KINSHIP THROUGH THE PARALLEL LINES: PROBING THE SOCIAL AND BIOLOGICAL DIVIDE

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Introduction

In entering the debate on whether the foundations of kinship are biological or social, we have, in the following pages, undertaken a thought venture in which we imagined ourselves as anthropologists stationed in a hypothetical field of interaction with a group of people claiming kinship affiliations. In making sense of our field observations, we turn to the literature on this debate on kinship. The engagement with the literature is not exhaustive, but is intended to make sense of the field encounter and to offer some clarifications for the debate.

Our first consideration refers to the distinction anthropologists make between textualized knowledge and the various processes that produce the text and its underlying field-based data. The distinction serves as a reminder that various theoretical propositions are entertained in so far as these are allowed to return to ethnographic contexts – in our case, the imaginary encounter – pointing to references within and across the paradigmatic divide.

In pursuing the debate, we would like to retrace the imaginary trajectory of a field-based anthropologist attempting to reconstruct kinship. What we observe in the field are a group of people sharing a common space for living, loosely termed a ‘household’. This is the observer’s first port of reality. Subsequently, the reality of kinship is constructed on the basis of the relational claims the members of the group make. To understand this concretely, we draw upon Sylvia Vatuk’s description of a household (1972: 49), where the fieldworker encounters a group of people who share living quarters and eat food cooked at a common hearth or stove, as a living group of which they are part of their ‘house’. One can imagine subsequent rounds of interviewing and observations the anthropologist might have undertaken to find out that the group of people in the household had kinship ties: parents and children and sometimes a widowed grandparent or an unmarried uncle or aunt. Thus the reality of a

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household is evident where members are residentially aggregated and characterized by commensalism and co-operation. It is important to remember that togetherness or the growing together of adults and children is crucial in spawning bonding between parents (actual or surrogate) and children. However, it is difficult, if not impossible, to establish whether social relatedness would have been absent without genetic relatedness. This is to point out that a household is not purely a matter of kinship. In a household, the genetic and social relations do not necessarily overlap. In the anthropological literature, the non-kin members of a household who are addressed by categories of kin relations are treated as fictive or practical kin (Bourdieu 1977: 34), which are mostly pragmatic ties in the making of a household. Yet precisely because the reality described and investigated by social-anthropological analysis is that of the respondent's accounts and behaviour, its fictional elements remain an important part of the social fact.

It is possible that the network based on claims to kinship may be residentially dispersed, yet share the larger agnatic lineage over several generations. Here, the distinction between the household and kinship may or may not overlap in a given situation. Understandably, a field observer can scarcely assume the precise extent of the overlap between the kin group and the household in a given field.

Suppose our anthropologists were able to document the household whose members live together and cook around a shared fireplace. According to the narrative that would emerge, the group of people in question would make claims to their common genealogical affiliations as demonstrated through their emotional, relational and social proximity. In such a situation, the ethnographers would be interpreting claims to kinship relatedness, argues Parkin, in terms of both biology, or biologized idioms. At the same time, the field observer must be receptive to the possibility that the social realm of relatedness, notwithstanding the householders' claims, may or may not be anchored in biology. (Parkin 1997: 129).

Here a question arises: What if the group's claim to genealogical relatedness is contradicted by the biological-physical anthropological data? Here the field poses a mismatch between the actor's self-dependent data drawn from interviews, observations, and participation, and the actor's self-independent data based on blood samples, DNA tests, the wider genetic pool etc. Would a social anthropologist be able to distinguish between the interpersonal bondings that are based on biological relatedness and those that are not? The question is clear, but to work it out in the field seems cumbersome.

An ethnographer confronts a household in the field, not kinship: the former is a construct closer to an observer's first encounter in the field, and kinship is a derivation, a representation and a codification in memory or text fixing claims and counter-claims regarding genealogical proximities, blood ties etc. So if the kin ties may be fictive, so may be the genealogies. There are accounts of fictive genealogies being charted out in deference to given social compulsions. In Indian society, M.N. Srinivas coined the term 'Sanskritization' to show how marginalized castes, while undergoing social mobility, sometimes reinvent their genealogies as part of remaking their ritual status in the caste hierarchy. Thus, Srinivas points out: 'One of the most important functions of the genealogist and bardic castes was to legitimize mobility from the ranks of lower castes to the Kshatriya by providing suitable genealogical linkage and myth' (1966: 9).

