting by which every body, as much as in it lies, endeavours to persevere in its present state, whether it be of rest, or of moving uniformly forward in a right line'.[123] The first definition describes force as a kind of *potentia*, which, as we saw in the previous chapters, is the Latin translation of dunamis. However, Newton provided no further indication or clarification in the *Principia* regarding the meaning or precise nature of *potentia*, and whether he considered it to bear any substantive distinction from mere *force* (*vis*). The meanings of 'power'/'potentia' and 'force'/'vis' are conflated in the context of his theory. In any case, his first definition effectively articulates an *ontological* reading of the concept: force is depicted as an *internal property of matter*, something like a 'natural endowment', which, on a practical level, functions as an internal principle of inertia.

Three major implications follow from this postulation. The first concerns the observation that the *vis insita* [innate force] presents intriguing similarities with the

[122] For different possibilities of interpreting motion in the history of the concept of power, and particularly in Aristotle's thought, see the relevant discussion in Chapter I.

[123] Newton, *Principia*, Definition III.

Aristotelian definition of dunamis as a 'principle of motion *or rest*'—what Newton here describes as perseverance of a given state.

Second, the definition is underpinned by a conceptual equation of force with resistance (since force is defined as 'a power of resistance'). What this means is that, according to its first formulation, force is not conceptualised as primarily consisting in an *active* exertion, but is rather described as a *passive* state functioning as a kind of self-preservation principle. Correspondingly, the idea of natural agency in Newton's thought is primarily conceptualised as *passive* agency—i.e. as consisting in the agent's ability to *maintain* a given state, amidst possible external obstructions.

A third observation concerns a point of criticism regarding the postulation of force as an internal principle of matter. Conceptualising force in those terms involves certain implications which are at odds with Newton's definition of matter. For whereas, as we saw earlier, in line with Descartes' legacy, Newton aspired to exclude from his study of material objects—'*res extensa*'—any references to incorporeal entities—the '*res cogitans*'— or, at any rate, qualities which could not be accounted for by his quantitative definition of matter, nonetheless, his first definition presents force exactly as a sort of immaterial 'property' immanent in matter; however, exactly in account of being *a qualitative property*, this cannot be itself considered as matter *per se*.

Newton's account of force thus gives rise to a contradiction. For although he aspired to extricate considerations of an internal immaterial principle dwelling within *res extensa* from the study of physical entities (for instance, as noted earlier, an assumed faculty of the soul), his version of *vis insita* ['innate force'] functioned precisely as a theoretical equivalent of such type of principle. His version of 'force' effectively substituted—and in this way subtly reinstituted—the idea of a given prior 'nature' (or 'soul) functioning within

matter as its immaterial principle; only that, in his case, the character of that prior nature was restricted to an inherent "instinct" or impetus for self-preservation, broadly encapsulated in the term 'force'. However, this represented a metaphysical position, not of the kind that his aspired empiricist orientation would permit. We shall return to this point shortly.

Newton's second definition of force is given by his notion of '*vis impressa'* ['impressed force']. 'An impressed force is an action exerted upon a body, in order to change its state, either of rest or of moving uniformly forward in a right line'; and, he continues, 'this force consists *in the action only*; and remains no longer in the body when the action is over.'[124]

Unlike the 'inherent force', impressed force is not a latent property of bodies; rather, it is an entity emerging from the *interaction* between agents and it is external to the body that undergoes it and expresses its effects. This force, although involving a *tangible* interaction between the participating agents, represents a kind of pure action,[125] since it neither remains after its exercise in the body that exercised it nor in the body that received it. Under this conceptualisation, force is an active *relationa*l quality occurring between two or more entities in order to *change* their state. Force, in this sense, is 'force between' rather than 'force within'.

One of the most interesting conceptual aspects of the second type of force consists in the fact that, whereas the impressed force is defined as action exerted by an active agent towards another (a rather common perception of power even among political theorists), curiously, the equation provided to estimate its effects does not approach the measurement

[124] *Principia*, op. cit., Definition IV. Italics my addition.

[125] Jammer, op. cit., p. 121.

of force from the perspective of the active agent but, rather, from that of the recipient.[126] That equation, related to Newton's Second Law of Thermodynamics, is given by the type:

$$F = m * a, \qquad [\text{where } (2) = \frac{\Delta v}{\Delta t}\,],$$

where F stands for force exerted by the active agent, m stands for the mass (i.e. the measure of matter) of the body/agent *receiving* the force, while a for acceleration, which, in physical terms denotes *the rate of change* of velocity (where Δ = difference, v = velocity and t = time), or, in one word, the displacement of the recipient agent as a result of the interaction.

Attempting to creatively decode the conceptual elements encapsulated by its symbolic representations approaching them from a generic conceptual perspective, the above equation entails the following probing proposition: force is not given nor measured by any of the qualities of the active agent exercising it (say, his 'strength'), but, rather, by the *manner* and *extent* to which it is *received* by its object. This means that when physicists want to discern the force exercised by a given agent, they do not study the nature or properties of the active agent *exercising* that force, but rather study the *change* in certain qualities of the agent *receiving* it; particularly, as the above equation states, its basic material state (mass) and the pattern of its motion (the rate at which it is moving). Thus, force is not deduced from the properties of its wielder but from its *effects* and particularly from the successful level of *impact* and effect of *change* brought upon the passive agent. It becomes obvious, then, that force is effectively conceptualised as a *cause* in Newton's theory;[127] force is what *causes* the changes exhibited by other agents, while, in turn, the range and scope of those changes witnesses the level of its effectiveness.

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[126] Stinner, op. cit.

[127] Ibid. 396.

The final type of force suggested by Newton is centripetal (or centrifugal) force. It is that force 'by which bodies are drawn or impelled, or any way tend, towards a point as to a centre'.[128] This formulation is probably his most well-known account of the concept as it encompasses what is generally known as the law of gravity, i.e. the law of attraction between bodies and the earth. Yet, at the same time, it is also the most obscure, since it involves a peculiar, quasi-metaphysical formulation of the idea of 'action at a distance'—an idea which the branch of mechanics, perceived as the study of *tangible* interactions, struggled for centuries to account for theoretically.

The third definition adds a new attribute to the concept of force: the element of reciprocity. As Jammer notes, this 'force manifests itself invariably in a dual aspect; it is action and reaction simultaneously. Much as a business transaction can be regarded both as a purchase and as a sale of the same amount, force can be considered as action as well as reaction of the same magnitude'.[129] Effectively, centripetal force served as a representation of the more general law of attraction, which Newton postulated as universal. This law states that there is a kind of force which is ever-present between all objects dwelling in space. The measure of that force is directly proportional to the bodies' masses and inversely proportional to the square of their distance.

In conceptual terms, the third definition implies that force exists to the extent that entities are found in space; and, since all objects are positioned in space—their existential container—, it follows that all objects are found at variable distances from each other, and, hence, ultimately, that every entity is found in a relation of force with every other entity. Force was thus postulated as an *existential* property, a *modus operandi* of physical life. This time, however, the ontological pervasiveness assigned to force did not stem from its

[128] Newton, *Principia*, Definition III.

[129] Jammer, *Concepts of Force*, p. 125.

status as an inherent property of matter (as in the first definition), but rather as a property of the physical world.

What is it that causes bodies to be in a constant reciprocal relationship of force, hence rendering force a ubiquitous feature of physical existence? What remained obscure in Newton's account was the specification of the *nature* and *locus* from which force qua attraction emanates; for if force is assumed merely as an immediate repercussion of the fact that *bodies* occupy positions in *space*, it would seem necessary that the emergence of force relationships between them proceed either by virtue of some latent property of matter (i.e. from the bodies themselves), or some latent property of space. Nevertheless, Newton had explicitly rejected the former possibility. In a letter he wrote to Bentley in 1693 he noted, 'it is inconceivable that inanimate brute matter should, without the mediation of something else which is not material, operate upon and affect other matter without mutual contact (…) That gravity should be innate, inherent, and essential to matter (…) is to me so great an absurdity that I believe no man who has in philosophical matters a competent faculty of thinking can ever fall into it.'[130] Therefore, as a matter of logical necessity, the key to explaining the universal character of force would have to proceed from some element or quality pertinent to the nature of space. However, nothing in Newton's version of space could effectively account for such property or function.

It followed that the force of universal attraction could only be accounted for by positing it as a metaphysical property of the world. However, in morphological terms, this requirement, in conjunction with the implicit yet unfounded distinction between '*vis*' and '*potentia*', implied that Newton's morphological construct effectively evoked conceptions which lay outside its semantic context and, therefore, that it was not entirely self-

[130] Andrew Janiak, 'Newton and the Reality of Force', *Journal of the History of Philosophy*, Volume 45 (1) (2007), p. 128.

referential. Those points represented 'cracks' in the external membrane of Newton's conceptual edifice, which undermined the status he wished to ascribe it.

Overall, the following core features assembling the morphology of the Newtonian concept of force can be deduced from the above analysis. Those include: (i) *matter*, (ii) *motion* (identified exclusively as *locomotion*), (iii) *space*, (iv) *causality*, (v) *difference*, (vi) *relation* and (vii) *resistance*.[131] It is important to note that since the concept of matter was itself conceptualised in reference to *space* - as we saw in Definition I of the *Principia*, matter was defined as a function of density and 'bulk', both of which constitute dimensions of space -., and since Newton sought to exclude any other element from its definition, matter can, effectively, be described through conceptions belonging within the semantic field delineated by the concept of space. Similarly, motion is also described by Newton as the *rate* at which bodies *change* their *position* in *space*. This means that the concept of motion can also be further reduced to the concepts of *space*, *difference* (implied by both notions of *change* and *rate*) and *time* (implied by the notion of *rate*). Therefore, the core features of *space*, *time* and *difference* are identified as highly ranked and assigned with a relatively greater level of semantic, functional and structural significance within the core of the Newtonian conception of force.

The following key postulates can be inferred regarding the distinctive power characteristics of the Newtonian paradigm. First, force is treated as an internal and relational property, as well as an active and passive quality. Second, it is assigned an ontological but also metaphysical status, even though, for the most part, it is reduced to empirically observable, and, most importantly, *tangible* mechanical interactions occurring between objects considered entirely as material. Furthermore, under this paradigm, when considering relations of power, the focus of attention is set upon the *reception* rather than

[131] Heisenberg also recognises space, time, matter and causality as the fundamental concepts of classical physics (op. cit., p. 185).

the *exertion* of power (for instance, in the case of *vis impressa*). This feature reverberates with some of the reflections and possible readings of the Aristotelian notion of dunamis suggested in Chapter II regarding the importance of passive agency in understanding and interpreting phenomena of power. Nonetheless, Newton's conceptualisation does not underestimate the non-relational aspect of power, which is captured by the idea of force as *vis insita*, i.e. as a latent property or internal attribute of entities. This means that the Newtonian reading of force places particular emphasis upon individual bodies (understood solely in relation to their material-spatial properties), at the same time, however, it also approaches force in itself as something that emerges, dwells and rests beyond bodies. Force is at once immanent to matter but also extra-material (in the case of attraction); it becomes revealed either by the mere presence of bodies in space, or through their interactions within an objectively defined environment. In the former case, force represents the 'background hub' of all life; while, in the latter, it manifests as a result of co-existence and requires concrete tangible and change-producing contact between bodies. In both cases, force is not something which can be observed immediately, but only through its *effects* upon bodies/entities in space. Manifestations or relationships of force can be deduced from the behaviour of bodies, yet they are not exhausted by it; force dwells both inside as well as outside bodies and interactions, but the way we can have access to its understanding is through the study of the *behaviour* of bodies.

Finally, the vagueness concerning the relationship between force and the nature of space, which is one of the major shortcomings of Newton's theory, as far as its conceptual cohesion is concerned, effectively contained the seeds of what was to emerge, a few centuries later, as the theory of relativity, whose breakthrough consisted exactly in radically reconceptualising the basic notions of space and time. This radical reconceptualisation gave rise to a new pattern of thinking about power.

IV. Einstein's Legacy: Power in the Context of Relativity Theory

'Concepts, which have proved useful in the ordering of things', Einstein wrote in 1916, 'easily acquire such a degree of authority over us that we forget their earthly origin. We take them as unchangeable givens. They come to bear the stamp of 'thought necessities', of the 'a priori given'.[132] Yet, by overcoming in himself the human tendency to assume final definitions of their concepts, Einstein became one of the leading modern physical theorists emphasising the importance of conceptual contestation as a marking feature of scientific progress. His pioneering scientific work was motivated and underpinned by the acknowledgement of the fundamental role that conceptual postulations perform in the formation of scientific models, as well as the fact that those concepts, like theories, are always subject to debate, revision and redefinition. Einstein's main concern consisted in the contemplation of the semantic contents of the most basic—and widely assumed as a priori—concepts of classical mechanics, and it was precisely his fascination with exploring alternative readings of fundamental concepts which served as the cornerstone of his revolutionary contribution to physical thought in the early 20th century.

The point of entry into the process of radically transforming the semantic contents of Newton's core features of force—which were largely perceived as indisputable until his time—was the observation of a very simple phenomenon, whose mysterious nature allured Einstein: light. Einstein grew up at a time when electricity was just being introduced into everyday life, transforming the nature of peoples' practical reality in radical ways. Electricity and the phenomenon of light aroused young Einstein's curiosity to delve deeper into the study of their nature and functional principles. At the same time, the prominent scientific theories of the newly discovered electromagnetic nature of light waves,

[132] Friedel Weinert, 'Einstein, Science and Philosophy', *Philosophia Scientiæ*, 13/1 (2009), p. 102. Weinert translates directly from Einstein and is quoted here.

developed by Faraday and Maxwell, was also beginning to shake some of the foundations of Newtonian physics. Their study of electromagnetism had given rise to the theory of the field. Whereas for Newton, the force of attraction keeping objects in a constant state of interaction and communion (gravitational force) had been considered as given, and not an object of further enquiry, in the work of Faraday and Maxwell the field of force became itself the object of scientific research.[133] Phenomena of electromagnetism appeared to create fields of force, which effectively functioned as joint configurations of space and time. As Heisenberg explains, in Newtonian mechanics, 'an action could, so it seemed, be transferred from one body to another only when the two bodies touched each other; for instance, in a collision or through friction. Newton had introduced a very new and strange hypothesis by assuming a force that acted over a long distance. Now in the theory of the fields of force, one could come back to [an] older idea, that action is transferred from one point to a neighbouring point, only by describing the behaviour of the fields'.[134]

The theory of the field, upon which Einstein's theory was formulated, was tightly interwoven with the emergence of a new concept in physical thought at the beginning of the 19th century: the concept of energy. The term appeared for the first time in 1807 in the work of British scientist Thomas Young, who employed it as a synonym for force—in the sense of '*vis viva*' ['living force'].[135] The emissions of force observed in the case of electromagnetic phenomena displayed a very different character than that of tangible and discrete interactions between bodies as described by Newton: the emissions of electromagnetism were not confined to their conductors, nor were they specifically targeted at a particular recipient. Rather, they appeared to expand and become

[133] Heisenberg, op. cit., p. 83.

[134] Ibid.

[135] Crosbie Smith, *The Science of Energy: A Cultural History of Energy Physics in Victorian Britain* (The University of Chicago Press: 1998).

disseminated as a flow around space. It was this flow that the newly coined notion of energy was introduced to describe; this constituted a key conceptual revolution of scientific thought at the time. A crucial repercussion was that the emergence of the concept of energy questioned both the centrality and the very meaning of the concept of matter, which, as we saw, was a central feature of the classical theory of force. As Jammer notes,

> Energy, thus disjoined from matter, raised its ontological status from a mere accident of a mechanical or physical system to the autonomous rank of independent existence, and matter ceased to be the indispensable vehicle for its transport. As a result of this emancipatory change or reification of energy, the idea that only differences of energy are of physical significance had to be abandoned and an absolute magnitude had to be ascribed to energy. (…) In contrast to the older theories of action-at-a distance, according to which energy disappears at a point A in space and reappears at a point C without affecting intermediate point B, the new field theory of electromagnetism endows energy with a continuous existence in time as well as in space.[136]

The introduction of the concept of energy triggered a radical reformulation of the concept of matter, and thus of the very understanding of material reality. Whereas Newtonian physics had postulated matter as the primary reality, and approached the concept of force as a function of discretely separated bodies interacting in absolute space, in 20th century physics the primary reality was no longer the 'body', but rather, the field.[137] Consequently, the concept of force was radically re-conceptualised, since phenomena of force could be now described simply by reference to the field without necessarily invoking the notion of material bodies. The theory of relativity made it possible to provide a field representation

[136] Jammer, op. cit., pp. 173-178.

