

## John Buridan on Final Causality

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### 8.1 Introduction

John Buridan devotes an extensive discussion to final causality in two questions of his commentary on Book II of Aristotle's *Physics*: the first question asks whether the end is a cause (q. 7 *Utrum finis sit causa*) and the second asks whether the necessity in natural operations derives from the end or from matter (q. 13 *Utrum in operationibus naturalibus necessitas proveniat ex fine vel ex materia*).<sup>1</sup> These two questions are the main sources of the reconstruction of Buridan's view that I offer in this essay.<sup>2</sup> Both questions have their immediate origin in Aristotle's treatment of final causality in *Physics* II. The first question is about Aristotle's definition of the final cause in *Physics* II.3 and the second is about Aristotle's account of the role of the final cause in natural things and changes in *Physics* II.8–9.

The most striking and original aspect of Buridan's discussion is his attack of Aristotle's view.<sup>3</sup> Departing from the dominant medieval interpretation of Aristotle's concept of the final cause, Buridan rejects the idea that the end to which a change or an action is directed is properly speaking a cause of that action. While Aristotle uses the example of the health for the sake of which I take a walk as a paradigmatic case of final cause, Buridan argues that my health cannot be a cause of my walking. In doing so, Buridan undermines the main assumptions at work in the Aristotelian account of finality in nature and in rational agents. However, Buridan does not reject final causality altogether. He defends Aristotle's view that there are four kinds of cause (material, formal, efficient, and final) and in particular he maintains that the final cause is distinct from and irreducible to the efficient cause. He then offers an alternative positive account of the final cause. In this essay I will present both the *pars destruens* and the *pars construens* of Buridan's view. I will point out that while the *pars destruens* is relatively straightforward, the significance of the *pars construens* is harder to grasp and to assess.

### 8.2 The Existence-Problem

In his presentation of the doctrine of the four causes in *Physics* II.3, Aristotle describes the final cause as "that is what something is for" (*quod cuius causa*,

in one of the Latin translations), or, in an equivalent formulation, ‘that for the sake of which something is done.’ This description is very abstract and unclear, and Aristotle does not provide any articulated explanation of it. He simply illustrates it with an example: the example of health as final cause of a walk done for the sake of health. “Health” – Aristotle says – “might be what a walk is for. On account of what does he walk? We answer ‘to be healthy’ and think that, in saying that, we have given the cause.”<sup>4</sup> Aristotle’s idea here is that the thing for the sake of which we do something is a cause because it replies to the question ‘on account of what (*propter quid*) do we do that?’

Buridan openly disagrees with Aristotle. While Aristotle clearly assumes that we are right in thinking that we have given a cause of the walk when we give ‘health’ or ‘being healthy’ as a reply to the ‘on account of what’ question, Buridan maintains that we are actually wrong in thinking so. Health cannot be properly speaking a cause of the walk done for the sake of it. Why not? Because – Buridan replies – “what is nothing is the cause of nothing” (*quod nihil est nullius est causa*). This is the principle to which Buridan appeals against the causality of health in the first contra-argument of his question “Whether the end is a cause.”<sup>5</sup> The principle says that what does not exist cannot be a cause: something must exist in order to be a cause. Thus, the principle states an existence-condition for being a cause. The health in Aristotle’s example does not satisfy this existence-condition: the health of the person who takes a walk does not yet exist at the time when it is supposed to act as a cause, that is, when the walk which is supposed to be its effect takes place. The health only exists at the end of the walk (if things go according to plan). It comes after the walk as a result of the walk. A cause instead must be prior (or simultaneous) to its effect.

Buridan is not the first to appeal to the existence-condition against Aristotle’s account of the final cause. On the contrary, this is commonly recognized as the most serious problem of his account in the Aristotelian tradition. The majority-view among medieval Aristotelians, however, is that this problem can be solved, although there was not universal agreement about its solution. Two main strategies were proposed to solve the problem. One strategy consists in withdrawing the existence-condition for the final cause: it is not necessary that the final cause exists in order to act as a final cause. The other strategy preserves the existence-condition for the final cause too but qualifies the kind of existence required for being a final cause: this is not real existence – the existence that health has at the end of the walk – but its intentional existence as object of thought – the kind of existence that health has prior to the walk in the mind of the person who intends to take a walk.<sup>6</sup>

Buridan departs from the majority view. For he does not even try to find a solution to the existence-problem. He just assumes that the problem cannot be solved. Contrary to Aristotle’s considered view in *Physics* 11.3, Buridan insists that the health that exists at the end of the walk is not strictly speaking a cause of the walk. Moreover, he does not really engage in the debate arising from the

two conflicting strategies to solve the existence-problem. He does not even mention the second strategy, that which appeals to the intentional existence of the end. He does consider the first strategy, that which withdraws the existence-condition for the final cause, but he dismisses it very quickly. We shall see something more about Buridan's critique of it in Section 8.5.