In their immediate grasp, our field-based anthropologists are seeking to make sense of what we would like to call 'projected kinship'. This kinship may be defined as a construct the respondents develop for, or throw at, the anthropologists in response to their queries about kinship. In conceptual terms, we would like to distinguish between projected and 'actual' kinship to say that the former is a construct based on the claims respondents make, while the latter emerges when the 'projected kinship' is matched against a more in-depth probe into kinship-as-lived, which is not easily evident in the first field contact. Even so, the representation of kinship based on the projected and the actual constructs would still not be able to furnish an ideal logic applicable in every other field context.

The biological basis of kinship

Our imaginary anthropologists are drawing upon the perspectives on kinship and turning their attention to both the biological and social aspects in order to develop a more inclusive view, assuming this helps explain kinship better. Let us begin with what they stand to learn from the biological perspectives. They would like to ask: How does the biological view interpret kinship, and on what evidence? If some evidence can be marshalled in its support, how does it contribute to the anthropologists' attempt to understand the basis of a group centred around claims of kinship ties? Furthermore, our anthropologists would like to enquire if the evidence from the biological sources could be transposed onto understanding kinship in different social and cultural contexts. Presumably not. One apparent merit of including the biological explanation is to give the anthropological perspective a universalistic-scientific gloss. However, our social anthropologists are aware that it is much easier for an evolutionary biologist than for a social anthropologist to universalize findings from a specific set of data. For purposes of moving further in the thought venture, let our anthropologists respond to the searching questions when the need arises. For now, they might like to understand how the geneticists and evolutionary biologists help explain the anthropologists' field experience.

To further dwell on the biological approach on behalf of our imaginary anthropologists, we turn to some anthropological theories on kinship. In this respect, Parkin (1997) points out how biological approaches treat mating as a means of procreation, and regard it as being more important than marriage as an institution. For social anthropologists, the reverse is the case (Parkin 1997: 137). Yet, anthropologists like Ernest Gellner (1960) and others have tried to balance the biological and the social aspects of kinship. Gellner argues that social kinship is a function of physical kinship, where function is a rule specifying the connection (Gellner 1960: 189). Parkin takes a different view, and distinguishes the biological from the social in the following manner: '[a]ll human societies have kinship, that is, they all impose some privileged cultural order over the biological universals of sexual relations and continuous human reproduction through birth' (Parkin 1997: 3). Furthermore, Parkin clarifies that, regardless of the validity of the biological approaches to kinship, one is still not able to know how people on the ground see kinship (ibid.). He then goes on to argue that the debate between biologists and anthropologists is largely based on misunderstandings. Yet, he holds, there is still a difference between the study of culturally neutral scientific facts (biology) and the study of culturally specific social facts (social anthropology). He thus implies that they must be seen as independent (1997: 3 f.). He observes that the problem for biologists is that they do not have the means to test genetic relations in the field, for instance, by means of laboratories. The version of kinship based on respondents is the only thing social anthropologists are (or should be) interested in (ibid.: 4).

Is genetic relatedness reflective of social relatedness?

Let us suppose our imaginary anthropologists conducting a field study of kinship are hired by the state to examine the genetic basis of kinship with the support of already existing, large datasets on biological information about citizens in various countries. Let us further imagine that this team consisted of social anthropologists and biologists working together with the financial support of a big donor to determine the genetic relatedness of a high-status individual or a member of an elite family. Suppose the stakes in the given situation relate to the inheritance or transfer of wealth through channels of genealogy. There are no constraints on procuring an expensive instrument, or affording a large team of field-workers to locate patterns of togetherness in the given households. Here we would like to enquire about the outcome of the joint project in explaining how the biological and social factors co-constitute kinship. Hypothetically speaking, our team of researchers was able to establish a pattern of relatedness in given groups representing a mix of kin and non-kin categories. No matter how well the rigorous standards of validity and reliability are maintained in the description of the genetic and social relatedness, one would still be lacking sufficient grounds to explain how the specific kinship pattern is derived from the generalized dataset in the biological realm. Now, what is it that can or cannot be reasonably stated about the nature of kinship with the help of the biological perspective? At least one could state that it is the stakeholders in the domain of the ‘social’ who would direct the commerce of kinship relations between the ‘biological’ and the ‘social’ divide. What is selected for special attention in the sphere of biology of kinship usually comes from a salient concern in the social realm. It is the practical issues of everyday genetics that direct and signify the probe into the social-biological divide. It is the social actors who decide what is or is not worthy of being attended to in the matter. Where social actors have no issue to settle over the social-biological divide, the social realm, during this period, may seem relatively autonomous and transcendent (e.g. Parkin 2013).