[137] Heisenberg, op. cit., p. 84.

of matter—i.e. to reduce the particles which compose matter to properties of the field.[138] Einstein even considered that the conceptual foundations of a consistent field theory would not require the concept of particles—and so material bodies—at all in order to explain phenomena of force.[139] The fluidity, mutability, and continuity characterising the new reality of energy and the 'field', as opposed to the assumed properties of rigidity, tangibility and discontinuity of Newtonian matter, engendered a radical recasting of individuals' perception regarding the nature of the world and the structure of reality. It implied a reinterpretation of the ways in which events are constituted, of the character of being as well as the mechanisms of force. A new outlook on the world was thereby emerging: the perception of a solid, discretely and linearly arranged, as well as tangibly discernible world was giving way to a world that is fluid, mouldable, and ever-changing, every part of which is continuously and tightly interconnected with every other, in ways that are subtle and often imperceptible.

In light of this emerging paradigm, Einstein's theory of relativity provided the crucial turning point, which firmly established this new understanding of the nature of reality. Its breakthrough was founded and effectively consisted in the radical contestation of the meanings of the core concepts of space and time. Einstein instigated a transformation in the very conceptual foundations of physical science, with startling philosophic and social repercussions.

Specifically, through his studies of the behaviour of light, Einstein realised that space and time do not function as objective, absolute and separate entities.[140] The common usages of those terms (still largely Newtonian in their signification) appeared to refer to a

[138] Einstein, *Physics and Reality*, p. 371.

[139] Ibid. 365.

[140] Heisenberg, op. cit., pp.110-112.

structure of space and time that is 'an idealization and oversimplification of the real structure'.[141] Instead, Einstein showed that 'space-time is not necessarily something to which one can ascribe a separate existence, independently of the actual objects of physical reality.'[142] Individual entities are ingrained in their context, but space is also ingrained in bodies. Entities and their space are constantly found in a dialectical and mutually-shaping relation. What is more, the two 'conceptual entities' of space and time are also not independent of each other, but in reality, function as one 'being'. Einstein referred to this phenomenon as the 'space-time continuum', since time was discovered to be an integral feature of space—its fourth dimension. 'From a "happening" in three-dimensional space', he wrote, 'physics becomes, as it were, an "existence" in the four-dimensional "world".[143] Consequently, space and time could no longer be treated as designating the a priori, objective background against which events and beings unfold, as 'merely the arena in which the drama of the universe is acted out', but rather, as themselves 'part of the cast', dynamically interacting with the rest of the actors.[144] Just like the other members of the cast, space and time were shown to be mouldable, changing, liable to interaction and thus dependent upon and inherently interwoven with the rest of actors and events making up the play.[145] The rigidity and immutability of space, on the one hand, and the objectivity of time, on the other, were shown to be illusionary.

In this way, Einstein's theory demonstrated that even the simplest phenomena, whose objective actuality we tend to take as granted (for instance, the simultaneousness of

[141] Ibid. 101, 102, 105.

[142] Einstein quoted in Weinert, op. cit.

[143] Ibid.

[144] Davies, *Introduction,* in Heisenberg, op. cit., p.3.

[145] Ibid.

events or their 'objective' temporal order[146]) are not, in reality, *absolutely* valid. Rather, their 'truthfulness'—and hence the accuracy of our observations—is *relative* and thus dependent upon our particular positions and points of view—in physicists' jargon, our specific 'frames of reference'. Einstein's argument regarding the 'unreality of time' was therefore founded upon the appreciation that there is not *one* but rather *many* frames of reference from which phenomena can be observed and explored; what is more, those are found in constant motion with respect to each other: 'each reference frame carries clocks, rigid rods and perhaps an observer; the motion of the reference frames determines different clock times (…); therefore the observers cannot agree on the simultaneity of two events and there is no absolute simultaneity as in Newton's mechanics. As observers cannot agree on the simultaneity of events across different reference frames (…) the passage of time seems to be a human illusion in the sense that there is no objective, observer-independent *Now*'.[147] In Einstein's words, this new understanding 'destroyed' the absolute character of time,[148] and along with it, the conviction that there exists just one, overarching, absolute focal point of observation, from which absolute statements about reality can be formulated. The old understanding of a discretely arranged, discontinuous world of absolutes was overturned. In its place, a new view of the structure of reality arose which saw the world as a complicated tissue of events, 'in which connections of different kinds alternate or overlap or combine and thereby determine the texture of the whole'.[149]

The semantic transformation of the science of physics—particularly of its core concepts of matter, space and time—came hand-in-hand with the radical

[146] For instance, simple statements one makes in everyday life, of the kind 'Simon rung the bell as soon as Irene entered the room'.

[147] Einstein quoted in Weinert, op. cit. As we saw in the previous chapter, this idea deeply influenced other areas of social life, such as the Arts.

[148] Einstein, *Physics and Reality*, p. 367

[149] Heisenberg, op. cit., p. 95.

reconceptualisation of the concept of force. In his monumental *General Theory of Relativity*, published in 1916, Einstein submitted the thesis that Newton's law of universal gravitation, and the effects of gravity—which, as we saw, could not be explained without the metaphysical postulation of 'some mysterious influence emanating from their summit' (in Russell's words)[150]—could now be described solely in terms of space-time, and particularly its property to curve.[151] The same could be said about centripetal forces. Einstein's research demonstrated that what was previously called force is, in fact, nothing more than an *effect* ensuing from the way space-time is structured. As Russell explains, 'bodies move as they do because that is the easiest possible movement in the region of space-time in which they find themselves, not because "forces" operate upon them'.[152] Given that space-time is curved and constituted by a variety of overlapping fields, this implied that the patterns of motions of bodies—and the changes in those motions producing what were previously perceived as 'forces'—ensue from the particular geometrical configuration of the regions of space-time where those bodies are found. Accordingly, Einstein attributed the acceleration of bodies and their patterns of motion to the very *nature of space*, and thus, conceptualised force as obtaining merely from the participation of an agent within a particular field.

The most crucial repercussion of relativity theory was that it no longer made sense to talk about an external force *causing* an entity in the field to change its state or pattern of motion. Consequently, the concept of force was entirely substituted by—or, at any rate,

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150 Bertrand Russell, 'Philosophical Consequences of Relativity', in *Encyclopaedia Britannica*, 13th ed. (1926). Accessed at: http://www.personal.kent.edu/~rmuhamma/Philosophy/RBwritings/philoConsequence.htm.

151 Leopold Infeld, *Motion and Relativity* (New York: Pergamon, 1961), p. 10.

152 Russell, op. cit.

reduced to—the concept of the field.[153] Force could no longer be assigned as a *property* of individual bodies, but rather a property of the *structure* wherein those participate. The very concept of force was almost made redundant: being reduced to the properties of space and the relations between space and bodies, 'force' became a purely relational notion 'almost ready to be eliminated from the conceptual construction altogether'.[154]

Although, as discussed earlier, the terms 'force' and 'power' are usually used interchangeably in the science of physics, nevertheless, a measure of power *per se* is encountered in Einstein's physical calculations. In his theory, power refers to the rate of change of force and it is measured as the sum of a force times its velocity. As the rate of change of force, power signifies a relatively more macroscopic manifestation of force that only obtains after a force has been established in time, in which it exhibits motion. Power is thus intrinsically connected to force, and therefore, like force, it is equally relational and intimately connected to the idea of space.

In order to discern the morphological changes occurring in the concept of power during the 21st century, let us return to the conceptual features of force in classical physics to trace in what ways, and to what extent, the concept's core was transformed as a result of the new way of thinking about power which emerged in the context of relativity theory. First, as a result of the introduction of field theory, the semantic content of the concept of matter—an essential feature of Newton's concept of force—was so profoundly altered that it ceased being necessary for accounting for phenomena of force. Having been reduced to the broader notion of the *field*, it became possible to speak about force without invoking *matter*. This entailed an important departure from a conception of force which was largely materialistic, towards a more structural and relational reading of the concept—a turn in the

[153] Einstein, *Physics and Reality*, p. 369.

[154] Jammer, *Concepts of Force*, p. 7.

perception of force which, as we shall shortly explore, culminated in the introduction of quantum theory. The elimination of the concept of *matter* from the conceptual construction of force was moreover accompanied by its substitution with the new concept of *energy* which was inserted in its place—although not at the core, but rather the periphery.

Second, the reconceptualisation of space implied that this concept still remained a core feature of power, however, its new semantic delineation conduced to the formulation of a significantly different portrayal of the nature of force. Whereas, previously, force was perceived in terms of mechanics (i.e. it was related to the ideas of tangible interaction, pushing and pulling, muscular action and macroscopic motion), the substitution of the concepts of *field* and *energy* for the concept of *matter*, along with the reinterpretation of *space* as an active agent, implied that force too could now be understood as a subtler, more fluid and intangible property of the world. Force became perceived as an omnipresent condition, a property which expands through the entirety of the space-time continuum as a stream or flow of energy, irrespective of tangible interactions and mechanical phenomena. For relativity theory, force is ever-present without requiring visible, palpable and demonstrable phenomena; it works silently yet unremittingly, imperceptibly yet pervasively. To discern its operations, one has to look behind the veil of phenomena, into the very structure of experience and its deeper properties. At any rate, positing the existence of force as a matter of spatiality, as 'inseparably bound up with the existence of space',[155] meant that the concept of *space* came to occupy a cardinal position within the semantic core of the broader idea of power.

The postulation of force as a property of space and not a property of bodies implied that it no longer made sense to talk about force in terms of intentionality or causality—or,

[155] Albert Einstein, *Ether and the Theory of Relativity* (London: Methuen & Co., 1922), p. 21.

at any rate, there could be no direct account of cause.[156] The effects an observer identifies as phenomena of force do not exactly obtain *because* an actor acts upon another, but rather manifest by virtue of certain properties of space which induce them. Consequently, the concept of *cause* was eliminated from the conceptual construct of force, and the same happened with the concept of *resistance*, as the latter was tightly linked to a mechanistic and causal interpretation of force relations.

Furthermore, although the concept of *relation* persisted in force's conceptual core (acquiring an even greater weight and significance), the theory of relativity reconceptualised the understanding of the very nature of *relation* itself. Interactions of power could still be regarded as obtaining from the relative positioning of bodies in space, and the relation between space and bodies. Yet, both of those major types of relations became understood in a different light. It is not only that bodies or actors were perceived as primarily defined by space and their relation to it. It is also that space itself was shown to be open to change, mutation and transformation, rather than an inert, absolute, objective, uninvolved background. What is more, the relationship between actors or agents co-constituting a field was assigned a different character. As Russell notes, in relativity theory 'bodies thus become far more independent of each other than they were in Newtonian physics'; and he helpfully adds, 'there is an increase of individualism and a diminution of central government, if one may be permitted such metaphorical language.'[157] Bodies are no longer perceived to be in a constant struggle of force between them, as with the case of Newtonian forces. Their properties and 'state of force' do not obtain so much from their mutual interactions, as much as from their positioning and relation vis-à-vis the spatial structure wherein they participate.

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[156] Heisenberg, op. cit., p. 3.

[157] Russell, op. cit.

Under the relativity interpretation, therefore, the concept of force underwent a profound morphological transformation. The main conceptual attributes of the relativity interpretation of power can be summarised as follows. Given that force is postulated as an intrinsic property of space-time—i.e. of the structural framework wherein physical events are constituted—Einstein's reading effectively offers a structural interpretation of power in physical thought. Force is no longer regarded as an intrinsic property of matter; it does not dwell within bodies or actors, therefore it cannot be viewed as a possession or intrinsic attribute of theirs. Accordingly, the issue of power ceases being an issue of bodies or actors. Power is not about one thing doing something to another with observable physical effects. It does not emerge solely from the concrete interactions between actors, and therefore, it does not rise and fall with the emergence and completion of particular manifestations and incidences. It is still relational, but under this interpretation, the type of relation that appears at the forefront of conceptual salience is that between the actor and the structure (rather than that between actors). Being a property of space, force is everywhere and ever-present; it is an ubiquitous feature of life which, in contrast to Newton's theory, does not require any metaphysical justification, since its existence is imputed to the active operations of a shared background ontological structure. Force, thus, provides the background hub of all natural life.

V. The Quantum Leap: A Paradigm in Development

The newly emergent field of quantum physics is a far more complex discourse than its predecessors. Its current state is distinctively characterised by a sense of mystery and incomprehensibility, as well as an ever-expanding set of puzzling quandaries which scientists currently attempt to address by introducing theories that stretch the limits of our thinking, closer to the realms of science fiction rather than traditional science. This state of affairs is widely recognised even amongst quantum physicists. As Richard Feynman

famously claimed, 'I think I can safely say that nobody understands quantum mechanics'.[158] When such a statement comes from one of the leading quantum physicists, one can only imagine the magnitude of the task which befalls the philosopher—let alone the student of politics—who endeavours to explore this intriguing area of human thought.

A crucial point which must be clarified from the outset is that the paradigm and discourse of quantum physics is still in development: the quantum project to specify the nature of power is a work-in-progress. Consequently, the proposed models of force to which the paradigm aspires, the relevant debates around their decontestation and the processing of their possible theoretical ramifications are still largely unresolved. It would thus be misleading to attempt to discern a systematised morphology of the quantum view of power, when that still does not quite exist yet. The focus of the present enquiry therefore shall be directed towards presenting the core conceptual premises of this new paradigm in physical thought, including some of the relatively more widely accepted features of power which it has—at least thus far—introduced in the current discourse.

The field of quantum physics developed in parallel to Einstein's theory of relativity in the early 20th century. Its emergence was immediately related to the expansion of technological capacities at the time, which had enabled further and more accurate research into nuclear phenomena. Whereas Newtonian physics was largely concerned with the external motions of bodies in the purportedly objective "scene" of space and time, and while relativity theory engaged with the study of the subtler manifestations of energy, including the forces of electromagnetism, quantum theory attempted to explore the functions of nature at an even deeper level of matter: it sought to delve deeper into the mechanisms of atoms and sub-atomic particles.

[158] Richard Feynman, *The Character of Physical Law* (London: Penguin, 1965), p. 129.

The beginning of quantum physics can be traced in Max Planck's quantum hypothesis. That referred to the ground-breaking observation that light exhibited a dual nature: it could either be interpreted as consisting of waves or of light quanta, 'energy packets travelling through space with high velocity'[159] ('photons'). Sometimes it manifests as a wave, while at other times as a particle. Yet, in studying its behaviour, scientists could not determine how, why or when light would express the one or the other nature.

The founding assumption of quantum physics was epistemological. Before the quantum interpretation, a prevalent view amongst physicists was that objective observation is a possible—and, in effect, defining—feature of science; this meant that physicists could proceed with their observations without mentioning themselves as individuals, without incorporating any subjective element in their science. Classical physics had established an idealised view of the world in which the observer-scientist was regarded as entirely separated from the object of his science, capable of producing purely objective and detached descriptions of reality. It was precisely this founding and deep-rooted assumption which quantum physics challenged radically. As Heisenberg explained, the new paradigm asserted that 'we cannot disregard the fact that natural science is formed by men (…) Natural science does not simply describe and explain nature; it is part of the interplay between nature and ourselves; it describes nature as exposed to *our* method of questioning'.[160] Man as the subject of science is an integral part and factor into the process of observation. Whereas previous paradigms considered that observations do not create reality but merely uncover it, the new experimental observations of the microcosm by quantum physicists showed that our observations of reality 'inevitably intrude into and

[159] Heisenberg, op. cit., p. 21.

[160] Ibid. 69.

disturb the world'.[161] Their experiments demonstrated that by observing, say, an electron, the physicist influences its behaviour; for this reason, they claimed, observation can never be entirely objective. The possibility of a purely objective observation was consequently debunked, and along with it, the objectivity of the reality of the external world.

Quantum physicists discovered that the lack of objectivity, and thus the indeterminism involved in science, is not simply a feature of its methods; rather, indeterminism is a marking feature of *the nature of reality itself*. This ontological verdict is found at the heart of the quantum discourse and was first articulated in the form of the 'uncertainty principle' developed by Heisenberg in 1927. Heisenberg's uncertainty principle introduced a peculiar, yet extremely popular, idea which states that 'all physical qualities that can be observed [in nature] are subject to unpredictable fluctuations, so that their values are not precisely defined'.[162] His relevant equations demonstrated that, for instance, it is just not possible to observe the precise *position and* the pattern of *motion* (momentum) of a sub-atomic particle, such as an electron, *simultaneously*. However, uncertainty or indeterminism is not simply a result of observational limitations or of the fact 'the experimenter is merely too clumsy to measure the position and momentum simultaneously'.[163] The revolutionary finding of this discovery consisted in showing that physical particles simply *do not possess* precise values of these two physical attributes simultaneously. This meant that the standard models of both Newton and Einstein, which described a given arrangement of matter in space and, in the case of Einstein, a given pattern of arrangement of space itself, were in fact providing a misleading image of the microcosm. Quantum experiments showed that sub-atomic particles do not move according to pre-determined, well-defined paths or patterns of arrangements, such as, for

[161] Ibid. 8.