The fact that Buridan finds an unsolvable problem with the examples of final cause, like that of health, that are considered paradigmatic in the philosophical context to which he belongs may suggest that he wants to get rid of final causality altogether. Matters, however, are more complicated. Buridan's considered view is that there are genuine final causes, but these are not those of the paradigmatic Aristotelian examples. More specifically, Buridan draws a distinction between two kinds of end (*finis*) and argues that one kind of end is a genuine (final) cause while the other kind of end (that is, the end of the paradigmatic Aristotelian examples) is not a genuine cause.

### 8.3 A General Picture of Buridan's View

Before getting into the details of the *pars construens* of Buridan's view as presented in the two questions on the *Physics* about the final cause, it may be helpful to have a general picture of it.

The general picture is offered by a question from Buridan's Commentary on Aristotle's *Metaphysics* that asks whether there are four kinds of cause and no more than four (*Utrum sint quattuor genera causarum et non plura*).<sup>7</sup> The four kinds of cause are the standard Aristotelian ones: material, formal, efficient, final. The additional candidate that Buridan has in mind with the expression 'no more' (*non plura*) is the Platonic exemplar (*exemplar*). In reply to this question, Buridan maintains that there are exactly four kinds of cause – the Aristotelian ones – and no more than those (the Platonic exemplar can be reduced to the final cause) and – what is most relevant to us – no less than those four. This implies that the final cause is indeed one of the four kinds of cause and irreducible to any other kind of cause. In particular, the final cause is not reducible to the efficient cause, as Buridan's unconditional acceptance of the existence-condition for being a cause may suggest. Buridan makes this point explicit in reply to one of the contra-arguments of the question in support of the identity between the formal, efficient and final cause.<sup>8</sup>

(T1) To the other argument it must be replied that, although in some cases the end and the agent and the form too coincide, in other cases, however, these are distinct one from one another and do not coincide. For example, a slave builds a house or something else for the sake of his master; the master does not act, but it is the final cause, and the slave is the one who acts. And in addition to these, there are the form and the matter of the house. And this shows that in some cases these causes are distinct. And even in those cases in which they are not distinct in the things (*secundum rem*), there will be, however, a distinction in *ratio*

(*secundum rationem*), so that those four names can be posited to signify distinct kinds.<sup>9</sup>

The main point of Buridan's reply is that the distinction between the four kinds of cause is primarily and essentially a distinction of *rationes* and not of things. I think that in this case, however, the distinction of *rationes* or *secundum rationem* should not be taken as a purely conceptual distinction in contrast with a real distinction grounded in the nature of things. The relevant *rationes* are the *rationes causandi*, that is, they define the nature of a cause and its causality.<sup>10</sup> And what defines the nature of a cause and its causality is an ontological condition, namely, a relation of dependence between things. Different kinds of cause express different kinds of ontological dependence between things, so that the different kinds of cause do not primarily identify different things or kinds of thing, but different kinds of dependence between them. Accordingly, in the case relevant to us, even when one and the same thing is the efficient cause and the final cause of one and the same effect, its causality as efficient cause is distinct from its causality as final cause. In Buridan's example of the house, there are two distinct kinds of cause involved both in the case in which the slave builds a house for his master – a case in which the thing that is the efficient cause is distinct from the thing that is the final cause – and in the case in which the master himself builds a house for himself – a case in which one and the same thing is both the efficient cause and the final cause.

Buridan uses general and short formulas to describe the different kinds of dependence associated with the efficient and final cause: the efficient cause is that on which something depends in its being produced; the final cause is that on which something depends in its acting/producing.<sup>11</sup> In the example of the house, the slave, being the builder, namely, that on which the house depends in its being built, is the efficient cause of the house; the master instead is that on which the action of building of the slave depends and thus he is the final cause. With another formula for final causality, an agent, like the slave in building a house, acts for an end where the condition 'for an end' expresses the causality of the final cause.<sup>12</sup>