What is the biological argument? What is the nature of the evidence that establishes such an argument? These questions have to be answered in different ways depending on what is meant by ‘biology’. For the purpose at hand, the biological argument can mean two things. On the one hand, ‘biology’ can be used as a synonym for genetics; on the other hand, the term ‘biology’ acts as a rubric for the evolutionary course of kinship development. Thus, in the former view of kinship, individuals are related genetically, i.e., they share the genetic substance. This refers to ‘physical kinship’ that acts as a substrate wherein social kinship is anchored. The presence of physical kinship, near or far from the social realm, is often expressed in a biological idiom, in its varied background presuppositions of descent, genealogies, blood ties, marriage and parentage. The physical kinship exists independently of how it is recognized in the social realm around fertility preferences and alliances, and around the issues related to birth and lineage. Surely, no human science, sociology or social anthropology included, would dispute the generalized significance of procreation, genetic relatedness, or the scientific methods used in investigating biological data.

Where biology takes the route of genetics, the individuals themselves choose to express their kinship in biologized idioms following from social or cultural requirements. It is the cultural beliefs and preferences that drive the use of technology to determine genetic relatedness. The ‘social’ side of kinship selects what is worthy of being attended in the biological matters. Those volatile issues around inheritance, succession, fidelity, etc. push the social actors to the biological basis of kinship for the ultimate validation of rival claims. If the determination of the biological basis of kinship is deemed important, it is because of the human communities who are validating their normative principles. There is nothing self-evident about biology (McKinnon 2005). Contributing to the critique, Parkin observes how today’s science is limited in two ways. It is limited scientifically in that its current amount of knowledge is more limited than its prospective one. Its knowledge is ‘*knowledge as it exists now* […] the essentially Western scientific world view is no less partial and incomplete than non-Western world views, though for different reasons’ (Parkin 1997: 5, original emphasis). And it is limited technologically in that its methods are still imperfect with regard to establishing genetic fatherhood: paternity tests are not always reliable due to occasional mistakes. ‘For the layperson in Western societies, therefore, knowledge of this sort is a matter of faith in experts, of belief engendered ultimately by an essentially socially determined attitude towards reason and science as superior to all other forms of knowledge.’ Even if scientific laboratory tests establish genetic relatedness, it must not be forgotten that such a fact is relevant only because the knowledge it produces serves the already established social relatedness and its imperatives. Paternity and kinship thus ‘remain matters of purely social definition’ (Parkin 1997: 6). We must therefore be critical both of the ‘despair of the cultural relativists’ and the ‘pretensions of the scientific universalists’ (Parkin 1997: 8).

Social kinship as reflective of evolutionary adaptation

The aspect of biology that takes the route of evolution warrants closer examination. All evolutionary approaches to kinship today accept that kinship is largely social. However, their explanations of the ‘social’ remain contested. But the view persists that some of the underpinnings of kinship are in some way or another tied to evolutionary forces, and that ‘social kinship’ is therefore still influenced by evolution through biology. These positions have prompted both critique and support by social and cultural anthropologists. Those with a more endorsing stance have argued that they are incommensurate but similarly valid analyses of related phenomena (e.g., Parkin 2009). Others have gone further and declared certain neo-evolutionary approaches to be not only complementary to but important extensions of anthropological studies of kinship (e.g., Hewlett 2001). It is these that warrant further consideration for our purpose.

If we return to our hypothetical scenario and consider biologists teaming up with social anthropologists, what would be their take on the example at hand? And what would be their contribution to understanding what is happening in the field? It is important to keep in mind that the scope of neo-evolutionary theories is to formulate ultimate explanations. These are accounts of how given forms of togetherness contribute to maximizing the number of copies of an individual’s genes passed on to the next generation for promoting ‘reproductive fitness’. By contrast, questions surrounding the social, cultural, psychological and endocrinological factors deal with proximate causes (Hewlett 2001: 94). They are thus complementary at a more speculative level that is distinct from the level of detail in the close-quarter observations in an anthropological fieldsite. Furthermore, neo-evolutionary theories include non-genetic aspects such as reciprocal altruism (tit-for-tat patterns of interaction) ‘with non-genetically related individuals’ (e.g. Axelrod 1984) to account for social phenomena like friendship, alliances and cooperatives. This is mostly seen in terms of adaptive practices contributing to the environment of evolutionary adaptation.

Hewlett (2001) distinguishes between three strands of neo-evolutionary theory: behavioural ecology (BE), evolutionary psychology (EP), and dual-transmission theory. While all of these generally argue that evolution and therefore genes play a role in kinship, they differ on the nature of their role and influence.