[162] Ibid. 4.

[163] Ibid.

example, the standard and well-known model of a central nucleus and electrons circling around it in distinct orbits. In the peculiar world of the microcosm, particles exhibit alternative kinds of behaviour and perform unpredictable types of motion. As a result, 'any talk of what is really going on is just an attempt to infuse the quantum world with a spurious concreteness for ease of imagination'.[164] However, this does not imply that nature works anarchically. Quantum physicists developed mathematical models which assign probabilities to a number of different possible behaviours, thereby tracing broad patterns of order and organization in nature. A probabilistic, and hence statistical, approximation of natural phenomena is thus still possible. Yet approaching nature through probabilities is another way of acknowledging that chance is one of its inherent elements.[165]

In terms of its conceptual structure, quantum physics involves what many of its pioneers have identified as a 'paradox'. Despite its revolutionary interpretation of the nature of reality and our relationship with it, quantum physics incorporates the conceptual systems of both Newtonian and relativity physics into one synthetic coherent construct.[166] In line with Newton's laws, it accepts the mechanical motions of atoms; however, at the same time, it recognises the validity of the relativity interpretation of gravitation as a property of space. Particularly, it works both with the ideas of *matter* and *energy*, *space* and *time*, *field* and *mechanical force*, *difference*, *relation*, and *causality*. It does not discredit the previous conceptual features according to which phenomena of nature—including phenomena of force—are described, since it uses the basic concepts of *time*,

[164] Ibid. 10.

[165] Ibid. 3-7. For a more comprehensive discussion of this position, see Erwin Schrödinger, *What is life?: The Physical Aspect of the Living Cell* (New York: Cambridge University Press, 2012); and Robert Bruce Lindsay, Henry Margenau, *Foundations of Physics* (Woodbridge Connecticut: Ox Bow Press, 1981), Ch. IX, pp. 387-501. Some critical reflections on the quantum interpretation appear in A. Einstein, B. Podolsky and N. Rosen, 'Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?', *Physical Review*, Vol. 47 (1935), pp. 777-780.

[166] Heisenberg, op. cit., pp. 89-94. Lindsay and Margenau, *Foundations of Physics*, pp. 395-399.

mass, *force*, et cetera. What the originality of the new paradigm of quantum physics mainly consists in, however, is that those basic concepts are partially assigned certain new meanings, while their descriptive limits are recognised, as a result of inserting the central notions of *probability* and *uncertainty* at the core of the paradigm's conceptual structure.

An entirely novel discovery of quantum theory is the phenomenon of quantum entanglement. This idea states that particles, such as photons, present the remarkable quality of exchanging information. Entangled particles 'act as twins still joined by an umbilical cord (…); what happens to one member automatically affects the other (…) although they may be separated by a large distance'.[167] The groundbreaking observation that particles of matter can communicate with each other entails the striking philosophical implication that the Cartesian and Newtonian postulation of matter as separable from cognition is no longer attainable. Matter and information can no longer be sharply contrasted; rather, the two appear to be fused together in the fabric of reality.

Regarding its conception of force, quantum physics interestingly returns to a Newtonian interpretation of force as a tangible interaction, without, however, eliminating the concept of energy from its descriptions. Its theory is synthetic. It submits the novel idea that sub-atomic *particles* interact with each other by emitting and absorbing photons (particles of light) that are responsible for transmitting electromagnetic forces. And yet, these photons are 'virtual', in the sense that 'they cannot be seen or detected in any way'.[168] Consequently, force becomes mediated through a series of exchanges between particles, which are not sense-perceptible, and therefore *are* and *are not* tangible.

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[167] Michio Kaku, *Parallel Worlds* (London: Penguin, 2005), p. 177.

[168] James Schombert, '*21st Century Science Lecture Series'*, University of Oregon, Online Resource, Accessed at: http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec17.html.

The quantum idea of force is particularly captured by the notion of *frequency*, which quantum physicists use as the new measure of power. Interestingly enough, these virtual photons, which serve as the 'messengers' or carriers of force, do not exist outside the interaction. This implies that force is no longer interpreted as a form of action at a distance, as in relativity, but appears to partially return to its older Newtonian interpretation, which suggests that force is a result of tangible contact between bodies—in this case, direct contact of photons. Nevertheless, in the quantum version, this 'tangible' contact is inherently mediated and constituted by *intelligible* properties—i.e. information. This lends a new dimension to the old mechanical paradigm, while completely overturning the Cartesian duality upon which the latter was axiomatically premised.

Having comparatively studied the conceptual features of power in the major paradigms of physics, let us now return to the more familiar terrain of political theory in order to reflect back on the conceptual insights gathered from this interdisciplinary study of power across epistemic disciplines. In what follows, we shall examine possible interpretative implications, trajectories and connections between different paradigms of 'power' in the fields of physics and political theory respectively. We will explore the insights and the hermeneutic outlooks elicited from the interdisciplinary comparison between accounts of power in each respective field.



CHAPTER VI.

POWER AND SPACE IN POLITICAL THEORY:

CONCEPTUAL FORMULAE

'*The nineteenth century found its essential mythological resources in the second principle of thermodynamics. The present epoch will perhaps be above all the epoch of space. We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. We are at a moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skein. (...) I believe that the anxiety of our era has to do fundamentally with space, no doubt a great deal more than with time. Time probably appears to us only as one of the various distributive operations that are possible for the elements that are spread out in space.'* (Michel Foucault*, 'Of Other Spaces'*) [1]

'*Space is fundamental in every form of communal life; space is fundamental in any exercise of power.'* (Michael Foucault*, 'Space, Knowledge, Power'*) [2]

'*Space is a social morphology: it is to lived experience what form itself is to the living organism, and just as intimately bound up with function and structure.'*

(Henri Lefebvre*, 'The Production of Space'*) [3]

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[1] Michel Foucault, 'Of Other Spaces', *Diacritics* (Spring 1986), pp. 22–27.

[2] Michael Foucault, 'Space, Knowledge and Power', in Michael Foucault, *Essential Works of Foucault 1954-1984*, Vol. 3, James D. Faubion (ed.) (London: Penguin, 2002), p. 361.

The exposition of the main theories of power in physics explored in Chapter V can be used as a helpful heuristic for detecting, 'unlocking' and understanding some important features exhibited by the conceptual and cognitive structures underpinning major currents of modern political thought—and particularly their interpretations of power. This chapter begins with a discussion of some probing similarities between major conceptual 'parallel' paradigms of scientific and political thinking, from Newton's time until the later 20th century. In light of the preceding analysis, the present examination explores the important insights that the juxtaposition of the parallel conceptual histories of the two discourses can generate for political theorists. The discussion places physics and politics 'side by side' in order to elicit from their de facto as well as engineered proximity constructive hermeneutical visions for interpreting the concept of power in political thought.

Having applied methods of conceptual analysis, and particularly ideology, to the analysis of scientific discourse and the various paradigmal conceptualisations of 'power', we now finally turn to the task of discerning how those conceptualisations and hermeneutic approaches have been diffused into the broader philosophical discourse of society, influencing the semantic construction of power in political thought. The following analysis thus traces specific hermeneutical approaches to power in political theory in light of the boundary-crossing processes of semantic transfers, metaphorisations and shifts of meaning between scientific and political discourses, which result from the incorrigible metaphorical surpluses and the essential contestability of concepts, which defy rigid definitions, in both epistemic areas. Appreciating that 'politics and political language, consciously or unconsciously, adopt scientific concepts or figures' and that this, therefore, 'indicates that a political analysis proceeds not only from traditional and explicitly

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[3] Henri LeFebvre, *The Production of Space*, Donald Nicholson-Smith (transl.) (Oxford: Blackwell Publishing, 1991), p. 94.

political concepts (…), but rather must also include hybrid concept forms',[4] this examination espouses the view of 'power' as a hybrid concept and explores some of its key political articulations through the heuristic lens of the following core questions: what paradigmal views and what kind of connections, diffusions, traces, connotations can be found to circulate between the two areas as far as their respective conceptual approaches to power are concerned? How can the appreciation of the contributions of scientific thought to the socio-political construction of power enhance our understanding of the concept's essential and contingent features? In what ways can it enable us to envisage new possible constructive interpretative routes in the hermeneutics of power?

It is hoped that through a renewed understanding of the broader processes of conceptual formation involved in political thought, a broader sense of possibilities of interpretation can be unleashed. Equipped with a broader sense of possibility, we may find ourselves more readily able to 'break the spell of our own intellectual heritage',[5] increase our awareness, and thus possibly be liberated from the grip of hegemonal accounts of core concepts such as power, which have restrained the sight of our interpretative horizons. In this way, we may approach their hermeneutics in a new spirit.

After exploring the broad analogies between patterns of thinking in physics and politics, the analysis turns to the examination of the 'spatial' turn in the study of power. This relatively recent trend in thinking about power is traced as immediately connected to the effects that the radical reconceptualisation of the notions of space and time in physics has entailed for the self-perception and self-understanding of political societies. Finally, the chapter explores three main conceptual formulae through which the concepts of space

[4] Ernst Muller, 'Introduction: Interdisciplinary Concepts and their Political Significance', *Contributions to the History of Concepts*, Vol. 6 (2) (2011), p. 53.

[5] Quentin Skinner, *Visions of Politics Volume I: Regarding Method* (Cambridge: Cambridge University Press, 2002), p. 6.

and power have been interrelated in the context of political theorising. It identifies areas of overlap between the core features assigned to power by physical and political theories respectively. Those conceptual interactions are not treated as transfers of supposedly fixed meanings from one area onto the other, but rather as more complex fusions and dynamic interdisciplinary exchanges. The discussion concludes with a possible hermeneutical approach to the core features of the spatial approach to power, which arises from a conscious and creative reflection upon the findings of our morphological analysis.

I. Worldviews and Political Ontology

As explored in Chapter IV, it is possible to trace important conceptual analogies between visions of the world provided in sciences—especially physics—and visions of the political provided by political thinkers. Before proceeding to a more thorough exploration of the substantive conceptual and theoretical exchanges between scientific and political worldviews, and their respective views on power, it is crucial to provide certain introductory remarks.

The major connecting link between the two 'kinds' of visions, understood as projective-heuristic interpretations of the world, both constituting vital inputs to the formulation of collective worldviews is, effectively, formed upon the shared importance that ontological visions and presuppositions occupy in both.[6] Indubitably, the term 'ontology' is not a particularly 'comfortable' term for many contemporary political

[6] It is important to remind the reader that, as rigorously explained in Chapter IV, the present parallel exploration of paradigms and discourses of power in physical and political theories respectively is not premised upon an ontological comparison between them, but rather upon discursive-conceptual grounds. At this point, what is explored is how those semantic-conceptual and generally ideational interactions, transfers, and exchanges have occurred at the level of the conceptual construction of their respective ontologies *without*, however, engaging into the study or substantive assessment of those ontologies *per se*. Therefore, it is a discursive comparison of their ontologies and not an ontological juxtaposition of their discourses.

theorists. Indeed, 'contemporary political thought is deeply divided about the role of ontology in political thinking'.[7] In the past few decades, a more dismissive stance towards ontology appears to have dominated the field, the result being that numerous political theorists nowadays consider the relationship between political analysis and ontology less strong, less imminent and less important than most of their earlier predecessors. At the same time, the term 'ontology' has gradually become invested with a nuance of obscurity, as well as an underlying sense of agony and uneasiness regarding the possible inklings of determinism involved in the postulation of pre-given natural features of human beings and societies. This effect is partly owed to the dominance of analytic philosophical approaches in the field, which have been deeply influenced by the Rawlsian stance that 'ontological claims, that is, presuppositions about the constitution of agents and the social world, need to be avoided in political thought'.[8]

Yet, the choice to neglect ontological questions does not amount to a proof of their substantive irrelevance for political theorising. On the contrary, the field of political research has recently witnessed a re-turn towards reflection on ontological issues, marked by the revival of political theorists' interest in questions concerning the nature of individuals, the nature of the state, and the interaction of their respective ontologies in the process of political association. The 'ontological turn'—as it is referred to—rekindles the argument for the 'inescapability of ontology',[9] reinforcing the rather longstanding idea that ontology is a fundamental pillar of political thought, since 'no political analysis has

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[7] Irena Rosenthal, 'Ontology and Political Theory: A Critical Encounter between Rawls and Foucault', *European Journal of Political Theory*, (2016), pp. 1-21; 1. Available at: DOI: 10.1177/1474885116659633.

[8] Ibid.

[9] Michael Bacon, *Pragmatism and The Ontological Turn in Political Theory*, available at: https://epc2.sciencesconf.org/file/167003 [Accessed 10/9/2016].

ever been ontologically neutral'.[10] Ontological postulations are an ineliminable feature of political thinking and political theorising, regardless of the fact that 'rather fewer political analysts are prepared to proceed today on the basis of this once unacknowledged and unchallenged presumption'.[11] The significance of ontological commitments often goes unnoticed precisely because ontological claims tend to take the form of unstated or pre-theoretical assumptions. In Philip Pettit's words, 'every political theory, every theory as to how the polity ought to be constituted and governed, presupposes an account of the relationships and structure in virtue of which individuals in a polity constitute a people, a nation, and a state: if you like, it presupposes a political ontology.'[12]

A re-appreciation of the important analytical, heuristic but also productive role of ontology in political theorising has recently led more and more thinkers to engage in the critical investigation of the ontological commitments of political thought.[13] This has pointed to 'a consistent disparity between the often tacit and normalized analytical assumptions of existing mainstream approaches to political analysis and those which emerge from sustained ontological reflection'.[14] According to Colin Hay, as the discipline has recently become 'more reflexive and perhaps rather less confident than it once was at

[10] The idea is of course longstanding, in fact ingrained in political theorising from its very beginnings. It suffices to recall Aristotle's erudite exposition of human nature in *Nichomachean Ethics*, Plato's extensive account of the nature and faculties of the soul in the *Republic*, and of course 17th century British political thinkers, including Thomas Hobbes and John Locke, whose political models proceed from and upon in-depth analyses of human nature. Demonstrative are Hobbes' remarks in the *Leviathan*, where he claims that the 'Civil Right of Sovereigns, and both the Duty and Liberty of Subjects' is found 'upon the known natural Inclinations of Mankind'. Thomas Hobbes, *Leviathan* (f.p. 1651), Richard Tuck (ed.) (Cambridge: Cambridge University Press, 1996), p. 489, 491.

[11] Colin Hay, 'Political Ontology', in Robert E. Goodin, Charles Tilly (eds.), *The Oxford Handbook of Contextual Political Analysis* (Oxford: Oxford University Press, 2008), p. 78.

[12] Philip Pettit, 'Rawl's Political Ontology', *Politics, Philosophy & Economics*, 4 (2) (2005), pp. 157-174; 157.

[13] Rosenthal, op. cit.

[14] Hay, op. cit., p. 94.

the ease with which it might claim a scientific license for the knowledge it generates, so ontological concerns have increasingly come to the fore.'[15] Political theorists have begun to re-cognise the importance that ontological theorising plays in setting, re-introducing the term 'ontology' back into our political vocabularies while interpreting and attempting to provide answers to questions concerning social, political and ethical affairs. Indeed,

> "Political philosophy forces us to enter the terrain of ontology," declare Michael Hardt and Antonio Negri. Ernesto Laclau recently said that he has "concentrated on the ontological dimension of social theory" (…) because it "requires a new ontology". Such investment in ontology is important in much recent self-avowedly leftist political theory. Giorgio Agamben's critique of the state of exception and of today's concentration camps is intimately tied to his ontological reflections regarding our potential existence beyond sovereign power: "until a new and coherent ontology of potentiality" has been found, he argues, "a political theory freed from the aporias of sovereignty remains unthinkable". Likewise, Alain Badiou's political writings are intertwined with his mathematical ontology of set-theory, and Slavoj Zizek's exhortation to return to the legacy of Lenin in order to combat global capitalism remains inseparable from his ontological determination of capital as the real.[16]

The 'ontological turn' effectively consists in the unravelling and unpacking of those tacit ontological assumptions underpinning political thought, and the critical investigation of implicit ontological commitments.[17] Its major aim is not to immerse into some form of abstract philosophical theorising, but, rather, to 'develop alternative ontologies to more

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[15] Ibid. 78.