There is nothing original about these formulas for the final cause (and the efficient cause): they can be easily extrapolated from Aristotle's texts and are commonly used in the Aristotelian tradition. Thus, despite his disagreement with Aristotle, Buridan seems to be perfectly happy with the standard account of the final cause expressed by these general formulas, and does not feel the need to subject it to a more in-depth assessment. Accordingly, Buridan's disagreement with Aristotle (or the standard medieval reading of Aristotle) is not, at least explicitly, a disagreement about the nature of the final cause, what it is for something to be a final cause. The disagreement is about what kinds of thing or end satisfy the condition for being a final cause. The contrast is about the question: what is the end for the sake of which an agent acts, the

end that is the genuine final cause? In reply to this question, Buridan draws a distinction between two kinds of end to the effect that only one of them is a genuine final cause. In particular, the health gained at the end of the walk of Aristotle's paradigmatic example is an end of the 'bad' kind, that is, it is not a genuine cause. The distinction between the two kinds of end is elaborated at length in the questions on the *Physics*, to which I will turn in the following sections of this essay. In concluding this section, it is worth presenting the helpful outline of his discussion in the *Physics* that Buridan gives in his question on the *Metaphysics* about the four causes:

(T2) <1> As to the end, it was said in the commentary on the *Physics* that there is an end that is prior by nature to the agent and to its action and orders the agent itself in its acting; and this is one cause of the agent, on which the agent depends in its acting and in producing this effect. <2> But it is sometimes the case that the effect produced or to be produced by the agent is called the end or final cause of the agent itself. <2.1> And I think that this is not a proper way of speaking. <2.2.> Rather, it is an extrinsic and attributive denomination just as if we would say that the urine is healthy. Thus, by attribution to the end that orders the agent itself it is said to be an end or a final cause, because the true final cause was the one that determined the agent to produce that effect.<sup>13</sup>

This text completes the general picture of Buridan's view of final causality. The main ingredients of this picture are the following:

- (1) The final cause is distinct from and irreducible to the efficient cause and to any other kind of cause (T1).
- (2) The final cause is that on which an agent depends in its acting; that is, the end for which an agent acts (T2 <1>).
- (3) Not any kind of end, however, is a genuine final cause. The effect produced by an agent as a result of its action is an end but is not properly speaking a final cause of its acting (T2, <2>-<2.1>).
- (4) Such an end is called a final cause by an extrinsic and attributive denomination, one based on its relationship to the genuine final cause (T2 <2.2>).

In the rest of this essay I will focus on Buridan's discussion in the questions on the *Physics* to fill in the most important details of this general picture, in particular regarding points (3) and (4). I will start from Buridan's distinction between two kinds of end, and then pass to the specific discussion that he devotes to each of them.

#### 8.4 The Distinction between Two Kinds of End

Distinctions about the end are common in the medieval discussions. The most popular of such distinctions is one drawn by Aristotle himself using the abstract formulas τὸ οὗ ἐνεκα οὗ and τὸ οὗ ἐνεκα ᾧ,<sup>14</sup> which, following one

common medieval translation, Buridan refers to as the *finis quo* and *finis gratia cuius* respectively: the end on account of which and the end for which. According to the standard interpretation of these formulas, the *finis quo*/the end on account of which is the thing that is sought and the *finis gratia cuius*/the end for which is the thing for which it is sought.<sup>15</sup> Thus, in the example of the walk, the *finis quo* is health (or being healthy) and the *finis gratia cuius* is the person who walks. In Buridan's example of a slave's building a house for his master,<sup>16</sup> the *finis quo* of the building is the house and the *finis gratia cuius* is the master. The general idea illustrated by these examples is, approximately, that the *finis quo* is the benefit that is sought and the *finis gratia cuius* is the subject that benefits from it, namely, the beneficiary.

Another, less frequent, distinction about the end is that between the end of the operation (*finis operationis*) and the end of the thing operated (*finis rei operatae*).<sup>17</sup> According to the dominant interpretation, this distinction is considered a different and more explicit linguistic formulation of the distinction between the *finis quo* and the *finis cuius* but semantically equivalent to it: the end of the operation is the *finis quo* and the end of the thing operated is the *finis cuius*.<sup>18</sup>

In introducing his reply to the question "Whether the end is a cause" Buridan mentions these two traditional distinctions and follows the common view that identifies them. Buridan's agreement with the common view, however, is only partial. For in his understanding of the *finis cuius*/end of the thing operated Buridan departs from the common view that identifies it with the beneficiary. As we shall see in the next section, in Buridan's view, this kind of end – which Buridan identifies with the genuine final cause – is not the beneficiary of the action but the agent of the action. This is a crucial difference, which points to the originality of Buridan's account of the final cause.