Behavioural ecologists view culture itself as an adaptation that enhances reproductive success. Robin Fox (1980, 1989a, 1989b) and others (cf. Stone 2001: 9) have argued that kinship originated in the evolved capacity to classify, which was then transposed to questions of who to mate or not to mate with, how to avoid incest etc. In this regard, kinship is a cultural strategy to tackle survival issues for the species, a strategy which is based on an evolved trait. Similarly, William D. Hamilton (1964, cited in Stone 2001: 9) hypothesised that because altruism towards kin increases the number of copies of one’s genes that are passed on to the next generation, kinship altruism, and therefore the ability to recognise kin, are adaptations. While this may not lead directly to kinship systems (Fox 1989b: 174, cited in Stone 2001: 9), the fact that their cognitive underpinnings are evolved is believed to influence them to the present day (cf. also Hewlett 2001: 99 ff.).

To dwell briefly on the logic of the biological argument, we take the example of how polyandry is sometimes explained. The fact that polyandry exists is equated with the assumption about the reason why it exists. This is explained in behavioural ecology as a case of adaptation to a certain environment. The structure of this logic parallels that of earlier functionalist accounts in anthropology, the difference being that the phenomenon is reduced to serving a function not at the level of society (or social cohesion) but that of an individual as member of a species, perhaps for promoting reproductive fitness.

Another variant of the above example where forms of social kinship are equated with adaptation is an illustration from a marriage custom among a Ladakhi community (Bloch 1992). This involved the symbolic capture of a bride in one household by the groom of another. Bloch engages with the view that explains the phenomenon as a form of fertility preference for the purpose of following the strategy of adaptation. Bloch locates the two groups in their ecological environment, where they practice reciprocal intermarriage, thereby producing familiarity and trust and the distribution of material resources in the environment. While the ecological argument operates at a valid level of analysis, Bloch highlights the attendant social life and its independence from the physical world. If left to itself, the argument of adaptation would explain away the ritual of reciprocal intermarriage between two groups as well as the attendant cosmology as an epiphenomenon that subsumes the aspect of physical adaptation. The explanation around the actor’s immediate calculation or rational interests is too limiting. Clearly, it does not explain how the biological resource develops and ensures the collective survival of the group in the social realm.

Explanations of the social side of kinship in terms of adaptations to evolutionary processes employ data that seem to produce a pre-prepared conclusion: that the phenomenon at hand furthers the reproduction of the species, and that this is why it exists. We encounter patrilineal inheritance, then, in communities that allow the accumulation of resources, because there is higher ‘reproductive variance in males than in females’ (Hartung 1976, cit. in Hewlett 2001: 99). These scenarios, however, remain completely removed from any living context. The argument only works if we treat humans as biological machines operating in a social vacuum that is both contemporary to and precedes the hypothesised scenario.

Furthermore, the notions of adaptation and ‘strategic thinking’ are employed to explain how evolution or genes select the best traits for the survival and propagation of a community. The explanation assumes some kind of non-falsifiability, and as such it enjoys equal plausibility whether it is confirmed or refuted. So, for instance, if the phenomenon of ‘endogamy’ as a case of kin preference in mating emerged at a particular point in our evolution, then surely it must have to do with adaptation; the same if endogamy leads to what Shaw describes as genetic risk (2009), in which case it would be a maladaptation that must be rectified through amended kinship practices. In this slippery explanatory field, one may look for other ways to interpret the phenomena at hand. Rather than employing the principle of genetic or evolutionary choice regardless of its compelling confirmation, one may rather turn to Gregory Bateson’s distinction between ‘adaptation’ and ‘addiction’ (1979:172-4) to show that natural selection may not always be as ingenious as strategic rational choice thinking makes it out to be. Adaptations may not necessarily confer survival value; instead it may be a move towards pathology, or according to Kršiak (2011), an instance of ‘useless biology’ to refer to behaviour around, say, aesthetics, or religiosity, or opting out of fertility in favour of a professional career. These behaviours have a questionable survival function or role in the multiplication of one’s genes.

Regarding genealogies and descent, Parkin, too, emphasises that any society only has a limited number of options available to it when it comes to tracing descent, and that it is these that the anthropologist who investigates notions of biology and descent should study (Parkin 1997: 26). The biologist is not (and cannot be) concerned with these. Moreover, the strength of the ties of what is encountered in the field often depends much less on (claims to common) descent anyway. Instead, '[s]ocial groups are often defined not through descent but through common residence, property holding, unity in conducting marriage alliances, effective political or social action, co-operation in economic activities, possessing a common name, gift exchange, partaking in a common ritual (which may in part be directed towards a common ancestor), and so on. It may also be the proper discharge of marriage payments […], not descent that is decisive in determining group membership for the children born to a marriage. Note that none of these attributes can be either explained by, or assimilated to, any biological notions' (Parkin 1997: 27).