[16] Carsten Strathausen, 'A Critique of Neo-Left Ontology', *Postmodern Culture*, Vol. 16 (3) (2006*), Project MUSE*, doi:10.1353/pmc.2006.0031.

[17] Rosenthal, ibid.

conventional political ontologies'.[18] Numerous leading theorists nowadays support the view that evolution in descriptive and prescriptive political theorising necessitates an evolution in ontology; new ontologies are required to support and yield new social and political theories, which, in their turn, can serve as foundational cornerstones for the emergence of novel political practices and forms of political expression and association.[19]

The question which arises is, in what ways, via which interpretative channels and from what kind of epistemic resources, do political theorists, as well as individuals engaging in the all-pervasive 'master thought-practice' of political thinking, draw elements, features and semantic resources by means of which they construct the underlying semantic and conceptual structures of their political ontologies? As we saw in the previous discussions, those 'sites' may be numerous, but scientific thought is certainly one of the most prominent amongst them. The main reason for that is that scientific concepts exhibit a level of genericality, ontic pertinence and constructive ambiguity, which allows political concepts to tie into them in a strategic sense.[20] In this respect, an inquiry into the conceptual exchanges between scientific and political thinking sheds light upon one of the major connecting links between scientific ontology and political ontology.

II. Parallel Histories: Views and Visions of the World in Physics and Politics

How do core concepts and semantic presuppositions of scientific paradigms relate to the socio-political construction of core concepts and axioms underlying political ontologies, theories of political thought and hermeneutic renditions of 'power'?

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[18] Ibid. 2.

[19] O. Marchart, *Post-Foundational Political Thought: Political Difference in Nancy, Lefort, Badiou and Laclau* (Edinburgh: Edinburgh University Press, 2007). S. White, *Sustaining Affirmation: The Strengths of Weak Ontology in Political Theory* (Princeton, NJ: Princeton University Press, 2007).

[20] Muller, op. cit., p. 51.

The political study of the theoretical-conceptual-semantic connections between scientific and political paradigms, and their recognition as determinants of developments in political thought, has not been absent from the field. However, such study has been fairly limited, and its position mostly marginalised from mainstream academic discussions. Decoding shifts in the structure, content and logic of political thought, in light of ideational shifts which were prompted by the radicalisation of collective worldviews instigated by scientific revolutions, gained some momentum around the late 1950s-60s,[21] though it appears that our times witness a resurge of academic interest in the topic.[22]

A number of theorists have explored some of the similarities between constructions of natural and social worldviews, paying particular attention to the ways in which the conceptual foundations of political theory are shaped and prompted by the core conceptual features of natural theories. In light of the comprehensive discussion of the latter in Chapter V, this line of theorising is now taken a step forward by providing a more analytical account of the features and processes involved in those dynamic interdisciplinary intellectual exchanges. Taking a closer look at the semantic and conceptual interactions between the two fields, we observe that political theorists have tended to import semantic traces, metaphors, ontological presuppositions and *ways* of thinking from the sciences, particularly projecting the *conceptual* models provided by the

[21] James A. Robinson, 'Newtonianism and the Constitution', *Midwest Journal of Political Science*, Vol. 1 (3/4) (Nov. 1957), pp. 252-266; Karl W. Deutsch, 'Mechanism, Organism, and Society: Some Models in Natural and Social Science', *Philosophy of Science*, XVIII (1951), pp. 232-41; M.C. Jacob, *The Newtonians and the English Revolution 1689-1720* (Brighton: Harvester, 1976).

[22] Bruno Latour, *We Have Never Been Modern* (Cambridge: Harvard University Press, 2006); Luce Irigaray, *Parler n'est Jamais Neutre* (Paris: Editions de Minuit, 1987); Richard Striner, Political Newtonianism: The Cosmic Model of Politics in Europe and America', *The William and Mary Quarterly*, Vol. 52 (4) (Oct. 1995), pp. 583-608. Theodore L. Becker, *Quantum Politics: Applying Quantum Theory to Political Phenomena* (Praeger, 1991).

three main physical paradigms regarding the nature and function of the natural world onto the explanation of the nature and function of the political world.

The examination of those parallel histories shall be analytically guided by the basic conceptual morphology of physical paradigms explored in the previous chapter. As we saw, all physical theories comprise at their core by some notion of (i) *matter*—or a *primary unit* serving as the major structural component accounting for the assembling of reality; (ii) *space and time*—which include the concept of motion, since, as we saw, motion qua change of position can be reduced to these more fundamental concepts; (iii) *a pattern of relation*, explaining how primary units interrelate with each other as well as with the entire natural construct. As the meanings assigned to those concepts and the interpretation of their interrelations change from one paradigm to another, so do paradigms result in the production of different interpretations of the nature of reality.

Newtonianism and Copernicanism in Physics and Political Thought

As we saw, the Newtonian conception of reality was premised upon the ideas of absolute space, absolute time, and thus, the possibility of absolutely distinguishable, discontinuous spaces and observations. Those conceptual foundations are intricately related to the 'old theoretical foundations' of political theory, which were concerned with, and premised upon, a view of the world as a world of 'absolutes'. The assumption of absolute space implied firm credentials for the objects and structures within it. At the time, one could talk about absolute positions and relations, absolute 'powers' and absolute authority. Similarly, a political world thus constructed was also a rigid world of rights, duties, monarchs, rules, and the absolute sovereign.[23] Moreover, Newton provided a particular mechanistic version of nature's patterns of operation, including a mechanistic interpretation of matter as

[23] William Bennett Munro, 'Physics and Politics—An Old Analogy Revised', The American Political Science Review, Vol. XXII, No. 1 (Feb. 1928), pp. 2-5.

inanimate, condensed, tangible, and perfectly ordered. He assumed that it is 'bodies' which form the primary unit of our reality, and furthermore that those indivisible bodies bear absolute and immutable properties given by nature. With the advent of the Newtonian paradigm in physics, gradually a new view and understanding of the world emerged in the 17th and 18th western societies. It did not take long until this new worldview spread not only all over western societies, but also across all areas of human discourse, especially political and social thought, where it assumed the form of 'Political Newtonianism'.[24]

Political Newtonianism gradually began to shift, and indeed quite radically, the perspective and political self-perception of humanity. As several scholars have argued, Newton's worldview replaced the older model of 'political Copernicanism' with a novel understanding of man's role in his polity, and a certainly more egalitarian and individualistic understanding of society. 'Political Copernicanism' had corresponded to the ontological view that, 'if the Sun was the unquestioned centre of the cosmos, so the King was the unquestioned centre of the state, and had therefore to be obeyed without question (…) Until the seventeenth century, the consequences of astronomical thought for politics tended to be authoritarian, either because it was designed to support royal power, or on account of the presumed subordination of human action to celestial law'.[25]

The Copernican material cosmology had served as the background ontological thesis underpinning, and at the same time founding, authoritarian visions of government, including the political thought of Thomas Hobbes. In fact, Hobbesian political thought was particularly influenced by scientific models of his time, including Galineanism. In line

[24] James A. Robinson, 'Newtonianism and the Constitution', *Midwest Journal of Political Science*, Vol. 1 (3/4) (Nov. 1957), pp. 252-266.

[25] Nicholas Campion, *Astronomy and Political Theory*, in D. Valls-Gabaud & A. Boksenberg (eds.), *The Role of Astronomy in Society and Culture Proceedings IAU Symposium*, No. 260 (2009), p. 598. Available at: https://www.researchgate.net/publication/231750227_Astronomy_and_political_theory.

with Galileo (of whom Hobbes was a great admirer), Hobbes considered the state to be mechanical in its working, just as the universe. 'Importing' this physical worldview onto the political, he designed his notion of the 'Body Politic' upon the cosmological reading of the 'Celestial Body' as a tightly regulated, well-ordered, mechanically operating machine, running on logically structured natural forces, rather than divine intent.[26] The mechanical reading of nature was intrinsically interwoven with the Cartesian conceptualisation of matter as inanimate, mechanistic and soul-less, which, as we saw in Chapter V, had greatly influenced Newton himself. As Hobbes writes, 'the universe, that is, the whole mass of things that are, is corporeal, that is to say, body; and hath the dimensions of magnitude, namely length, breadth and depth: also, every part of body, is likewise body, and that which is not body is no part of the universe: and because the universe is all, that which is no part of it is nothing'.[27]

Though still premised on the idea of absolute space and time, the originality of Newtonian cosmology consisted in its ground-breaking epistemology, which undeniably entailed serious ontological revisions to the existing hermeneutic status quo of his era. Whereas 'until the seventeenth century, the consequences of astronomical thought for politics tended to be authoritarian, either because it was designed to support royal power, or on account of the presumed subordination of human action to celestial law',[28] Newton's ontological rendition of the universe as subject to a single set of natural laws entailed the revolutionary implication that human society and its workings can also be seen as subject to the same laws. 'If kings and commoners are subject to the same laws then, the claim was made, the elevation of one over the other is contrary to natural law, setting the state on a collision course with the cosmos. (…) It was the conclusion which was radical: that

[26] Ibid.

[27] Hobbes, *Leviathan*, Chapter 46.

[28] Campion, ibid.

monarchical power as the expression of the cosmos should be replaced by the will of the people as the expression of celestial law'.[29]

The Newtonian worldview penetrated deeply into the collective thought environment of his time, offering an entirely different interpretation of *the nature of interrelations* between the units comprising the body politik, as well as a new set of meanings and structural logic behind the notion of 'law'. Newtonianism engendered a deeply transformative discursive potential, since it presented humanity with a new structural logic serving as the *modus operandi* of our universe. 'The consequences of Newtonianism permeate western thought, wherever there has been a search for a universal law based on supposedly hard data'.[30] It did not take long until this novel worldview spread all across the western world, marking a deep transformation in the foundations of political thought, and immediately after, political practice too. The seventeenth century became 'the era of 'demonstrative' systems of law and politics, the purpose being to assimilate all science, the social as well as the physical, as much as possible to a form which was believed to account for the certainty of geometry'.[31] Political thinkers across Europe and America saw the idea of a universe governed by a fixed set of naturally given, mathematically-ordered laws rather than random dictates of a central cosmic power, as translating directly into the political dictum of legal constitutionalism and the abolition of absolute monarchical power.[32] John Locke (a close friend of Newton[33]) premised his

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29 Ibid. 599.

30 Ibid. 600.

31 Sabine, quoted in J. Robinson, 'Newtonianism and the Constitution', p. 258.

32 And so, the notion of a universe governed by a single set of natural, mathematical laws, spread throughout Europe: by 1789 the *Principia* had been published in eighteen successive editions, supported by numerous popularisations, including forty in English, seventeen in French, eleven in Latin for conservative scholars, plus three German, one Portuguese and one Italian (Randall 1962, Vol. 1, p. 571).

33 Newton and Locke first met in London in 1689, became close friends and 'apparently influenced each other's thinking about philosophy, religion, and theology in various ways. For his part, Locke called him

Natural Rights theory upon the Newtonian idea that human rights are inherent in nature, just like natural laws are ingrained in the very structure of the world. Newton's *Principia* was read as a political rather than a mathematical treatise by American Revolutionaries, with immediate effects upon the drafting of the American Constitution. Indeed, 'the new science had a direct influence on the development of American constitutional thought. Basic to the Newtonian system were the great generalizations of a universe governed by immutable natural laws and of harmony as the pattern and product of these laws. The first of these gave new sanction to the doctrine of natural law; the second had much to do with the growing popularity of the Whiggish principles of balanced government'.[34] 'The government of the United States was constructed upon the Whig theory of political dynamics, which was a sort of unconscious copy of the Newtonian theory of the universe'.[35] Similar was Newton's influence upon the formulation of the ideological backdrop to the French Revolution, and especially upon Voltaire who, exalted by the grandeur of Newton's theory, 'argued strenuously that the lessons of astronomy should be applied to politics'.[36] Finally, another expression of political Newtonianism was the institution of human rights theory, which rendered the idea of 'natural law' into the notion

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the "incomparable Mr. Newton" on several occasions'. He wrote, 'the Commonwealth of Learning, is not at this time without Master-Builders, whose mighty designs, in advancing the sciences, will leave lasting monuments to the admiration of posterity; but everyone must not hope to be a Boyle, or a Sydenham; and in an age that produces such masters, as the great—Huygenius, and the incomparable Mr. Newton, with some other of that strain; 'tis ambition enough to be employed as an under-labourer in clearing ground a little, and removing some of the rubbish, that lies in the way to knowledge'. Quoted in https://plato.stanford.edu/entries/newton-philosophy/ [last accessed 23/4/2017].

[34] Clinton Rossite, *Seedtime of the Republic: The Origin of the American Tradition of Political Liberty* (New York: Harcourt, Brace and Co., 1953), pp. 133-34.

[35] Woodrow Wilson, *Constitutional Government* (New York: Columbia University Press, 1908), pp. 54-56.

[36] Campion, op. cit. p. 599. Voltaire was one of the greatest admirers of Newton in Europe at the time.

of ‘natural human right’, seeing the latter equally inherent and ingrained into the ontological fabric of reality as the former.[37]

Theories of politics in the 17th and 18th centuries internalised the newly introduced conceptual features of monadic and impermeable individuality vested with ‘inalienable and imprescriptible’ qualities. Munro identified this conceptual appropriation as the ‘atomic theory of politics’. Traditional political theories of government and the state, he argued, have been conceptually based on the classical atomic theory of physics, which postulates the atom as the basic fundamental unit structuring all creation. The atomic theory prevailing in the natural sciences up until the 19th century, portrayed the world as resting on solid foundations of indivisible and absolute units (atoms), interacting in clear-cut, mechanical ways against the backdrop of an *a priori* solidly-structured environment—absolute space and absolute time. The interplays between them in the context of an absolute ontological background, give rise to the formation of larger compound structures and systems. Interestingly, the conceptual foundations of classical political science of the same period were laid upon a similar perception of the world as consisting of social ‘atoms’—i.e. a world of abstract, primary and indivisible units serving as the basic structural materials of the world. This can be more demonstrably observed in synchronic political theories, such as Locke’s, Montesquieu’s, Bentham’s, and also, partly, Hobbes’ and Rousseau’s, to whom Munro refers as ‘abstract formalists’ exemplifying the ‘old foundations of political science’.[38]

The understanding of what stands as the ‘unit’ of the political was radically transformed in accordance with the shifting perception of what was taken to be the ‘unit’

[37] Ibid. 600. According to the Universal Declaration of Human Rights, ‘All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood’.

[38] Munro, op. cit., p. 4.

of natural organisation. The concept of 'atom' fused into social discourse, ultimately finding a discursively particularised expression in the field of political theorising, evolving into one of the basic metaphors structuring the foundations of post-17th century political thought: the concept of 'the individual'. The physical 'atom' was adapted in the emerging political worldview in and through the concept of the 'individual', assumed as the primary, ultimate and indivisible unit of political association and serving as the structural material in the synthesis of compound political formations, such as the state. The revised conceptual version of the 'political atom' was tightly interwoven with the adaptation of the Newtonian nomology model to political discourse. It became conceptually imbued with 'absolute naturally given rights' and duties, perhaps precisely because the adaptation of nomology into the form of natural rights theory *necessitated* the prior existence of solidly defined *units* of political organisation, assigned with greater degrees of importance.

Munro argued that the intellectual paradigm of the 'atomic mechanistic world' underpinned social and political theories even until his times, in the 1920s, since political theory was still operating on principles reflecting 'a series of ultimate and fixed uniformities'. The impact of Newtonianism upon political thought was mediated through its concomitant effect upon the emerging sciences of economics, sociology and psychology. The newly introduced notions of 'normality' and 'deviation', which dominated western psychology, were built upon the implicit understanding that human nature is inherently marked by a series of 'ultimate and fixed uniformities'—a view which was rooted in 'Newtonian cosmology's devotion to predictable order unrecognised and forgotten'. Indeed, 'when the word 'psychology' was coined around 1800, it was thought that, since Newtonian science explained everything that exists and occurs in the material world, there could and should be just one science explaining what exists and occurs in the

psychological world'.[39] Just like the cosmos, and human nature, so was the realm of political organisation approached discursively through the perspective of absolute, fixed uniformities:

> The science of government is still concerning itself with theories of absolute rights and duties, with old axioms about sovereignty and the general will, the sanction of law, the rule of public opinion, and the mass behaviourism of free and equal men and women who are assumed to be the ultimate atoms in the commonwealth. It is still in bondage to eighteenth-century deifications of the abstract individual man. Both the science and the art of government still rest upon what may be called the atomic theory of politics—upon the postulate that all able-bodied citizens are of equal weight, volume, and value; endowed with various absolute and unalienable rights; vested with equally absolute duties; and clothed with the attribute of an indivisible sovereignty. Under the influence of ideas which were borrowed from the old natural philosophy we continue to assume that the science of government can be a science only if it is based upon a series of ultimate and fixed uniformities.[40]

Another crucial boundary-crossing conceptual transfer instigating important shifts of meaning in the field of political thought concerns the revised Newtonian understanding of space as the absolute, passive and detached container or 'stage' wherein natural dynamics are played out. The paradigmal reading of natural space influenced the semantic and underlying metaphorical interpretation of political space. The latter was thus postulated as a neutral, a priori and 'innocent'[41] background against which the social world unfolds. Not only was space seen as passive, unagentic and immutable, without any social effects

[39] Campion, op. cit., p. 600; G. Ryle, *The Concept of Mind* (Harmondsworth: Penguin, 1949).