Buridan also departs from the common view in regard to the terms he uses to refer to the two kinds of end. Buridan's preferred terminology is neither that of the first distinction nor that of the second, but that of a distinction drawn by Averroes between the end of primary intention and the end of secondary intention (primary end and secondary end, for short).<sup>19</sup> This is quite original. Averroes uses this distinction in the discussion of a very specific problem of cosmological nature, namely, that of determining the final cause of the many motions of the heavens. It is not immediately clear how Averroes' distinction can be mapped onto the two traditional distinctions and even how it can be understood as a general distinction between two kinds of end. Thus, it is not surprising that Averroes' distinction did not become a standard ingredient of the medieval interpretations of Aristotle's general account of the final cause in the *Physics*. For example, Aquinas, the most influential commentator on the *Physics*, does not mention it at all, and it may well be the case that Buridan (and possibly his school) is the only exception. It is clear, however, that Averroes' linguistic formulation of the distinction in terms of primary and

secondary end serves Buridan's purpose very well. For Buridan's main goal in appealing to the distinction between two kinds of end is to single out only one of them as a genuine cause, so that the two kinds of end would turn out to be hierarchically ordered with respect to their causal role: one comes first, in the sense that it is a genuine cause, and the other comes second, because it is not a genuine cause and its being called a cause is subordinated to the end that comes first. This hierarchy finds a suitable expression in Averroes' language of the primary and secondary end.<sup>20</sup> For example, it is Averroes' language that Buridan uses in drawing the main conclusion of his discussion about the causality of the end:

(T3) Therefore, it must be conceded that the end said by primary intention truly is a cause of the things that exist or act or are acted upon for the sake of it . . . It must also be conceded, however, that it is not necessary for the end said by secondary intention to be properly speaking a cause of its agents or of the actions preceding it.<sup>21</sup>

### 8.5 The Primary End

But what kind of thing is the primary end and what makes it a genuine final cause? The most substantial source from which to reconstruct Buridan's replies to these questions is his presentation of the primary end contained in the following passage of his question "Whether the end is a cause":

- (T4) <1> And there is such a great difference between these ends because the end said by primary intention is prior to the others in being, goodness and perfection; and it *necessitates and directs* the other agents that act for the sake of it, and directs these agents and their actions. And it is necessary that all actions and ends said by secondary intention are moderated according to the requirement of that end, and from this end and for this end all the others receive goodness and perfection. It is then God that is such an end of all natural things, either active or passive, and also of their actions or changes.
- <2> It is also in this way that for the agents other than God, a man who makes a house is the end for which (*finis gratia cuius*) he makes a house, and the house is not the end for which he makes it, because he makes the house for himself and his safety. And even if he makes it for gaining money, the house will still be for himself. And even if he makes the house for his sons or friends, this is still for himself as the end, because he regards those persons as himself and their goods as his own good. For, as it is said in the *Ethics*, the father somehow lives in the son and a friend is another self.
- <3> And the claim that the agent is the end of its actions and of the things made by it is not inappropriate, because in *De substantia*

*orbis* the Commentator says: “the end signifies the agent by a necessary signification.”

- <4> Accordingly, God is the end of all things and the agent of all things. And it is manifest that God is the *principal source of order* for all other things. For God *necessitates and orders* the heavens in their motion. And following this it is in virtue of the heavens and their motion that the things here below are *necessitated and ordered*, in a more fundamental way than by the particular agents, as is clear from the second book of *De generatione*. And further down the particular agents *necessitate and order* the effects that they produce according to their own requirements and those of the superior agents. Accordingly, dissimilar agents produce dissimilar effects, and also those who make houses, either for themselves or for other people, make houses of different kinds according to their own different requirements, for example rich people make big and solid houses, whereas poor people make small and shaky houses.<sup>22</sup>

The reply to the question of what kind of thing the primary end is, as suggested by this passage, is that such a thing is the agent: the primary end for the sake of which an agent acts is the agent itself. Thus, God, being the universal agent, is also the universal (primary) end: the end of all created things and their actions, as we are told at the end of paragraph <1> and at the beginning of paragraph <4>. God, however, is the principal thing but not the only thing that is a primary end. All the other agents too in the causal chains that starting from God lead to particular effects are the primary ends of their actions, as Buridan makes clear in paragraph <4>. For example, in the case of the coming into being of a natural body, like fire, God, the celestial bodies, and a particular natural agent, namely, fire, are the primary ends of its coming into being.<sup>23</sup>