In a similar fashion, evolutionary psychologists are convinced that evolution shaped culture (Hewlett 2001: 103), and, by implication, kinship. Hrdy (1999, cit. in Hewlett 2001: 102), for instance, advanced the hypothesis that women evolved mechanisms to enable them to get several men investing in their offspring by inventing the concept of social fatherhood. Contrary to behavioural ecology (BE), evolutionary psychology (EP) holds that the former cannot account for certain kinship patterns such as polyandry as there is nothing about polyandry that advances reproductive fitness. Thus, while it may be culturally adaptive to a certain environment, polyandry cannot possibly be a product of our bio-evolutionary past (Hewlett 2001: 98 f.). The link to biology is thus clearly broken, yet the notion of cultural adaptation remains entangled in the same reductionist structure of sociocultural functionalism.

Finally, dual transmission theorists (DT) study the ways in which kinship and marriage structures such as polyandry and patrilineal inheritance came about in correlation with a certain environment and how they may have been transmitted. Contrary to what emerges in BE paradigms, often statistical correlations between a kinship structure and its environment are not due to evolution per se, but because the phenomenon almost exclusively occurs in one geographical region (Hewlett 2001: 103). Following BE accounts, polyandry should occur in the South American highlands the way it does in the Himalayas, yet no such cases exist in the former region (Bourguignon and Greenbaum 1973, cited in Hewlett 2001).

Biological positions display universalizing tendencies (not only because they are dealing with the same species), but in doing so they do hypothesize about the cultural variations which anthropologists accept in principle while checking them against the particularities of the non-biological context. In biological evolutionary explanations, the ‘nature-to-culture’ leap appears more speculative than empirical. The leap is not anchored in an actually observed transition from the biological to the social. In terms of what is available as supporting data, for all practical purposes an anthropologist remains confined to the domain of projected kinship, which the respondents express in their testimonies and oral accounts.

The evolutionary perspectives intervening in the debate on kinship have the support of propositions whose fragment of observation (say, ‘kin preference in marriage’) and the context of its genesis (the moment of evolutionary adaptation) are separated by the long evolutionary time scale. Such a mode of biological-evolutionary imagination seems appropriate where immediate data of validation are hard to come by. A different magisterium (improvising on Gould 1997) directs an ethnographic representation of kinship, holding different standards of ethnographic validation. This is scarcely comparable to the speculative imagination in evolutionary perspectives that conforms to a different level of significance. An ethnographer familiar with observing the subjects of study at close quarters, mindful of their voices, would be disconcerted at the manner of arguing in which genes hold views based on the processes of evolution as though a person were engaged in strategic thinking, constantly choosing between options for survival. Thus, Dunbar (2008), with reasonable conceptual clarification for evolutionary anthropology, refers to ‘gene’s-eye view’ and ‘the strategic thinking’ implicit in ‘the way evolution works’ (Dunbar 2008: 131-32).

The epigenetic variant of the biological basis of kinship

The field of epigenetics has seen biologists themselves giving primacy to social factors in some respects. The studies have demonstrated how, in a sense, culture, behaviour, experiences, diet, and so on impact on physical biology and are in turn altered by these impacts.

Each human cell has about 22,000 genes, of which only a very small number are active. This activity is referred to as gene expression, and it lies at the heart of most of the body’s processes. Epigenetics pertains to methyl groups, molecules which are wrapped around the DNA (hence ‘epigenetic’), and which regulate the access of transcription factors to the genetic code and thereby regulate what the DNA does (gene expression). Modifications of the epigenetic makeup alter gene expression without changing the genetic code per se. The formation of these epigenetic structures, as well as changes in the, are susceptible to non-genetic factors.

What has emerged over the years is that epigenetic changes can come about in various ways and throughout the lifespan of an individual. They can be passed on from previous generations as part of both the maternal and paternal genetic make-up. In a seminal study by Eric Nestler (see Berton et al. 2006), the offspring of mice that had been bullied as infants showed hypersensitivity to stress and were more socially withdrawn and more prone to developing depression.

Other studies have shown that a mother’s environment during pregnancy can lead to life-long epigenetic changes in her offspring. One landmark investigation by Heijmans et al. (2008) showed that Dutch women who were pregnant in the third trimester while suffering from famine during World War II later gave birth to children who, even sixty years later, were nineteen times more likely to develop obesity, diabetes, hypertension and metabolic syndrome than other individuals of that generation. In a similar vein, a study by Malaspina et al. (2008) found that children born to Jewish Israeli women who were pregnant during the Six Day War of 1967 displayed a significantly higher incidence of schizophrenia later in life.