[40] Munro, op. cit., p. 4.

[41] Lefebvre, op. cit., pp. 25-26.

whatsoever (what recent critical theorists have described as the position of 'social separatism'[42]), but it was additionally postulated as a kind of abstract ontological tabula-rasa acting simply as an entirely transparent mediator of social activity.[43]

The view of political power ensuing from the interrelations of the above core concepts demonstrates, as well as reflects, the discursive embodiment of the patterns of thinking underlying the conceptualisation of its constitutive morphological features. The major resemblance between power's political rendition and the prevalent scientific worldview rests with the choice of perspectival angle characteristic of their respective hermeneutical views. In line with the macroscopic focus typical of natural sciences at the time, political thought, and its hermeneutic version of political power, were also 'macroscopically-oriented', mainly concerned with the management of 'macro' phenomena. Power was thus viewed as a 'macroscopic' phenomenon associated with concrete material, mechanical manifestations. It was interpreted as involving the control over 'bodies'—citizens perceived as units of mass—without much further consideration or focus on the more complex, subtle cognitive functions and intangible psychological structures exhibited by those 'political units', and thus also their power relations.

A major repercussion of political Newtonianism was that the concept of power was, until the 19th century, generally interpreted as a hybrid form of '*vis insita*' ['inherent/innate force'] and '*vis impressa*' ['impressed force']. Power was understood as *vis insita*, i.e. *a property owned* by individuals, as well as a *vis impressa*, in the sense of an *ability* of bodies to affect other bodies as a result of concrete, tangible interaction, that

[42] R. Sack, 'The Spatial Separatism Theme in Geography', *Economic Geography*, 50 (1974), pp. 1-19. See also David Harvey, *The Urbanisation of Capital* (Oxford: Blackwell, 1985), pp. 1-5.

[43] Lefebvre, op. cit., p. 27.

could bring about the mechanical results of dislocation, immobilisation or annihilation.[44] Moreover, the concept's semantic building blocks, for the most part, consisted in ideas of material possession and concrete macroscopic manifestations, such as control over territory and material resources, the measuring of force in terms of military power and assets, as well as the sharp designation of clearly demarcated hierarchies and rigid structures. Likewise, power mechanisms largely assumed the form of political technologies of the 'body'.[45] The materialistic position of the classical physical paradigm corresponded (or perhaps culminated in) to a synchronic materialistic interpretation of the concept of power. This was mainly expressed through the conflation of power with material resources, and/or with the ability of individuals and collectivities to master the material conditions of their environment, becoming more materially privileged and securely invested within the world of matter.

Relativity, Pluralism and Ideology

With the advancements of Physics in the late 18th and 19th centuries, a new view of the world emerged, which gradually consolidated into the paradigm of Relativity. Fresh understandings of matter, space, time and power began to spill over from physics to other discursive fields, making their insights available to individuals and societies. The novel perspective adopted by the emerging cosmological paradigm cut through the world of dense 'macroscopic' phenomena, penetrating right into the subtler microcosmic world of atoms. Delving deeper into the very constitution of matter, scientists discovered the marvellous phenomena of electromagnetism. This discovery radically recast the focus and

[44] This idea can be helpfully elucidated by studying the different kinds of disciplinary actions performed by governments, different military tactics, as well as the types of punishment existing in various societies throughout history. A good source in that respect is Michel Foucault, *Discipline and Punish: The Birth of the Prison*, Alan Sheridan (transl.) (London: Penguin Books, 1991), especially his chapter '*Docile Bodies*'.

[45] Ibid. 3-31.

unit of scientific analysis from the dense, bulky world of external sensible objects to the study of the more subtly operating, invisible micro-reality of electrons. Unlike atoms, those new 'diminutive units of disembodied electricity' were discovered to be 'continually in flight', fluid, constantly in change. The emerging view on the nature of reality saw the world no longer as the heavy, static, dense, absolute, perfectly ordered, perfectly predictable realm described in Newtonian physics. Rather it became clear that, despite appearances, our world is a fluent, ever-changing, active world of energy, where space, time, position and properties are relative and always open to change and contestation.

The new relativity paradigm rocked the foundations of established collective worldviews, revolutionising in radical ways modern culture and humanity's understanding of the nature of the world and its position in it. As historian Paul Johnson describes, 'it was as though the spinning globe had been taken off its axis and cast adrift in a universe which no longer conformed to accustomed standards of measurement'.[46] It was immediately understood by society at the time that Relativity was not only a scientific revolution, but also a profounder philosophical and cultural revolution, entailing astonishing repercussions for the way individuals would perceive and pursue their everyday lives from then onwards. But as with all novel and pioneering ideas, it took some time, a certain amount of trial-and-error experimentation, and committed intelligible efforts, before the new concepts could be conceptually and ideologically 'digested' by their contemporaries. To that end, some philosophers came to the rescue, with Bernard Russell being a leading example of a mediator between the ground-breaking physical

[46] Paul Johnson, *Modern Times: The World from the Twenties to the Nineties* (New York: Harper Collins, 1983, rev. ed. 1991), pp. 3-5.

paradigm of relativity, and its sound assimilation by society and other epistemic disciplines and society, towards the formation of a new collective worldview.[47]

> Everybody knows that Einstein did something astonishing, but very few people know exactly what it was. It is generally recognised that he revolutionised our conception of the physical world, but the new conceptions are wrapped up in mathematical technicalities. It is true that there are innumerable popular accounts of the theory of relativity, but they generally cease to be intelligible just at the point where they begin to say something important. The authors are hardly to blame for this. Many of the new ideas can be expressed in non-mathematical language, but they are nonetheless difficult on that account. What is demanded is a change in our imaginative picture of the world—a picture which has been handed down from remote, perhaps prehuman, ancestors, and has been learned by each one of us in early childhood. A change in our imagination is always difficult, especially when we are no longer young. The same sort of change was demanded by Copernicus, who taught that the earth is not stationary and the heavens do not revolve about it once a day. To us now there is no difficulty in this idea, because we learned it before our mental habits had become fixed. Einstein's ideas, similarly, will seem easier to generations which grow up with them; but for us a certain effort of imaginative reconstruction is unavoidable.[48]

The worldview of relativity entailed numerous forms of semantic meta-transcription and conceptual transfers in social, moral and political thought. However, this also included a number of confusions and misinterpretations. Leaving aside the success or failure to adjust the new concepts in a cogent manner, the fact is that relativity heralded a new era of

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47 Bertrand Russell, *ABC of Relativity* (f.p. 1925), (London: Routledge, 1993).

48 Ibid. 9-10.

political theorising. Overall, we can distinguish three crucial ideational repercussions. First, the debunking of the 'absolute' as the nature of our world and our guiding principles. Second, a reconceptualisation of what constitutes the unit of the political, as well as the ontological apparatus of power relations. Third, the nature of social space and its importance in the configuration of power relations.

To begin with, the worldview of relativity implied the discarding of 'our allegiance to the absolute'. 'At the beginning of the 1920s the belief began to circulate, for the first time at a popular level, that there were no longer any absolutes: of time and space, of good and evil, of knowledge, above all of value. Mistakenly but perhaps inevitably, relativity became confused with relativism'.[49] We shall shortly return to this point regarding the unfortunate conflation between relativity and relativism; however, what is important to stress now is that relativity was undoubtedly applied to socio-political thought as an epistemological and hermeneutic stance that would be better described as *a perspective of pluralism*, rather than strictly speaking, a form philosophical relativism in the sense of a radical (or nihilistic) disavowal of truth. Bernard Russell cut through this confusion, stating that to claim that 'everything is relative' 'is, of course, nonsense, because, if everything were relative, there would be nothing for it to be relative to'.[50] However, what relativity did suggest for politics is that 'nothing would seem to be more truly self-evident than the proposition that all civic rights and duties, all forms and methods of government, are relative to one another, as well as in time and place and circumstance. They cannot be translated into unvarying formulas. Both in the physical world and in the body politic the atoms have this in common, that they are neither ultimate nor indivisible'.[51]

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[49] Johnson, op. cit.

[50] Russell, op. cit., p. 17.

[51] Munro, op. cit., p. 5.

The new turn in thinking about politics and the ensuing formulation of theories of government that took place in the 20th century was marked by the appreciation of the pluralism, relativity and contingency of social conditions, and at the same time 'the relative', 'the intangible' and 'the sub-atomic'. The idea was that politics and social life on the whole, is not so much a system of material arrangements of bodies, buildings, institutions, resources, but, more importantly, 'a system of symbols or beliefs', and culture is the accumulated totality of symbolic, ideological and semantic patterns. In Clifford Geertz's words, 'believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretative one in search of meaning. (…) It is through culture patterns, ordered clusters of significant symbols, that man makes sense of the events through which he lives'.[52]

The readjustment of focus from the macro to the micro and from the denser to the subtler, engendered by the paradigm of relativity, was translated into a greater appreciation of the role that ideas, cognitive structures, psychology and ideology play in the practical configuration of social realities, as well as the need for theoretical practice to delve deeper into their understanding. It also entailed the introduction of the epistemological need to explore more carefully the internal 'forces' that constitute the micro reality of individuals.[53] The subatomic world of 'electrons', thus, served as a metaphor. Munro suggested probing the loose analogy between 'sub-atomic' particles (e.g. electrons) and ideas, in order to elucidate the above point. He interpreted ideas as the 'electrons of the social universe', describing civic education as the process of 'bombarding

[52] Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (New York: Basic Books, 1973), pp. 3-30.

[53] Michel Foucault, *The History of Sexuality, Vol 1.* (New York: Vintage Books, 1990), pp. 51-74.

the human nucleus with ideas'.[54] In his view, the preoccupation of scientists with sub-atomic particles corresponded to the growing interest of political theories in studying more elaborately the social electrons of 'ideas'. This was reflected in the rise of new genres of theorising, such as ideology, but also phenomenology which focused on how our perceptions are not solely crucial for, but in fact integral to, our sense-experience.[55]

Similarly, political thought witnessed a shift in the interpretation of power. The older typology of power as capacity began being replaced by the growing appreciation of power as a dynamic *relation* between constantly fluctuating agents, inherently involving perceptions and ideas, rhetoric and arguments.[56] Power was perceived as inherently tied to discourse, ideology and knowledge.[57] According to Foucault's interpretation, power requires the mediation of perceptions in order to take effect, inasmuch as it is constituted by particular structures of meaning, semantic orders and patterns of thought-behaviour.[58] It is impossible to disentangle power from the perceptions conducing to its substantiation, in the same way as it is impossible to disentangle energy from matter.

As seen in the previous chapter, the theory of relativity entailed the novel thesis that force is a property of space, thereby putting forward a structural interpretation of power relations. Interestingly, the same reading of power as a structural property of social systems appeared around the same time in the field of political theorising, especially in various Marxian strands. Following the novel worldview of relativity, social structures

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54 Munro, op. cit. p. 5.

55 See, for example, Edmund Husserl, *Logical Investigations, Vol. 1*. (New York: Routledge, 2012).

56 H.D. Lasswell, A. Kaplan, *Power and Society* (New Haven: Yale Univ. Press, 1950); R.A. Dahl, 'The Concept of Power', *Behavioral Science*, Volume 2 (3) (1957), pp. 201–215. Michel Foucault, 'The Subject and Power, in Michel Foucault, *Essential Works*, op. cit., pp. 326-348.

57 For example, in Marxian and Foucaultian accounts.

58 Michel Foucault, *The History of Sexuality, Vol. 1*, op. cit., pp. 55-75.

were interpreted as fields of social relations.[59] Both the concepts of structure and field, which were found at the core of relativity's interpretation of power, also became crucial components of the discourse of power in political theory. The field theory of power developed by Bourdieu appeared to incorporate many of the conceptual insights from the field theory of power in physical discourse.[60]

Intimately related to relativity theory is the radical reinterpretation of space it introduced in the fields of political and sociological study. Einstein's re-conceptualisation of space and time changed the meanings of those words, instigating a transformation in the conceptual foundations of physics. It showed that our common usages of 'simple' words like 'space' and 'time' in reality refer to a structure that is 'actually an idealization and oversimplification of the real structure'.[61] Relativity showed instead that space is an active, mouldable actor and relative factor in the playing out of natural phenomena. Attributes and details of our event experiences, which we normally assume as standard or 'objective' features of the events themselves—such as location, concurrency, simultaneity and duration—ultimately depend upon the contingencies of the agent(s) experiencing them. Therefore, within the relative conditions of space-time, there can be no observation of absolute experiences, since there is no single, objective, absolute space, but, rather, many spaces. Theorists have referred to one of those 'spaces' as 'psychological space',[62] while its corresponding temporal coordinate as 'psychological time' (i.e. how 'long' we 'feel' a minute or an hour to be lasting depending on our psychological experience).

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59 Nikos Poulantzas, *State, Power and Socialism* (London: New Left Books, 1978); L. Althusser, *For Marx*, Ben Brewster (transl.) (London: Penguin Books, 1969).

60 Pierre Bourdieu, *Language and Symbolic Power*, John B. Thomson (ed.), Gino Raymond and Matthew Adamson (transl.) (Cambridge: Polity, 1991).

61 Werner Heisenberg, *Physics and Philosophy* (New York: Harper, 1958), pp. 101, 102, 105.

62 Robert Bruce Lindsay and Henry Margenau, *Foundations of Physics* (Woodbridge Connecticut: Ox Bow Press, 1981), p. 60.

Similarly, a new interpretation of the nature and function of social space as relative emerged in the social sciences in the 20th century.[63] Space was reinterpreted as a social *product*, i.e. a phenomenon shaped and interactively influenced by the activities taking place within it, rather than an absolute, passive, immutable background container. It was perceived as a precondition for, as well as an active internal component of, power relations.[64] Social space ceased being considered as homogeneous, absolute and inactive; social reality itself was reinterpreted as constituting 'a diverse variety of spaces distinct from that multiplicity which results from segmenting and cross-sectioning space '*ad finitum*'.[65] According to its new interpretation, space was neither merely a subject nor an object, but rather a dynamic and mouldable social reality conceived as 'a set of relations and forms'.[66] 'After three thousand years of explosion, by means of fragmentary and mechanical technologies', writes Harvey, 'the Western World is imploding. During the mechanical ages we had extended our bodies in space. Today, after more than a century of electronic technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned'.[67] Effectively, the relativity paradigm did not only penetrate into social discourses, shaping new modes of thinking and theorising about political affairs and providing new semantic variables in the conceptual equations of power; moreover, it *substantiated*, it became a living reality, by enabling the technological means that could then help to make it a social reality.

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63 Phil Hubbard and Rob Kitchin (eds.), *Key Thinkers on Space and Place* (London: Sage, 2010), p. 184.

64 Lefebvre, op. cit., pp. 26-28.

65 Ibid. 27.

66 Ibid. 116.

67 Marshall MacLuhan, quoted in David Harvey, 'Time-Space Compression and the Postmodern Condition', in Malcolm Waters (ed.), *Modernity, Vol. IV: After Modernity* (London: Routledge, 1999), pp. 98-118; 106.

The fact that subjective contingencies and the personal dimension involved in the experience and observation of events was advanced as a mathematically valid scientific feature of the emerging worldview entailed crucial implications for the status that personal impressions of events acquired in synchronic political epistemologies. 'The theory of Einstein is a marvellous proof of the harmonious multiplicity of all possible points of view', José Ortega y Gasset wrote in 1923; 'if the idea is extended to morals and aesthetics, we shall come to experience history and life in a new way'.[68]

And so it happened. The scientifically-proven condition of 'relativity', the notions of the 'relative' and the 'relational', soon spread in discursive arenas outside physics, across various fields in the social sciences and the humanities, including, as we saw in earlier chapters, aesthetics and modern art. One of its expressions was the rise of 'relativism' in the social sciences and ethics. A protracted period of moral absolutism and philosophical efforts to formulate concrete sets of absolute moral and political principles ('the search for distilled maxims, for imperatives, for the secular equivalents of the Ten Commandments'[69]) was followed by a strong current of relativism spreading across all domains of social science, only a few decades after relativity had been established as the new collective worldview. Moreover, the notion was used by postmodern theorists for advocating cultural relativity 'on the grounds that, if the universe has no single centre, neither does culture'.[70]

However, as briefly noted, the way 'relativism' is used here should not be conflated with the strict kind of epistemological relativism or moral nihilism, although various

[68] José Ortega y Gasset, *The Modern Theme* (f.p. 1923), James Cleugh (transl.) (New York: W.W. Norton, 1933.