Buridan seems to perceive that his identification of an end of an action with an agent of that action is original and actually sounds implausible in the Aristotelian context. A sign of this is that in paragraph <3> Buridan feels the need to appeal to the *autoritas* of Averroes in support of this identification: he quotes Averroes' claim that the end signifies the agent by a necessary signification. The same quote from Averroes is repeated in Question 13 (the second question on final causality), again in support of the claim that natural agents act for the sake of themselves, so that they are the ends of their actions.<sup>24</sup> Buridan's interpretation of the quote, however, seems to be distorted. Averroes does not simply say that “the end signifies the agent by a necessary signification” but he adds “just as the moved thing signifies the mover.”<sup>25</sup> A natural reading of this quote suggests that this addition – omitted by Buridan – is supposed to specify the way in which the end signifies the agent, and it does that by positing an analogy between the way in which the end signifies the agent and the way in which the moved thing signifies the mover. The obvious sense in which the moved thing signifies the mover is that



the notion of moved thing includes that of a mover, since being moved is being moved by a mover, so that the existence of the moved thing qua moved or in motion depends on the mover. Applied to the case of the end, the analogy would imply that the notion of end includes that of agent so that being an end contains as one of its essential properties that of being produced by an agent. Ironically, this view about the end is exactly the main polemical target of Buridan's discussion. For, according to Buridan, as we have seen, the end produced by the agent – the effect of the agent – cannot be a genuine final cause of the action of the agent. Thus, Averroes' quote can hardly be considered as genuine evidence in support of Buridan's original view.<sup>26</sup>

Another clear sign of Buridan's concern about his identification of the end with the agent is provided by his remarks in paragraph <2>, where he focuses on the case of a man building a house. He firmly states his view that the man builds a house for himself, so that the builder is both the efficient cause and the end (primary end/final cause) of his building the house. He then defends his view against the traditional accounts of the end that I have presented in the previous section. These accounts would identify such an end either (i) with the immediate effect of the building, that is, the house itself (the end of the operation), or a further benefit arising from this immediate effect, like money, or (ii) with the beneficiary of the house, for example, the sons and friends for which the house may be built. In particular, by appealing to Aristotle's claims about sons and friends, Buridan looks for support for the view that the beneficiary is always ultimately the agent itself. In this case too, however, the support is far from being convincing. Furthermore, the view itself even seems to be in contrast with Buridan's discussion of the final cause in his question on the *Metaphysics* about the four kinds of cause, where he uses the example of a slave building a house for his master to illustrate the case in which the agent, namely, the slave, is a distinct thing from the final cause, namely, the master, who would be the beneficiary, in the traditional account.<sup>27</sup> It is not immediately clear how to reconcile this example with Buridan's account in paragraph <2>. In addition to the slave, there are indeed other superior agents in the causal chain that leads to the production of a house, and such superior agents have a better title for being the final cause of the building; the problem is that the master is not one of them, because the master does not in any intuitive sense produce the house. Thus, Buridan's identification of the beneficiary of an action with its agent is problematic both as an interpretation of the traditional view and more generally as an account of the final cause. It is clear, however, why Buridan insists on it. This is because of his commitment to the existence-condition for being a cause. The beneficiary of an action in the ordinary understanding of this notion does not necessarily satisfy the existence-condition: the beneficiary can be someone or something that does not yet exist at the time of the action of which it is supposed to be the beneficiary. The agent of an action, on the contrary, does satisfy the existence-condition: it

must exist in order to act as efficient cause. Accordingly, it is the identification of the beneficiary with the agent that guarantees that the beneficiary satisfies the existence-condition and thus can be a genuine (final) cause.

This identification, however, gives rise to a serious theoretical concern about Buridan's view: that of showing that the agent has the nature of the final cause. As we have seen, Buridan maintains that the final cause is distinct from and irreducible to any other kind of cause, and in particular that it is distinct from the efficient cause. Now, the agent is obviously an efficient cause: it has the *ratio* of the efficient cause, to use the language of text (T1) above. Does it also have the *ratio* of the final cause? Although Buridan does not explicitly raise this question in our text, he provides relevant indications about how he wants to reply to it. For he points out some features of the agent that are traditionally associated with the final cause. The first such feature that he mentions in paragraph <1> is that of being superior in goodness and perfection to its effects.<sup>28</sup> The most prominent feature, however, is another, namely, that of being a principle of necessity, order, direction. For example, in paragraph <1> the primary end is described as that which "necessitates and directs" other agents and their actions. In paragraph <4>, God, which is the supreme instance of primary end/final cause, is said to be "the principal source of order" (*principalis ordinator*) and that he "necessitates and orders" the heavens in their motion; the heavens in turn "necessitate and order" the particular agents here below, and the particular agents too "necessitate and order" their effects. This suggests that, in Buridan's view, each agent in the causal chain that starting from God leads to the production of a particular effect in the natural world is not only an efficient cause but also a final cause; and what makes it a final cause is its being a principle of order and necessity of its own actions and those of the agents below it in the chain. The agent is the final cause, that is, the thing on which its actions depend (as the standard formula for the final cause used by Buridan in the question from the *Metaphysics* prescribes) because it is the principle of order, direction, and necessity of its actions.