Even more strikingly, an individual’s experiences during childhood and adulthood can alter the epigenetic make-up, which can then be passed on to their offspring genetically, during pregnancy, through their parenting behaviour, and generally throughout their lives. A study by Meaney (1997) showed that the mothering style of rats can modify the expression of genes associated with stress hormones. Rats that received a lot of maternal care right after birth grew up to be healthier and bigger, and showed the same parenting behaviour. In humans, Szyf and Meaney (McGowan et al. 2009) conducted post-mortem examinations of epigenetic differences in parts of the brain associated with stress response. They found more methylation in suicide victims than in the control group, and an even higher degree of methylation in those victims with childhood abuse than in those without. In a later study, Szyf and Meaney (Borghol et al. 2012) also compared individuals from wealthy backgrounds with individuals who grew up in poverty. They found that more than 6,000 genes differed significantly, depending on living conditions during early childhood.

The many sources of epigenetic change may include drugs and food as well. In a laboratory study by Waterland and Jirtle (2003), female mice received a diet with a large amount of methyl groups, which caused not only a permanent change in the fur colour of later generations, but also a drastic decrease in their otherwise high susceptibility to diabetes and cancer later in life.

The environment (in any sense of the word) can have a life-long impact on biology. This environment does not start at birth, and is not even limited to the individual in question. Rather, it stretches back in time to include the living conditions and life experiences of one’s ancestors, which can leave their marks in their grandchildren. Looking at the biology does tell us something about the social, and vice versa. Thus, at the level of certain propositional statements, social kinship and biological kinship are not as separate and independent as is sometimes posited. Instead, there is a conversation between the two: environment, culture, child-rearing practices, food, the traumatic experiences even of one’s grandparents all have an effect on our behaviour and psychology – through our genes. In other words, biology matters because culture matters. Looking at biology can tell us something about the social, and vice versa. The only problem is that this may be an interesting point at a high level of abstraction in a debate between parties claiming kinship for the exclusive realms of either biology or culture. For the anthropologist in the field, these facts are of rather limited use.

More importantly, even prior to anthropologists and biologists musing over the relationship between epigenetics and kinship, lay people have views on how the two domains are connected. Sometimes, the social-biological divide around kinship may be merged in folk perception to show how the epigenetic transmission of knowledge takes place. To understand the folk view of the biological-social relation, one may turn to mythologies (one site where popular views are reflected over time) that expound on the ways in which pre-birth learning experiences in the womb influence the postnatal cognition of the child. This alludes, in a general sense, to how the biological domain influences the social life of a person, an allegorical reference to how genetic relatedness modulates the social forms emanating from it. Such stories show, to some degree, how human communities have a view of the continuous interaction between the biological and social domains, regardless of their scientific validity. For purposes of illustration, we select a story from the Indian epic the *Mahabharata*. It features the account of Abhimanyu, a heroic character who was trained in the art of war and was privy by birth to the knowledge of a particular technique for breaking into enemy grids (the *chakravyuh*) and exiting them safely after defeating his opponents. According to the narrative, Abhimanyu had this special ability as he had learnt the art when his mother Subhadra carried him in her womb. His father Arjun, a great warrior, used to talk to his wife about the subject. While in her womb, Abhimanyu could hear the description of how to break into the enemy *chakravyuh*. But the knowledge of the other half of the art, of how to escape the grid, the foetus could not learn because his mother had fallen asleep halfway through. The partial knowledge of the art got Abhimanyu trapped and killed in the *charkavyuh* at the hands of his enemy. The mythological narrative allludes to how knowledge is transmitted epigenetically from a father via the mother to their unborn son.

Kinship communities may develop an awareness of the biological facts of genetic relatedness, as well as of their varied appropriations in the social realm. There are emic notions of biologized kin ties in terms life fluids such as semen, blood, or milk. Also, the view is sometimes informed by the ‘factual’ level of biology as determined by paternity tests and genetic genealogies. This knowledge is usually gathered in response to the imperatives on the social side of kinship.