[69] Michael Freeden, *The Political Theory of Political Thinking* (Oxford: Oxford University Press 2013), p. 8. However, such currents and approaches to political theory are still present in the field.

[70] Campion, *Astronomy and Political Theory*, p. 600.

scholars and non-scholars have fallen into the metaphysical pitfall of taking Einsteinian relativity to stand exactly for that.[71] By the term 'relativism', taken as a form of political standpoint or discursive attitude, we do not refer to a single defined doctrine, but rather, 'a family of views whose common theme is that some central aspect of experience is somehow relative to something else. For example, standards of justification, moral principles or truth are sometimes said to be relative to language, culture, or biological makeup'.[72] Just as the basic background context of our sense-experiences was proven to be differently experienced by different agents depending on their positions and perspectives, so it also made sense to develop an understanding of political organisation and morality which appreciated the contextuality of different viewpoints. This newly emerging understanding of the social world treated values, cultural norms and institutions as contingent upon the particular historical, socio-political and cultural characteristics of individuals and communities, without, however, precluding the possibility of developing a shared, overarching, synthetic framework from which all those could be dialectically discussed and evaluated. Therefore, the crux of the relativity paradigm consisted in a scientifically triggered and sanctioned recognition of the *plurality* of different groups, interests, cultures, and perspectives immanent in society and an appreciation of

[71] 'This view, true or not, is not that adopted by the 'theory of relativity'. Perhaps the name is unfortunate; certainly it has led philosophers and uneducated people into confusions. They imagine that the new theory proves everything in the physical world to be relative, whereas, on the contrary, it is wholly concerned to exclude what is relative and arrive at a statement of physical laws that shall in no way depend upon the circumstances of the observer. It is true that these circumstances have been found to have more effect upon what appears to the observer than they were formerly thought to have, but at the same time the theory of relativity shows how to discount this effect completely. This is the source of almost everything that is surprising in the theory'. Russell, *ABC of Relativity*, Chapter III.

[72] M. Baghramian and Adam J. Carter, 'Relativism', *The Stanford Encyclopedia of Philosophy* (Summer 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2017/entries/relativism/>. [Accessed Summer 2017].

polyvocality, since individuals' demands are not only derived by universal rights or principles, but also depend on their unique perspectival points on reality and politics.

Since the 20th century, until nowadays, instead of trying to delineate the origins, features and appropriate functions of an absolute sovereign, theorists have become more concerned with examining the mechanisms through which social groups interact in a multiple-spaced context of a fast-moving, polyvocal and dynamic polity. Instead of seeking to discover from nature and celestial mechanics the absolute rights and features with which men and women are endowed, theorists prefer to study how the specificities of everyday reality give rise to collectively shared features out of which perceptions of rights and political normalities emerge. Instead of treating political ideologies as doctrines made up of discrete clusters of concepts with immutable meanings and solid, conclusive theoretical formulations, political theory recognises them as dynamic and evolving of constellations of concepts, which, although aiming at certainty, are nonetheless subject to processes of historical change, mutation and decontestation. It appreciates the importance of the presence of the multiple voices and norms at work in one society; it lends its ears to minority groups and overthrows preconceptions of sexuality, attributes and roles between the sexes. Therefore, political theory comes to recognise that society is not after all a homogeneous, linear social space in which discrete, clearly-delineated, non-alterable, singular micro 'absolutes' of 'equal weight, volume, and value' interact, but rather, a fluent, differentiated and intricate sum-total of variable individual and group spaces, which are better understood as 'systems of relations'.[73] These multiple social spaces sometimes manifest as continuous, while others as discontinuous, often appearing segregated by sharp ruptures. Each of them exhibits and experiences its own psychological, intellectual and cultural experiences of time and duration (which, in social terms, partly amounts to

[73] Pierre Bourdieu, 'Social Spaces and Symbolic Power', *Sociological Theory*, Vol. 7 (1) (1989), p. 14.

individual historicities), spatiality (the physical or virtual distribution of relations within physical, virtual, symbolic contexts), velocity (the rate at which conditions and relations change), as well as dislocation, pace, struggle and normativity.[74]

Emerging Quantum Paradigms

Analysing the discursive and ideological effects of the quantum paradigm upon synchronic theories of political thought is, unfortunately, an immature endeavour, since, as we explored in the previous chapter, the quantum theory of power is still an ongoing project and the passage to the quantum era of physical sciences is yet to reveal its full effects upon other social fields and practices. Nevertheless, an attempt can be made to briefly assess some of its preliminary effects upon the field of political theorising.

First, the findings of quantum physics have contributed to exposing the previously prevalent underpinning distinction between *res extensas* and *res cogitas* as fairly untenable. This has served to assign a greater significance to the role of 'thought-practices' and perceptions in the experience of social reality and reinforce the finding that engaging in such discursive thought-practices is a crucial factor shaping that reality. Since, simply through the act of observation, the observer contributes to the transformation of the object of his observation, this suggests that critical engagement with political life—and especially thinking about politics—do not merely function as auxiliary to the configuration of social affairs. Thus, interpretation is not juxtaposed to action or transformation. To turn around the famous Marxian aphorism, interpretation *is* a *potentially transformative social practice*. This is immediately related with the appreciation that the quantum interpretation

[74] Coming from the growing field of 'human geography' and sociology, Harvey also emphasizes the subjectivity of the experience of space and time as an attribute of social functioning at all social levels, and by different social segments, groups and classes. David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Oxford: Blackwell Publishers, 1979), esp. Part III: 'The Experience of Space and Time'.

of matter *as inherently containing information* serves to debunk, in radical ways, the sharp division between 'matter' and 'ideas'. A similar trend has been anticipated in political theory, where discussions of ideologies are gradually moving away from the contrasting of 'praxis' and 'thinking', instead conceptualising thinking *itself* as a form of practice.[75]

Finally, the fairly limited number of scholars writing on the topic has correlated quantum theory's emphasis on the sub-atomic level, the importance of subjective observation and the uncertainty principle, as an argument against traditional power structures and in favour of personal freedom.[76] However, given the inherent interconnectedness of all 'political particles', the emerging understanding of freedom is not a rights-based kind, a freedom that exists apriori to or independent of social relations. Rather, the modified concept of freedom appears to incorporate semantic transcriptions relating to the ontological presuppositions ingrained in the quantum worldview, which consider the standard state of being of primary units to be a state of ever fluid, changing, mouldable motion. Similarly, although Newtonianism has been regarded as immediately related to the rise of classical liberal democratic thought and representative democracy, the emerging 'quantum worldview' is being predicted as entailing a torque towards the moulding and justification of purer forms of democracy,[77] more direct models of democratic participation and democratic thinking, in the context of which ideas of traditional hierarchical structures and stratified power taxonomies will begin to lose their descriptive and pragmatic footing.

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[75] See for instance, Aletta J. Norval, 'Review Article: The Things We Do with Words – Contemporary Approached to the Analysis of Ideology', *British Journal of Political Science*, 30, pp. 313-346; Michael Freeden, *The Political Theory of Political Thinking: The Anatomy of a Practice* (Oxford: Oxford University Press, 2013).

[76] D. Zohar & I. Marshall, *The Quantum Society* (London: Bloomsbury, 1993).

[77] Becker, *Quantum Politics*, 1995.

III. The Concepts of Space and Time in Social and Political Discourse

As the above analysis demonstrates, the new understandings of space and time have constituted one of the main connecting nodes in the 20th century discursive dialectic between physics and politics.

The concepts of space and time exemplify rather soundly the argument put forward in this discussion concerning the contribution of physical discourse in the social construction of key political notions. For, as we shall see, they are *also* essentially *political* concepts—or at any rate, concepts that become politicised, concepts whose meanings are internalised and appropriated not only in the ways we *think* about politics, but also the ways we construct modes of political structures, patterns of collective being and visions of collective identity. Space and time are socially constructed concepts, which, nevertheless, 'operate with the full force of objective fact to which all individuals and institutions necessarily respond' and thus 'play a key role in processes of social reproduction'.[78]

Political theorists and sociologists are becoming increasingly aware of this key role and peculiar nature of space and time. Piercing through the veil of their seeming 'objectivity' and pervasive reification, thinkers from across the humanities and the social sciences have by now generally conceded that both space and time are *inherently political*. In the first place, 'space is not a scientific object removed from ideology or politics. It has always been political and strategic. There is an ideology of space. Because space, which seems homogeneous, which appears as a whole in its objectivity, in its pure form, such as we determine it, is a social product'.[79] The same applies to with regards to the notion of

[78] David Harvey, 'Between Space and Time: Reflections on the Geographical Imagination', *Annals of the Association of American Geographers*, Vol. 80 (3) (1990), pp. 418-434; 418.

[79] Henri Lefebvre, 'Reflections on the Politics of Space', *Antipode*, Vol. 8 (2) (1976), pp. 30-37; 31. See also, Emile Durkheim, *The Elementary Forms of Religious Life* (f.p. 1915), Karen E. Fields (transl.) (Free Press, 1995); Edward W. Soja, *Postmodern Geographies: The Reassertion of Space in Critical*

time. As Lane argues, 'conceptions of the past and judgements about the future are themselves integral to determining action and belief in the present'.[80] It suffices to consider the key examples of Thucydides' insistence on the importance of *kairos* in political decisions or Hobbes' founding theoretical tenet regarding the priority of authority and rationality *over* time and history; how variable conceptions of time serve to derive different views of political obligation and legitimise or delegitimise structures of political authority, as well as how different views of our *relationship* to the past can evoke different forms of collective social memory and thus competing types of collective identity;[81] and, of course, the crucial status that the dimension of time acquires in the fervent moral debates over inter-generational justice.[82] Different conceptions regarding the nature, structure, operation and importance of time, including our perceived relationship to it, not only serve to define the ways our very practical social realities become structured, from the smaller to the grander levels of social organisation; they also give rise to different theoretical and practical treatments of key political issues, including the determination of collective identities, establishment of tradition, social schedules, political obligation, political participation, and so forth.

Social Theory (London: Verso, 1989); Stuart Elden, 'There is a Politics of Space because Space is Political: Henri Lefebvre and the Production of Space', *Radical Philosophy Review*, Vol. 10 (2) (2007), pp. 101–116.

80 Melissa Lane, 'Political Theory and Time', in Patrick Baert, *Time in Contemporary Intellectual Thought* (Amsterdam: Elsevier, 2000), p. 235-249; 236.

81 Patrick Baert, *Time in Contemporary Intellectual Thought* (Amsterdam: Elsevier, 2000), esp. Melissa Lane's chapter, op. cit.; C. Certima, N. Clewer, D. Elsey (eds.), *The Politics of Space and Place* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2012); Bruno Latour and Albena Yaneva, 'Give me a Gun and I will Make All Buildings Move: An ANTS's View of Architecture', in R. Geiser (ed.), *Explorations in Architecture: Teaching, Design, Research* (Basel: Birkhauser, 2008), pp. 80-89.

82 Brian Barry, R. Sikora (eds.), *Obligations to Future Generations* (Philadelphia: Temple University Press, 1978); Lukas H. Meyer and Pranay Sanklecha, 'Philosophy of Justice: Extending Liberal Justice in Space and Time', in Clara Sabbagh, Manfred Schmitt (eds.), *Handbook of Social Justice Theory and Research* (New York: Springer, 2016), pp. 15-36.

In particular, the concept of space has always been integral to political and philosophical inquiry. From ancient times until post-modernity, 'being' and the human modality of being have always been considered as inherently interwoven with the notion of space. Whether that is the '*topos*' of Aristotle[83] or Plato's '*chora*', Descartes's '*espace et lieu*' or the Heideggerian '*dasein*' (literally meaning '*being–there*'[84]), the phenomenological notion of '*dwelling*', Bourdieu's '*habitus*',[85] or the more recent sociological notion of '*field*', some of the most prominent conceptualisations of human ontology and human nature in the history of philosophical thought have been vested in an understanding of being as '*being some**where***'. They have effectively placed the concept of space at the core of their conceptualisations of humanity and politics alike. Spatiality, which Jeff Malpas particularly refers to as 'existential spatiality',[86] has been postulated as a crucial feature of the human condition, as well as of political experience.

The new paradigms of space and power emerging in physics in the 20th century instigated a new approach towards the concept: this is referred to as the 'spatial turn' in sociology and politics, which stresses 'the importance of space and time in shaping cultural, social, economic and political life'.[87] Theorists engaging in this discourse have come from all sorts of intellectual traditions, such as positivism, phenomenology, Marxism, feminism, etc., as well as from various disciplines, including political theory, sociology, cultural, literary studies and gender studies, and the broader research-area of human geography. Theemergent discourse has been founded upon the appreciation that

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83 Aristotle, *Physics*, Book IV.

84 Martin Heidegger, *Being and Time*, J. Macquarrie and E. Robinson (transl.) (Oxford: Blackwell Publishing, 2008), p. 27.

85 See Pierre Bourdieu, *The Logic of Practice* (London: Polity Press, 2000).

86 Jeff Malpas, *Heidegger's Topology: Being, Place, World* (Boston: MIT Press, 2007), p. 92.

87 Phil Hubbard, Rob Kitchin and Gill Valentine (eds.), *Key Thinkers on Space and Place* (London: Sage, 2004), p. 1.

'social, economic and political phenomena are the products of spatial-temporal locality, and that the articulation of inter-relations brings space into being'. As Thrift notes, 'as with terms like 'society' and 'nature', space is not a commonsense external background to human and social action. Rather, it is the outcome of a series of highly problematic temporary settlements that divide and connect things up into different kinds of collectives which are slowly provided by means which render them durable and sustainable'.[88]

Harvey has attributed the 'sea-change' in the cultural, economic and political practices in the post-1970s period primarily to 'the emergence of new dominant ways in which we experience space and time'—what he refers to as different 'spatialities'. Since our experiences cannot be separated from our interpretative structures, which provide essential attributes to 'events', changes in the fundamental ways in which we experience foundational features of the world must also necessarily involve changes in the basic corresponding meanings and conceptions we ascribe to them. In this case, the relevant transformations in our understanding of space were largely a result of the new scientific discoveries that revealed and publicised new meanings for this key concept. Those meanings were subsequently absorbed and internalised by agents, through discursive means, resulting into new ways of theorising about phenomena of power.[89]

Modernity encapsulates and, in fact, *applies in practice* our changing perceptions regarding the nature and relationship of space and time, which have resulted from the great scientific revolutions in physical theories in the late 19th and 20th century. As Harvey recognises, 'different forms of spatialisation inhibit or facilitate different processes of

[88] N. Thrift, 'Space: The Fundamental Stuff of Geometry', in S. L. Holloway, S. Rice and G. Valentine (eds.), *Key Concepts in Geography* (London: Sage, 2003), p. 95.

[89] Harvey, op. cit., p. 201.

social change'.[90] Twentieth-century capitalism, he argues, entailed precisely a new form of spatialisation of socio-political and economic practices, which he refers to as 'time-space compression'. 'In the capitalist world', he remarks, 'the time horizons of both private and public decision-making have shrunk, while satellite communication and declining transport costs have made it increasingly possible to spread those decisions immediately over an ever wider and variegated space'.[91] Examples of causes of time-space compression in modern times include technological inventions, such as transportation (railroad construction, airplanes, etc.), photography, new telecommunications, such as the television, the telephone, the wireless-telegraph, X-rays, and of course, we may add, crucially, the internet.[92] The internet provides an excellent example illustrating how the rise of new scientific ideas impacts on the socially prevalent understandings of space and time. Particularly, the rise of e-governance, the development of the social media, and the multitude 'e-spaces' where various socio-political processes are nowadays accommodated, accentuate how the discursive cross-fertilisation between the two disciplines often culminates in the emergence of new forms of spatialisation of social processes, as well as new structures of social and political functioning.

IV. Conceptual Formulae of Power and Space

The recent trend in political theory to associate the conceptualisation of power with space has been one of the effects engendered by the relativity and quantum revolutions in physics. This section explores this development in political theory in greater detail.