The notion of necessity requires some explanation. That there is a kind of necessity associated with the end is a standard ingredient of the Aristotelian account of the final cause. The necessity of the end is called 'conditional necessity' or 'hypothetical necessity' and is contrasted with absolute or unconditional necessity. Absolute or unconditional necessity is that of something that exists necessarily. Conditional necessity instead is necessity dependent on some condition, as it were, and in our case the relevant condition is the end to be achieved: if the end is to be achieved, then necessarily some other things must be done. Roughly speaking, the conditional necessity of the end is the necessity imposed by the end on the things directed to the end.<sup>29</sup> In the Aristotelian example of health, if the end is that of being healthy, then necessarily I have to take a walk. In *Physics* II.9, Aristotle specifically deals

with the role of necessity in natural things, and he contrasts the conditional necessity of the end with the unconditional necessity of matter. The question he is concerned with is whether the necessity in natural things comes from matter or from the end. A paradigmatic case that illustrates the meaning of this question is that of the parts/organs of living beings: for example, whether the property of the front teeth of being sharp and the property of the back teeth of being broad derive from the material constituents of which they are made or from the ends that the two kinds of teeth serve.<sup>30</sup>

Buridan devotes his second question on the final cause (q. 13 *Utrum in operationibus naturalibus necessitas proveniat ex fine vel ex materia*) to this important aspect of Aristotle's discussion. He agrees with Aristotle's view that the necessity does not come from matter. He openly disagrees with Aristotle, however, about the kind of end from which such necessity derives. This is not the secondary end, as Aristotle maintains, but the primary end, that is, the agent. In the example of the teeth, Aristotle's view is that the ends for the sake of which the back teeth are broad and the front teeth are sharp are their respective functions: back teeth are for chewing the food and front teeth for biting. In Buridan's view, however, these functional ends cannot be a genuine cause of the different properties of front and back teeth because they do not satisfy the existence-condition: the biting and the chewing are the results of the way the teeth are formed and thus cannot be a genuine cause of their formation, something on which their formation depends. Buridan then offers an alternative account of the necessity in nature as deriving from the agents. A clear presentation of it is found in the following passage:

(T5) <1> To the other argument it must be replied that matter is the thing that is absolutely necessary in being, and not the end, except in the case that the end is one of the superior agents, like God, the intelligences, and the celestial bodies. But in the things here below motions, changes, operations, or even ends said by secondary intention are not absolutely necessary in being. Therefore, Aristotle did not intend to investigate here this kind of necessity <i.e., absolute necessity in being>, but he means the necessity in one thing following from another, for example, from which causes it necessarily follows that the front teeth in man are sharp and the back teeth are broad, and from which causes it follows that the eyes are in the head and not in the foot. The ancient philosophers said that this follows from the fact that the matter is subtler in the anterior part of the mouth and thicker in the posterior part. But this is not true. For matter has been of the same kind from the beginning of the formation of the foetus.

<2> But this <necessity> comes from the agents. For from the fact that the sperm of man is applied to the matter of the formation of foetus it necessarily comes about, if there are no hindrances, that a human foetus will be generated and that limbs of such kind will be formed

and that matter has different dispositions in different limbs, and that at some point eyes and feet will be generated so that that child will see and walk. For it is the agent nature directed by God and not matter itself that necessitates in an ordered way and determines all these things ...<sup>31</sup>

In the first part <1> of this passage Buridan explains the distinction about necessity at work in Aristotle's discussion of necessity in nature in *Physics* II.9. His explanation shows that he has a good grasp of Aristotle's distinction. He correctly points out that the necessity of the end is the conditional necessity: the necessity of one thing following from another, in his formulation. He also gives an argument that most Aristotelians would endorse for the negative claim of Aristotle that this kind of necessity cannot derive from matter, an argument based on the lack of differentiation of matter. The argument is illustrated with Aristotle's example of the teeth: the difference between the sharpness of the front teeth and the broadness of the back teeth cannot derive from matter because the matter of both kinds of teeth is essentially the same. But if the necessity does not come from matter, where does it come from? It is in reply to this question that Buridan openly departs from Aristotle. As he states at the beginning of paragraph <2>, the necessity comes from the agents, that is, the primary ends. He illustrates his claim with the formation of limbs of a human being, where he specifies that the sperm is the principal agent responsible for their formation and differentiation. In addition to the sperm, different dispositions of matter are required; but, as Buridan points out in another passage, these different dispositions derive in turn from different agents.<sup>32</sup> What is of crucial importance from Buridan's point of view is that such an explanation does not at all appeal to the functions of the different limbs of the human body. The chewing and the biting of the Aristotelian example of teeth do not have any causal role, according to Buridan.