The active use of science in kinship matters

Social scientists and particularly ethnographers have compiled a corpus of literature detailing ideas of human relatedness mainly from the vantage point of cultural socialization. By coining terms like ‘new kinship’ (Carsten, 2004; cf. Clarke 2009: 48 note 1), social anthropologists have co-opted the geneticised model of the new reproductive technologies (NRTs), keeping in mind that it is the condition created by the social setting in which biological models are invoked and not the other way round. Local communities draw upon technology to serve their kinship goals or kinship-driven social imperative. What is the social context of science that creates or generates the imperative to know about genetic relatedness? One could speculate about a social situation in which some aspect of social relatedness is questioned, say, whether the son is actually related to the given father in relation to a property dispute or any other social issue. The driving motive that creates the need to turn to biochemical evidence of genetic relatedness seems to lie in an already established social relatedness.

Technology, then, is not something purely biological or genetically given, but has important socio-economic conditions attached to it. Kahn’s (2013[2000]) ethnography of NRTs in Israel highlights the importance of context. Many current models of kinship claim that ‘as soon as reproduction gets technological, biogenetic relatedness inevitably gains conceptual power’ (ibid.: 7). She contends that ‘state incursion into assisted fertility reinforces a set of cultural beliefs about kinship.’ There is a shift from biogenetic origins to maternal parturition. In the halakhic view, the person providing the womb, as it were, not the egg donor, is the ‘real’ mother and produces a Jewish baby. In the context of Zionist ethnopolitics, the state is using NRTs for its own end (thereby ‘reproducing Jews’, which is also the title of her monograph). We have here, then, a social (and political) context for genetic technologies. This brings us to a ‘chicken and egg’ situation: technological advances (e.g., in medicine) also drive interest and ability. A social context is, in part, also created by the influence of these technologies. Thus a given context and the gene technology interact and intersect.

When parallel lines meet

Most anthropologists will now agree that the biological and the social are not in opposition but in tandem with each other (see Parkin 2005). Thus, it is not that the biological or the social basis of kinship is denied in any form. But for the most part, then, biological and social anthropologists treat each other’s explanation as if they were more tangential than directly relevant. The two sets of explanation do not unseat the theoretical and methodological claims made by each other, but both enjoy objectivity in accordance with their research conditions. They have, however, little relevance in bringing to the other domain an expanded base of evidence. This is especially true of a biological explanation that seeks to explain kinship in a particular ethnographic context.

The social and the biological explanations of kinship seem to be referring to two different domains that act as parallel lines. They may meet for the actors, in the realm of symbolic reasoning, but not for the ethnographer with reference to the theories and tools of research. An ethnographer may observe the actors putting together different domains, the biological and the social, in their imagination. But this would entail biologizing the social, and socializing the biological. The experience of kinship in the social realm is limited to symbolic claims charted out in genealogies to represent relatedness. In the life of actors, it may happen that the ‘social’ taps on the door of the biological, generating curiosities, and finding tools for research and knowledge. In the world of actors, this intrusion of the social in the biological is mostly expected at the time of a deep crisis in morality, legitimacy or some foundational breakdown of meaning challenging the very fabric of collective life. For instance, the crisis may demand that the parentage of a child be proved in response to some feud over the division of property, or a common genetic make-up to be established at the time of racial antipathies.

The social and the biological realms of kinship form a kind of asymptote, barely touching one another in normal times. However, they do come to loggerheads at times of deep social crisis, when the symbolic or material basis of group survival is challenged. In its absence, the social basis of kinship follows its routine track, largely subsisting on the major presuppositions about its rootedness in the biological. The social anthropologists on their own could scarcely open the door of the biological side of a group that makes claims to common kinship. Such scientific intervention, without the self-consciousness of the group in question, is less likely to make any meaningful contribution to ascertaining such kinship claims.

For the most part, the social anthropologists on one side and the biological and evolutionary anthropologists on the other treat each other’s explanations as if they were only remotely rather than directly relevant. Does one explanation unseat the theoretical and methodological claims of the other? There seems to be an element of incommensurability between the two sets of evidence, the biological and the social, each holding claims to truth in accordance with their research conditions, but having little relevance for expanding the base of evidence in the other domain. Yet we have to go one step further and accept the fact that the two magisteria often collide and intertwine in curiously complex ways along their joint border.

Where kinship in a given context is explained with the backing of strong ethnography, then incorporating the biological or neo-evolutionary explanation calls for a cogent reason. It requires an understanding of the limits of the methods and perspectives employed in the anthropology of kinship. If the social side of kinship is shown to be on a biological leash, then a thick description is required of the state of its hold and the limits to its reach, the points beyond which the biological lines stop the social or even call for a serious social reconfiguration. Kinship as a phenomenon can also be imagined as a twig between the social and the biological, following from the image used by Marvin Harris in a debate on ‘Heredity versus Culture’: ‘. . . there might be some slight bending in one direction, but *it’s* no trouble at all for cultures to bend them back completely the other way if there is sufficient ecological and material, practical reasons for the twig to be bent back the other way' (Harris and Wilson, 1982: 465).