In recent years, political theorists have become increasingly interested in the various conceptual relations, interactions and modalities of mutual determination between the

90 Ibid.

91 Ibid. 147.

92 Ibid. 264-5.

concepts of power and space. This new trend in the literature was particularly marked by Foucault's popular theory of power and his formulation of the notion of the 'power/knowledge' hybrid, which is structured, both philosophically and hermeneutically, around the conceptual axis of space and the general theoretical assertion that 'space is fundamental in any exercise of power'.[93]

This academic development appears to be part of a greater current in political theory (and philosophy in general), which redirects its focus away from the study of the role and effects of 'time' upon social phenomena (including the view of nationality as continuity, statehood as persistence, and identity as historicity), towards a more systematic examination of space. The relatively asymmetric focus thus far placed on the study of space in political theory—a notion only recently brought to the frontline of academic attention—implies that there are numerous possibilities of research opening up before us, especially in examining the ways in which space, both as a concept and as an experiential reality, acts upon, relates and interacts with the unfolding of social life, and particularly with the emergence of power.

In the context of political theory, this shift in conceptual focus is partly owed to the development of the epistemic apparatus of critical inquiry. It is one of its repercussions, in the sense that it contributes to the greater project of calling into question social mechanisms and institutions that have hitherto appeared as seemingly innocent, 'objective' and 'natural'; as well as exposing their naturalisation, and the ways in which their reification has served to immunise them against scrutiny and possible criticism. At the same time, the 'spatial turn' signifies an expansion in the epistemic horizons of critical inquiry. Whereas, in the past, critical inquiry focused largely on institutions and culturally

[93] Michael Foucault, 'Space, Knowledge and Power', in Michael Foucault, James D. Faubion (ed.), *Essential Works of Foucault 1954-1984, Vol. 3* (London: Penguin, 2002), p. 361.

embedded practices and concepts, the study of space marks its engagement with a much more philosophically fundamental and ontologically generic concept. In examining space, the critical theorist is no longer solely engaged in an immanent sociological examination, but grapples with a much more all-pervasive phenomenon, which constitutes the precondition of the emergence of socio-cultural structures altogether.

The concept of space has traditionally been considered as a given, passive, neutral, ontologically homogeneous and impartial background upon which social relations in general, and power relations in particular, unfold. However, the discursive reverberation of Einstein's relativity called into question the traditional view of a static, inert space, bringing it under the 'microscope' of critical examination. It was soon realised that space not only is *not* an impartial container of social relations but, on the contrary, functions as an active parameter and dynamic actor in their formulation. Space shapes, as well as it is shaped by, social activity. The reification of space, in the form of its projection as a neutral externality upon which our sense of internality is lived (what Lefebvre calls 'the fetishisation of space'[94]), has already begun to dissolve as more appreciation is given to its active role in the emergence of phenomena and relations of power.

Overall, we may trace three major conceptual formulas expressing the relationship between the concepts of power and space in political theory. From these, the first two can be seen as falling under the more general typology of power as a structural phenomenon. The third possibility, which this analysis pursues, approaches power alternatively as an intrinsic property or a possible modality of space, hermeneutically utilising some of the conceptual insights stemming from the interdisciplinary exploration of power in physics.

[94] Lefebvre, *The Production of Space*, p. 81.

i) Conceptual Formula α : *Power creates space*

The first type of conceptual correlation between power and space consists in the view that power creates, generates and actively transforms social space. Space is not an *a priori* fixed background merely hosting relations of power; it is itself a possible product of power, hence flexible and mouldable, at once both participant in and responsive to the relative social changes in which it partakes.

The view that (social) space is a product of social operations in general, and power relations in particular, is a thesis put forward some decades ago by philosopher Henri Lefebvre in his book '*The Production of Space*' (1974). This ground-breaking study forms the first systematised attempt to account for what Lefebvre identifies as a problematic mental 'illusion' of our times: the perception that space is a neutral, innocent *tabula rasa*, where mediations between social relations and activities occur freely and transparently.[95]

Lefebvre challenges this view successfully by developing a rather dense case exposing the various ways through which social space is generated. 'Each society', he argues, 'produces space'.[96] This occurs by appropriating natural space and, through the carrying out of its social practices, forging 'its own space' upon it. Social relations, collective dynamics and history produce, as well as they become inscribed upon, social space. Every society gradually develops its own spatial practice, its own idiosyncratic spatial logic.[97] This 'spatial code' is reflected in its urban structure and architectural characteristics. By undertaking the analytical task of deciphering social space—an intellectual exercise involving careful, critical observation and a mode of 'reverse-engineering' of the manifestations and effects of social processes upon space—one can

[95] Ibid. 27.

[96] Ibid. 31.

[97] Ibid. 31, 37.

gain insight into the pattern and qualities of spatial practices underpinning the particular character of the society in question.[98]

Just like all other social practices, power—*qua* practice—produces the space upon which it is performed. Power has the effect of creating qualitatively different spaces, as well as dividing, segregating and taxonomising space so that those relative places acquire a particular structure of urban outlook. The emerging spatial arrangement both emits *and* reflects the particular power structure underpinning it, and thus both enables and conduces to its perpetuation.

In the case of advanced capitalist societies, which Lefebvre uses as his main example, one can observe this spatial logic first taking the form of an over-appropriation of natural space, which very often reaches the point of environmental destruction. The capitalist spatial logic is particularly demarcated by the establishment of complex transportation and communication apparatuses—railway systems, vast motorways, massive industrialised sites and industrial plants, as well as the extensive bombardment of social space with advertisement imagery which results to a general commercialisation of public space. Those features reveal aspects of the structure's particular ideological character, such as the valuation of technology over nature, material production over aesthetic harmony, and efficiency over sustainability.

An equally distinct mark of advanced capitalist societies is the division between 'work' and 'private' spaces (a separation which, however, has recently started to fade away). Another trait consists in the urban and symbolic 'classed' division of space, in the form of classed neighbourhoods or specific public sites, for example leisure and

[98] Ibid. 38.

entertainment places, which act as class signifiers.[99] Finally, on an architectural level, the typical mode of spatial management is expressed in the form of tall, imposing buildings, skyscrapers and apartment complexes offering parcellised accommodation. Lefebvre interprets this spatially as embodying the core capitalist principle of efficiency. The fixation on height and 'squareness', along with the explicit demonstration of 'monumentality' and the obvious phallocentric element expressed by this architectural disposition, also serve to reveal information regarding the gender dynamics at work within capitalist societies, and particularly the masculine symbolic order underpinning them.

ii) Conceptual Formula β : *Space creates Power*

Power relations create and transform space, yet they are also themselves preserved, maintained and often perpetuated by it. There exists a mutual determination between power and space. The second conceptual formula of interrelation between the two concepts presents the reverse pattern of association between them to the one examined above. Inasmuch as power produces social space, space is itself a locus and medium of power, with the particular configuration of relations it embodies. Space also prescribes and orders, through the patterns of distributions of subjects and objects defined and unfolded within it. According to the second typology, power is seen not only as an appearance *within* space, but as one of its effects.

The relationship between power and space is both one of functionality and generation. In the example of capitalist urban planning and architecture considered above, there is a clear allusion to the functional role performed by space in the dissemination and continuity of the power regime in question. Spatial arrangements function so as to express

[99] Pierre Bourdieu, *Language and Symbolic Power*, John B. Thomson (ed.), Gino Raymond and Matthew Adamson (transl.) (Cambridge: Polity, 1991); esp. Chapter 11, 'Social Space and the Genesis of 'Classes', pp. 229-251.

and ensure the effective performance of those relations, by encouraging or restricting particular social groups, dynamics or situations.

The power-functionality of space is a central idea in the work of Michel Foucault. His examination focuses on studying the ways through which the politicisation of space serves to establish and secure political power.[100] Foucault emphasises the productive role of power in the creation of social relations, modes of subjectivities and social spaces. His study penetrates deep into these productive processes, recognising the important power-productive role of space. Focusing particularly on the example of eighteenth century European social spaces and their relation to governmental power, Foucault traces how the changing spatial distributions introduced in city planning—specifically, the precise placing of collective facilities and the emphasis on hygiene facilities, the emergence of disciplinary spaces and the establishment of private architecture—all form expressions of a new rationality, or mentality, of government. This new 'governmentality' established efficient control over the city and its territory through the careful ordering of social space.[101] As his analysis shows, the European 'city', which emerged as a new unit of social organisation, employed a collection of spatial distributions in order to create, maintain and secure the operation of the new power structure developing at the time.

Foucault conceptualises power as a 'web' of arrangements of people and institutions, objects and subjects within space, which ensures a certain quantitative and qualitative flow, pattern of allocation and distribution of people and resources across social space; as he notes, 'a particular canalisation of their circulation, as well as the coding of their reciprocal relations'.[102] A regime of power is hence defined by the particular *kind* of

[100] Michel Foucault, 'Space, Knowledge, Power', op. cit.

[101] Ibid. 239.

[102] Ibid. 361.

ordering of *bodies*, their *motion* and patterns of their *interrelation*, through social activities, in *space*. This function is embodied in the particular logic of spatiality of each society, along with the cultural codes developed and expressed through it. The history of social space is thus a history of power.

A Hermeneutic Approach to a Third Typology of Space

The two preceding conceptual formulae capture the idea that power is not necessarily an institution, and that its emergence, existence and ongoing practice do not solely depend on the institutionalisation of particular social dynamics. Equally, power is neither just a structure nor just a set of relations; rather, it appears as a background setting upon which social relations unfold. This distinction will presently become clearer.

Just as space is neither a passive object nor exactly a discrete subject capable of being ascribed properties of independent agency, the same can be said of power. Power is instigated by each society, as Lefebvre claimed, by 'forging its own appropriated space'. However, what is the form that this 'forging' assumes? What are the mechanisms involved in the appropriation of space and its shaping through particular types of 'forging'? What functions does this process consist of, and what factors determine the rate at which this forging of space occurs?

Despite its notable contribution to our understanding of the interconnections between power and space, Lefebvre's account presents a main shortcoming. His analysis overall seems to presuppose the existence of 'force' and 'power', postulating them as *a priori* or conceptually and ontically independent of space. He presents more of a sociological understanding of the ways in which 'society generates an appropriated social space',[103] without, however, sufficiently exploring (a) the possibility of power interactions

[103] Lefebvre, op. cit., p. 34.

emanating from the processes of spatial appropriation—rather than merely being exercised upon space; and, (b) without offering a satisfactory account of the mechanics defining the appropriation of space by social interactions, which re-generate it *as* social space.

In light of these shortcomings, it becomes important to consider the accumulative and appropriative effect of social dynamics that give rise to a 'web' of power relations. The examination is no longer simply about examining how objects and agents are allocated and distributed in space, as Foucault postulated, but about shifting our focus to the spatial processes that contribute to the generation of spatialities and power. This implies leaving aside the understanding of 'power as a capacity' and 'power as a property' in order to examine it, more generally, as a phenomenon. What are its main characteristics? What are the core concepts designating its conceptual backbone and which generic notions can be seen as comprising this synthetic formula representing the mechanics of emergence of power phenomena?

a. ***Power and Force***

A first important distinction that can be noted is that between power and force. The conceptual difference between these two notions has been recognised in variable ways throughout the existing literature. In light of the conceptual insights drawn from the physical discourse, force can be interpreted as a more instantaneous phenomenon or application of power, whereas power *per se* implies a more constant quality, a more stable and persistent reservoir and pattern of relations.[104] To put it inversely, power is referring to the macroscopic phenomenon emerging out of the *pattern* and *velocity of circulation* of a collection of forces. Therefore, the concepts of power and force are to a great extent mutually contained, though by no means reducible to one another.

[104] This point can be related to the interpretation of the 'field of potency' developed in Chapters II and III, which emphasised the importance of duration for power.

b. ***The core concept of Motion***

As seen in the previous chapters, a further key concept relating to power is motion. Force is born out of motion. It is born from the *comportment* of an object or agent upon space, where this act of comportment signifies an act of moving. As such, motion is inherent in the formulation and constitution of force: it is its essential characteristic.

Nevertheless, it is not *any* type of motion that is pertinent to power, but rather a particular kind that brings it about. That is a *fluctuating* kind of motion, which exhibits *alternating degrees of intensification*.[105] It is a motion which varies and diversifies, and which presents differences in its performance, going from 'staccato' interventions to intercessions of pauses—whether accelerating or decelerating does not matter, so long as it is dynamic. In short, force is related to differential motion, and particularly the change or modulation of that differential motion is what gives rise to a force. This idea incorporates the key conceptual feature of 'difference' identified in our previous discussions.

Once a body, entity or agent in general comports itself towards a locus or object within a given context, its comportment creates a change in its surrounding. This change, resulting from an agent of particular compositional and structural characteristics exerting itself upon his environment can be described as a re-configuration of space—to put it in 'relativity terms'. When the modality of the comportment is particularly characterised by the kind of varying differential motion outlined above, then, in projecting itself upon the world, the agent transforms the space in which he is projected. By exerting itself upon its environment, the subject shapes and alters space. It is important to note that this 'space'

[105] See Freeden's discussion of intensity as a crucial conceptual aspect of power in Michael Freeden, 'Power Surges and Power Failures in Political Language', Paper presented at the annual meeting of the American Political Science Association, (2006-08-31), Philadelphia, PA Online <PDF>. 2009-05-24, from http://www.allacademic.com/meta/p150457_index.html. [Last accessed January 2015].

can be material, physical, symbolic, or ideological (if for example, in the latter case, we think of the entity in question as a concept, an idea or a cluster of ideas appearing in a greater idea-environment). According to the specific nature of its motility, it accumulates, appropriates, or is itself subsumed by the given space. From this spatial reconfiguration and, so to speak, 'curvature' of the surrounding space, brought about by the transformative quality of alternating motion, new social spaces are generated and new topologies emerge.

A second level of performance pertains to the differential motion which gives rise to force. This concerns the *frequency* at which a force, in the sense described above, moves *over time.* The behaviour of a force, which is the degree and manner at which a given mode of comportment continues to take place in space and time, might either become systematised through the standardisation of its behaviour or not. Therefore, power can be referred to as the second-order motion involved in the playing out of a force and concerns the way in which force *itself* functions *over* space and time—i.e. its *rhythm*. This interpretation employs insights from our previous analysis that emphasised the importance of the features of *frequency* and *varying intensity* for the formulation of power effects.

The movements and interrelations between individuals, products, social groups, ideas, even events themselves in their capacity to spread and expand along and in between social spaces, cumulatively and in time give rise to a composite and convoluted nexus of forces. Emerging from this multitude of interacting individual and collective comportments, this 'web of forces' (to use the Foucaultian expression) presents the superposition of all constituent forces ensuing from social interaction, thus becoming established as a new order over and above them. That 'web of forces' develops an independent status and function of its own and becomes itself a new level (or, indeed, a new space) of collective interaction. It entails the introduction of new sites of social and political activity—examples of which are the apparatus of governance, including public

halls, the senate, the parliament, courts, and other spaces linking to decision and law-making procedures. At the same time, it also enables the possibility of creating a variety of other spaces bearing a direct or indirect political function, such as schools, theatres, institutions, museums, including disciplinary institutions, such as prisons and asylums, which Foucault also identifies as key aspects of the exercise of political power. All of the above constitute examples of emerging spaces resulting from new forms of political order.

However, the productive or generative aspect of power cannot be adequately understood nor explained independently of the spaces and the various modes of spatiality through which those practices are practically lived and carried out. This is because social activity both presupposes and requires a space in which it is exercised and performed, since different kinds of practices are usually tied to different appropriate loci hosting them. Of course, spatiality does not only refer to a geographical sense of *topos*, but also, as we explored, to the discursive, intellectual, emotional and psychic spaces which form integral parts of our social cosmos. A given system of power either brings about the creation of completely new spaces, in which its correlated particular practices can be carried out; or, it brings about *qualitative* alterations, modulations or modifications of already existing spaces, by adding new symbolic orders and structures of meaningfulness, and new types of practices operating parallel to the older practices taking place within them (for example, the appropriation of old historical sites for carrying out new social practices).

It is therefore in all those four senses—i.e. (i) by constituting itself as a new superimposed structure, (ii) by generating new spaces in which social life and new aspects of it take place, (iii) by circumscribing, concentrating, delineating and enclosing spaces where particular kinds of practices and mentalities evolve, and (iv) in modifying existing sites of social activity by adding, removing or deepening the layers of symbolic order or signification, that power has the ability to generate space.

iii) Conceptual Formula γ: *Power as a modality of Space*

'Force', writes Leonardo DaVinci in his brilliant notebooks, 'is a child of movement because it is born from it'; force is 'produced by movement, but (...) [it] is both producer and daughter of this movement; (...) nor can such powers be revealed without movement'.[106] Just like force, power is also inextricably linked to the concept of motion; without movement it cannot be revealed. Power refers to a condition or state of affairs which obtains only once some activity or process has been set in motion, and thus once movement has already started to take place.