Buridan's attempt to show that there is an alternative account of conditional necessity that is grounded on the natural agents rather than on the functional ends is far from being adequate as an account of the distinction between a final cause and an efficient cause. Such an account would at least require the further premise that this necessity derives from the agent as final cause and not as efficient cause. Buridan, however, does not explicitly deal with this premise. More generally, in all his discussion of the primary end in the two questions on the *Physics* Buridan does not address and in fact leaves open the problem of how to draw the distinction between final cause and efficient cause.

Can the problem be solved? Well, Buridan's description of the final cause suggests a solution to it. In his description, the final cause or primary end is that on which an agent depends in its acting and is the principle of order and necessity of the action of an agent. Let us now look at the metaphysical

constitution of a natural agent, like the human sperm in the example of the teeth: it is a material substance and so a composite of matter and a substantial form. The substantial form then seems to be exactly what satisfies Buridan's description of the final cause: it is that on which the agent depends in its acting in the sense that determines the kind of action appropriate to an agent. In the example of the teeth, it is in virtue of the substantial form of a human being by which the sperm is somehow informed that the action of the sperm is that of forming a human body. The solution to the problem of the distinction between final and efficient cause that this line of thought suggests is that the final cause is the substantial form of a natural body while the efficient cause is the natural body itself (the composite of matter and substantial form). This solution, however, is not available to Buridan. The reason for this is not that he denies a causal role to substantial forms in natural agency but that he gives them the causal role of agents. This comes out very clearly in the following passage in which he draws a general conclusion from his discussion about necessity in nature as coming from the agents:

(T6) Therefore, all these things come from the divine art, the celestial bodies, and the particular agents, both extrinsic and intrinsic, which are the substantial forms of the natural bodies themselves.<sup>33</sup>

Thus, like other fourteenth-century Aristotelians, Buridan thinks of the substantial form of a natural body as an agent intrinsic to this body. But if the substantial form is an agent, then the appeal to such a form is of no help in solving the problem of the distinction between the agent as final cause and the agent as efficient cause. For the problem can be rehearsed in the case of the substantial form itself.

## 8.6 The Secondary End

While Buridan is firm in his rejection of the common Aristotelian view that the secondary end (the end of the operation or the *finis quo*) is a final cause, he is perfectly happy to admit that this common view has a very strong natural appeal. Thus, he says:

(T7) It seems to me that by a natural instinct, as if determined by nature, everyone accepts that an end is the cause of our operations. So if you ask a little old lady for which cause she goes to church or to the market, she will say to you that she goes for the sake of hearing a mass or for the sake of buying a tunic. And if you are asked why you go to school, you will reply: for the sake of learning. Claims accepted in this way by everyone should not be entirely dismissed, because (as Aristotle says in *Ethics* VII) nothing more plausible and accepted could be brought forward to prove the opposite.<sup>34</sup>

In this passage by 'end' Buridan means the secondary end, as the examples make clear: hearing a mass is the end of the action/operation of walking to church. The old lady in this example takes it for granted that she has given the cause of her going to church when she replies that she does this to hear a mass. In Buridan's view, however, the old lady is wrong: hearing a mass does not yet exist at the time the old lady goes to church and so it does not satisfy the existence-condition for being a cause of her going to church. However, as Buridan says at the end of the passage, since this kind of Aristotelian answer attracts such a universal consent, it cannot simply be dismissed. Thus, in Buridan's own admission, a good account of the final cause must also find some explanation for the common view that identifies the final cause with the secondary end. Buridan takes this task very seriously and provides an articulated explanation for the common view.

Buridan's explanation resorts to a fundamental theory of Aristotle's metaphysics: the theory of analogy. It is by appealing to this theory that Buridan introduces the *pars construens* of his account of the final cause:

(T8) Because of this problem <about the final cause> it must be noted that, just as 'healthy' is said in many ways and not by a single intention (for an animal, urine, and food are all said to be healthy but in different ways), so the term 'cause' too is said in many ways in each of the four genera of cause.<sup>35</sup>

For medieval Aristotelians, the term 'healthy' is the standard example of an analogical term, a term that is truly predicated of different things with different meanings, that is, not univocally, but not completely equivocally either: the meanings are different but somehow related. The kind of analogy that Buridan has in mind here is the so-called 'pros hen': the different meanings are all related to one of them, which is the primary one. In the example of 'healthy,' 'healthy' is predicated primarily of an animal (in which the form of health inheres and that makes it healthy), and secondarily of the urine of the animal and of the food of the animal: the urine is said to be healthy because it is a symptom of the health of the animal and the food is said to be healthy because it contributes to the health of the animal. Buridan applies this general theory to the final cause.