The biological side of kinship knocking at the door of the 'social' does not happen according to a linear logic. The 'social' accommodates the 'natural-biological' in a variety of ways. The social appropriates the biological within the limits of collective survival. A genetically deformed child may be 'read' as an incarnation of a deity. In 2008, a genetically deformed child in a village near Delhi came to be venerated by the villagers and related networks as a reincarnation of the mythical Hindu goddess Durga (who had three eyes), and even the legendary Ganesh (Clemens 2014). Surely, the emergence of genetic disorders on a larger scale in given communities – for instance, the emergence of genetic risks consequent on cross-cousin marriages – does cause public recognition and concern.

The genetic events unfold in the social and cultural space. These signify their second 'incarnation', showing how genetics gets geneticized in the social and cultural domain. It is the signalling of how the twig of kinship on the biological side is being pushed towards the social. The knowledge and technology that ascertain the genetic basis are also established in terms of their status as a trustworthy tool that helps resolve important social issues around parentage and genealogical descent. Freeman and Richards (2006: 68) examine the role of the state and its use of paternity testing conducted 'on behalf of the Child Support Agency (CSA) in determining paternal liability to regulate immigration. The need of the state to determine paternity is further developed with the 'commercial availability of "DIY" home testing kits'.

Rather than viewing kinship in terms of a biology versus social divide, as if it were located in an imaginary architecture of base and superstructure, one would rather map kinship on to a field of the biological and social reality in which scientific 'truths' about the biological basis intersect with the other biologized claims concerned – in the words of Carol Smart (2009: 565), 'with caring, relationality and the preservation of kinship bonds.'

Conclusion

One may imagine the social form of kinship (K) to be co-constituted by the biological (B) and the social (S) realities. Just how much of B and S are involved in a given kinship form may be formulated in a linear equation that puts K as a function of B and S. But the equation, in capturing the state of interplay between the values of B and S, is limited to merely gauging causation and measuring the value of various factors. The anthropologist would be equally interested in the non-linear factors that modulate the equation. This refers broadly to the social actors playing an agential role in dealing with objective causation through selective recognition, the and attribution of value in terms of meaning as an overlay on the scientific explanation. Implicit in Parkin's observation is the primacy accorded to the social in directing the interplay of the social and the biological basis of kinship. This concurs with Gellner's view (1960:193) that social kinship is a function of physical kinship, where function is not identity, but a state of being continuously related. Of course, in the relationship, the social plays the active, regulative and agential side of kinship.

The social does play a role in the biological (e.g., epigenetics), and the biological plays a role in the social (e.g., evolutionary psychology). It is in the context of fieldwork that the two differ from each other in the way the reference to the 'social' is employed. Therefore we have to be more specific when we address their incommensurability. Is it about different perspectives holding different views on kinship as a function of their methods and perspectives, or about an emerging issue that needs to be explored from different perspectives for both the expansion of disciplinary boundaries and their respective self-understanding?

The debate on kinship, whether its reality is best explained in terms of social anthropology or biological evolutionism, has almost reached its point of saturation. As part of our tutorial session, the theme brought home that the biological and social side of kinship remain sovereign domains providing little explanatory material in support of each other. The aspect of transcendence in anthropologists' explanations (Parkin 2013), or the people's own experience (when they can afford to be indifferent to the biological basis of kinship) can be seen as a moment when the anthropologist or the kinship-based community can afford to take the biological domain as uncritically given, i.e., devoid of a serious issue deserving urgent attention. The social enjoys relative autonomy so long as the biological (its continuance, its reproduction and development) remains such an unproblematic given. But the social edifice of transcendence begins to break down when the biological realm knocks at the door of the 'social' demanding urgent attention, say, in a situation when a public issue involving genetic risk to health and morbidity arises.

As social anthropologists, our engagement with the biological and evolutionary perspectives allowed us to view our own position self-critically, as well as see the limitations of our argument more clearly. After all, the ethnographic enquiry into kinship informs the missing facet in the larger narrative of kinship, without any obligatory acceptance of some universal truth. For instance, Parkin (1992: 3) highlights how human communities impose some privileged cultural order over the biological universals about kinship. Neither the biological nor the social bases of kinship can be gleaned in an a priori fashion from an actual anthropological encounter with a group of people ostensibly claiming kinship ties. A field enquiry into kinship would always yield variations on the common theme.

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