However, unlike force, power does not so much refer to the first-order movement of social entities in social space (the type of motion that was considered above as generating force); rather, it represents a measure of the *manner* or *rhythm* in which an already generated motion, that has acquired the status of force, itself behaves across space and time. Power as a phenomenon thus emerges from the exchange of energy between social actors, groups, products and institutions, even ideas, becoming structured, stabilised or standardised into a particular pattern of flow, communication and exchange. Hence power relates to the velocity of circulation and the ensuing pattern of interrelation between *forces* working within the social system. It is in this sense that power signifies more of an element of stability than its correlative concept of force, because it presupposes an already existing, and to some extent structured, collection of forces, and a *continuous* course of movement and stream of exchange between them, whose pattern of fluctuation it represents. Should a force be exercised solely once and momentarily, without its exercise enduring over some period of time, there would be no emergence of power, for there would be no further motion or change to that force, which the measure of power would express. A structure of power requires the systematisation and persistence of forces by

[106] Leonardo DaVinci, *Notebooks* (Oxford: Oxford University Press, 2008), p. 34.

virtue of it forming a structure over and above them. It is exactly because power derives from a measure of change, and because its existence arises from a systematisation of forces, which necessarily implies their persistence over at least some time, that it has been traditionally so tied up with notions of stability.

To sum up, we may trace four levels involved in the constitution and analysis of power structures. The first level is the existence of social agents—subjects and objects—which comport and exercise themselves in space, and which, through their behaviour, groupings and exchanges, give rise to the phenomenon of force. Under this interpretation, agency provides the ongoing locus of structure, without necessarily becoming usurped by it. Second, after this set of individuated instances and interactions of force become regularised into a particular form, they become interwoven to form a 'web' of interactions and exchanges, the web of social forces. If and when those exchanges and relations of force stabilise into some pattern of interaction, the stabilisation of their flow and the ordering of exchanges creates a current of surges. This gives rise to a flow of energies, which externalises itself in the form of an emergent new structure, which is the system of power. These 'power surges' extend or project the context of their particular locus outwardly. Thereby, given that space is itself supple and mouldable, rather than fixed and rigid, on a third level of analysis, those 'power surges' generate space—new milieus of relations superimposed over and above the web of forces. This system of power acquires a partially autonomous status and operational mechanisms of its own; it thus starts gradually to define, as well as it works to standardise, the functions and patterns of force relations which engendered it in the first place. Fourth, from the standardisation of a system of power relations, systems of authority and domination may later emerge, if the new 'layer' becomes imbued with normative features and claims of legitimacy.

A key feature describing the creation, operation and maintenance of power thus lies in the element of *frequency*: the frequency at which energies and resources, relations, information, thoughts and ideas are exchanged between individuals and institutions, or, alternatively, the rhythm at which social life is carried out and society moves as a whole. One can appreciate the importance of *rhythm* as a decisive factor in the configuration of the character of social life by considering how, historically, the rhythm or the rate at which different societies have functioned—along with their specific operations and internally constituent exchanges—played a decisive role in determining their particular identity, the nature of the power regime at work, as well as their general political features. Looking back in history and the different stages involved in the development of human societies, we can observe that different rhythms of political activity and social exchange, themselves determined by the available means of communication, production, transportation and transaction enabling particular frequencies and regularities of association between social parties, demarcated different variants and qualities of political life.

If power can be interpreted as obtaining from a general function of (a) space, (b) motion (i.e. changes of location and comportments in space over time), and (c) bodies/entities performing those comportments, which, following the scientific discourses of our times, can be understood as intensified regions of space-time bearing particular properties,[107] then power can also be perceived in a generic manner. Power can be conceptualised as a process of intensification which unites or 'weds' and weaves space and time into one continuum, creating units and regions. It thus signifies a *cohesive* operation holding together the multifarious aspects and layers making up our social lives.

[107] Richard Sorabji, *Matter, Space and Motion: Theories in Antiquity and Their Sequel* (London: Duckworth, 1988), p. 40.

Finally, this generic interpretative possibility, arising from the radical reconceptualisation of key conceptual features of power in the discourse of physics, can be seen to entail a positive view of power, since its putatively core function of intensification is genuinely productive. Indeed, 'intensification is a power variable, and it is the variability of power that is far too infrequently explored among political theorists'.[108] From a conceptual point of view, then, the hermeneutic possibility arises of reading power as a process of intensification binding together the major coordinates of spatiality and temporality which underpin, at the same time while they integrate, individual and collective life, as that is played out on all levels of intellectual, emotional, psychic and material states and interactions. Power can thus be understood as an intrinsic aspect of structure-formation, but also, as we saw in Chapter III, an indispensable *internal* structural feature—i.e. a working mechanism within the micro-realities of subjects' and agents' psychic structures. Under this light, power needs no longer be understood as *either* a structural *or* an individual property. It can plausibly be approached from a hermeneutic vantage point, viewing it as part of a greater integrative procedure between 'agent' and 'structure', which defies the quaint binary distinction between 'context' and the 'units' occupying the context. Rather than merely a property emanating from or statically embedded in social structures, power can refer both to the internal agentic structure, the patterns of structural operation of collective environments, as well as the generative processes *bringing about* agentic, social and political structures.

[108] Freeden, op. cit., p. 23.

MAJOR THESIS CONCLUSION

This thesis provided a conceptual approach to the study of the core political concept of power. This methodological choice was deemed helpful, and in fact necessary, given the two major problems currently evident in the discourse on power in political theory. The first problem we identified was the fact that although power is admittedly one of the most important and recurrent terms in public and academic discourses, most theorists and commentators appear to employ it indiscriminately, and often unconsciously, widely presupposing its meaning as self-evident or pre-given; whilst, in those cases where the concept of power is itself the subject-matter of research, the accounts provided by theorists have very often been enmeshed in a number of exegetical obscurities, explanatory simplifications, abstract idealisations, anachronisms, cultural forestalments, underlying normative commitments, historical embeddedness and unaccounted axiomatic pre-suppositions. In short, it appears quite paradoxical that although power is a concept of utmost importance, in most of its theoretical evocations, theorists do not exhibit a clear understanding of what they are referring to. Given the centrality and significance of the concept of power in literally all branches of political theory, the repercussions of this epistemic transgression can hardly be considered as bearing negligible consequences as far as the clarity, cogency and coherence of our theories go.

The second problem identified by the present examination was that, in the cases where the concept of power has been taken as the object rather than the pre-given subject of our political examinations, it appears that the emphasis of the various approaches have leaned more towards either uncovering some ‘unit idea’-type perennial meaning, revealing

an essential ontology or overarching definition of the concept, or alternatively, coming up with a set of core and peripheral semantic components delineating power's conceptual structure. This, however, has fallen short of adequately accounting for the inherent polyvocality and interdisciplinarity distinctively marking the concept.

What appeared to be missing from the field was a closely-engaged, systematised, epistemologically informed inquiry into the *patterns of thinking* which underlie different *ways* in which power *has* and *can* be *perceived* as a political concept (and/or phenomenon), and on the basis of which various definitions and overarching visions of its mechanisms *have* and *can* subsequently emerge. This thesis thus aimed to delve deeper into the 'micro' cognitive, semantic and conceptual processes involved in the configuration of power as a concept of political significance. Its motivation was to shed light to the following subtler, and admittedly under-explored, theme in the study of power: namely, the nature, origins and operations of the underlying preconceptions, ideological assumptions, tropes, patterns and modalities of thinking, including the core and peripheral conceptual components, which have underpinned not only the various versions of *the concept itself*, but rather, the different ways of *thinking about* power in political thought.

Aligning with the recent post-empiricist epistemological strand, which views cognition and factuality as inseparable, this analysis supported the argument that our comprehension of the cognitive, semantic and conceptual 'micro-processes' subtly involved in the conceptual configuration of power, is not secondary, but rather, of vital importance for understanding power's concrete formal consolidations and macroscopic sociopolitical manifestations. It was thus argued that our perception of *what power is* forms an integral indispensable feature of *what* is experienced *as power*, and what the nature of that experience is, across different historico-political contexts.

In setting out to explore the above research aims, the thesis employed a hybrid methodology composed of insights coming from the morphological approach to the study of concepts and ideology, intellectual history and interdisciplinary conceptual history. The analysis was structured along the bipartite division of its examination into a (i) conceptual-historical and (ii) interdisciplinary exploration into the semantic, linguistic, ideological and, occasionally, philosophical 'micro-processes' involved in the construal of power qua concept.

Of course, this investigation did not profess to provide a comprehensive account of those 'micro conceptual' and 'micro semantic' processes, nor of all possible epistemic and epistemological sources where their working could potentially be identified. Rather, this thesis limited the range of its hermeneutical aspiration, first, to the more modest yet interpretatively salutary task of attempting a conceptual-morphological investigation into the classical concept of 'dunamis'—the basic 'discursive unit' through which classical authors approached the broader issue of 'power'—, relating the discussion to modern interpretive versions of 'power'. In Chapters I-III we explored the classical concept of dunamis, which was traced as the original conceptual modality of power in political thought. We saw that, in this particular historical discourse, dunamis is approached primarily as a generic concept which involves a crucial ontological dimension. By employing a morphological approach, the investigation identified seven core conceptual features structuring its morphology: namely, origin of change, motion, potentiality, intelligibility, capacity, becoming and agency.

The examination of the first three chapters was conducted on the argumentative grounds that this conceptual-morphological comparison can benefit our understanding of the concept in the following important ways. First, by helping to elucidate some of the core features of our modern conceptualisations of power; second, by serving as a point of

reference at the backdrop of which we can critically and constructively reflect upon contemporary interpretations of power in a manner that enhances our awareness of certain subtler, and perhaps more tacit, features present in modern approaches to the concept, including the underlying ways in which we come *to think about* power, assessing their importance both for political theory and political praxis. Third, this mode of conceptual comparison can serve the purpose of revealing the historical origin, but also the historical contingency, the level of logical necessity, the 'diachronicity', but also the range of 'synchronicity' and normativity of key conceptual features of power. At the same time, it can elucidate our view of the main patterns through which power relations are played out.

In this way, this investigation can be proven useful in modestly 'deconstructing' certain features which modern discourses have assumed as essentially integral to the concept of power, or which they have envisioned as 'granted', a priori given and merely 'descriptive', by recognising some of their more elusive normative and contingent aspects. The discussion can assist us in discerning, perhaps a bit more lucidly, which aspects of power that are nowadays synchronic we tend to project as diachronic, as well as which aspects that appear as diachronic have been nowadays undermined or 'downplayed' as less pertinent or less important in the context of contemporary political discourses. Finally, our comparative exploration can inspire new horizons of interpretation of power, since ideological analysis (as all theory), despite starting from the more 'neutral' alleged intention of merely promoting a better understanding of thinking, cannot avoid *producing thinking*, as one of its inevitable, and perhaps more creative, side-effects.

The first part of the thesis culminated in Chapter III, which substantiated this inherent hermeneutic possibility, by constructively reflecting upon the psychological and sociological formulation of power in classical discourse. Our analysis shed light to the interpretative possibility that power can be seen as primarily constituted and experienced

on an internal personal level—not *inter-personally*, but rather as part of the internal constitution, interweaving, struggles and processes of correlation and harmonisation between the various parts of the individual—i.e. the psychic level of formulation and experience of selfhood. This assertion, which does not exactly amount to a purely agentic reading of power in the modern sense, opened the space for another possible interpretation of the ontological dimension of dunamis, as pertaining to the level of authenticity, the psyche and character formation of the individual. This extrapolation highlighted and reinforced the key role of agency in power relations: it was shown that, whatever modalities power relations may assume at a greater political and institutional level, and without underplaying the important collective dynamics of power, still, it is individuals that offer the main sites and sources of power. Finally, we explored the hermeneutic that power can be interpreted as a *relationship to oneself*, in line with what certain feminist strands in political thought have argued. This argument enunciated the view that there is an ineliminable level of authenticity involved in the internal constitution of selfhood, which does not permit the collapsing or total usurping of the 'self' to modes of fabricated subjectivity that are materially and discursively produced by relations and structures of power (as certain post-structuralist accounts have misleadingly envisioned). The argument thus offered a new perspective from which the 'agency/structure' conundrum can be fruitfully addressed.

The second part of the thesis attempted an indubitably more innovative, and perhaps somewhat unfamiliar (to the current canon in political theory), interdisciplinary investigation into the concept of power across epistemic spaces, with particular emphasis on the transdisciplinary exchanges between political and physical discourses. It examined the elusive discursive interrelations between political theory and physics, approaching the two epistemic areas primarily as *discourses* that represent two distinct yet closely

correlated systems of thinking. It was shown that the two epistemes interact productively at a semantic and conceptual level via their joint contribution to the construction of collective worldviews—or, shared pre-theoretical paradigms.

Our analysis pursued an interesting study into the interdisciplinary journey of 'dunamis' across epistemic spaces, by showing how the concept was transcribed into early 16th century theories of force in physics. Nevertheless, throughout tracing this historical and transdisciplinary journey, the examination attended to the awareness of the multiple processes of conceptual transformation involved during that process. For to assume that the concept of dunamis 'travelled' the long journey of historical progression untarnished as to its original meanings, and unscathed by the influences of mutable interpretations, and inescapable misinterpretations, alternating discursive appropriations and improbable adaptations, and not least, the strong effects that political and discursive conflicts exercise upon ideas, would not only amount to conducting a heedless exegetical absurdity, but moreover to propounding a fallacious and inelegantly misinformed reification of the concept. Undoubtedly, the semantical content of dunamis underwent serious alterations and transformations throughout the course of its history. Its parallel and concurrent use in all kinds of discourses -from physics, psychology, ethics, politics to cosmology, metaphysics and theology- effectively enabled by its original genericity, conduced significantly to its numerous and often semantically radical conceptual transformations. This does not come as a surprise considering that, as we saw, 'conceptual change is brought about by concepts that transgress and leak across discursive boundaries'; and this is especially so, when those 'transgressions' and 'leakages' concern the *same* concept, which becomes concurrently diffused and dispersed throughout multiple discursive spaces, acquiring a polyvocality and interdisciplinary that make its mapping onto one particular

epistemic field alone, without reference to its parallel 'transgressions', practically unattainable, if not epistemologically idealistic.

It can be contended that one of the outcomes of this approach was the demonstration of the intricate semantic and conceptual interrelations between two areas of thought which were previously putatively considered as largely unrelated. Our method exposed those subtle interdisciplinary transfers between construals of 'power' in physical and political thought, in a way which highlighted the indispensable broader discursive status of this concept. By juxtaposing the morphologies of the concept in physics and in politics in order to elicit insights from their de facto and engineered proximity, it can be said that our investigation enhanced—and indeed stretched—our awareness regarding the semantic micro-processes involved in the configuration of political concepts, such as power, but also, as we saw in Chapter VI, the very concept of 'the political'. This was done primarily by revealing some of the epistemic loci where those processes, and their productive interactions, take place, which were previously fairly overlooked, if not entirely unknown. Moreover, on an epistemological note, our analysis demonstrated the plausibility of treating physical theories as patterned clusters of meanings and concepts, thereby expanding the possible epistemological reach of the morphological method to the examination of concepts and ideologies. It was thus shown that the morphological approach also exhibits the feature and potential of interdisciplinarity, which is also characteristic of other relevant conceptual methods, such as intellectual history, thereby expanding the horizons of its possible research applications.

It can be concluded that, being a work of interpretative political theory, the task undertaken by the present thesis was a creative and imaginative synthesis of a morphological conceptual approach to the *concept* of power, including the careful study of some of the deeper underlying processes that turn it *into* a concept. Being an act of

interpretation, this work appealed to creativity and imagination with the purpose of suggesting alternative hermeneutic routes in the study of power, as well as critical viewpoints from which novel conceptual possibilities of understanding the concept may arise. Although those hermeneutic possibilities do not amount to the formulation of a particular definition, nevertheless, their exploration was shown to be beneficial to those possibly endeavouring the more specific task of defining or assembling a systematic theory of the concept. As an act of imaginative hermeneutics, this study examined the marginal reaches of the discourse, which were shown to be rich in potential insights.

The thesis can thus content to have explored areas and discursive processes dwelling outside the spotlight of scholarly attention, as well as previously unheeded interdisciplinary exchanges, in a manner that contributed both to the clarification of the variety of interpretations of power, but also, more fundamentally, to the elucidation of existing and possible future trends in *thinking about* power.

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