The relevant distinct things of which the term 'final cause' is truly predicated are the two kinds of end that I have presented in Section 8.4: the primary end and the secondary end. The term 'final cause' is predicated of the primary end (i.e., of the agent) primarily and of the secondary end secondarily in virtue of some relation that it has to the primary end:

(T9) But as a third conclusion<sup>36</sup> it must be conceded that such an end said by secondary intention is usually said to be a cause and a final cause by an improper way of speaking in virtue of a likeness or some kind of

attribution to the true final cause, just as urine would be said to be healthy in virtue of an attribution to what is truly and properly speaking health.<sup>37</sup>

Buridan's discussion then continues with an extensive presentation of the attributions or likenesses (*similitudines*), as he prefers to call them, of the secondary end to the primary end in virtue of which the secondary end is said to be final cause by attribution.<sup>38</sup> Buridan distinguishes four kinds of such likenesses. The fourth likeness is by far the most interesting and is worth being presented in some detail.

The main focus here is the case of a rational agent acting for an end, like the case of the old lady going to church for the sake of hearing a mass or the case of the Aristotelian example of a walk taken for the sake of health. The 'likeness' in question appeals to the notion of intention. Intentions or volitions are basic ingredients of the actions of rational agents.<sup>39</sup> In Buridan's view, these intentions are primary ends and so genuine final causes of the actions they govern. In this case too, however, the problem of the distinction between final and efficient cause that we have pointed out in Buridan's treatment of teleology in nature arises.<sup>40</sup> For intentions and volitions seem to be efficient causes of the actions of rational agents. Their role as final causes would require some justification, which Buridan does not provide. Let us now set this problem aside and follow Buridan in assuming that intentions are genuine final causes of the actions of rational agents, and see how he uses them to build his analogical account of secondary ends as final causes. This goes as follows: most courses of action are complex, that is, they involve more than one intention, and the intentions involved are ordered according to a rational plan. In the example of the old lady, the intention of hearing a mass comes first and the intention of going to church comes second. This order between intentions is a genuine causal order: the intention of hearing a mass is a proper cause of the intention of going to church. This genuine causal order between intentions as primary ends is the foundation of the likeness or attribution in virtue of which hearing a mass itself is said to be a cause of going to church. More precisely, this likeness is the result of attributing to the objects of these two intentions the causal order that holds between the intentions, that is, of transferring the causal order between the intentions to a causal order between their objects. As Buridan puts this important point:

(T10) And then according to the attribution of the things to the intentions we attribute to the things that are intended the order and the denomination of the intentions. Therefore, the effect that is last produced is called a cause of the things that precede it, and because it is a last according to the truth, it is called a final cause. But the only sense in which this must be said and understood is that its intention is the cause of the intentions of the other things.<sup>41</sup>

Thus, it is because the intention of hearing a mass is a cause of the intention of going to church that we say that hearing a mass itself is a cause of the going to church. But – as Buridan stresses – only the intention of hearing a mass – a primary end – is a proper cause; its object, hearing the mass – a secondary end – is not a proper cause but it is said to be a cause by attribution to the corresponding intention. Buridan emphasizes this point in replying to Aristotle's argument for the final cause in *Physics* II.3:

(T11) And it seems to me that this is the only valid conclusion of the argument of Aristotle. For it is not the last effect that should be given in reply to the question asking on account of what or for which cause, but the intention or volition or the causes that are prior in being or terms that stand for such things. Accordingly, if it is asked for which cause you go to church, it should be said 'because I intend or want to hear a mass.' And if another answer is given, the truth of the reply, however, is according to that sense.<sup>42</sup>

One may object to Buridan's account that the intention of hearing a mass is not appropriate as final answer to the question about the cause of going to church. For the intention itself of hearing a mass seems to be something that requires a causal explanation. One can still ask: for which cause do you want to hear a mass? And it seems that a good reply to this question must include the hearing a mass itself, and not only other intentions or volitions. Thus, hearing a mass seems to be a proper cause of the intention of hearing a mass. More generally, the objects of intentions and volitions seem to have a genuine causal role with respect to these acts. This causal role is that traditionally associated with the final cause in the case of rational agents: the end or final cause is the object of our desires and volitions.

Buridan addresses a version of this objection that appeals to the principle that human cognition (and volitions), unlike God's cognition, is caused by the things of which our cognition is about. He replies to it by denying that this principle is universally valid but he seems perfectly happy to leave open the problem of the causal explanation of our intentions, volitions, and thoughts.<sup>43</sup> What he explicitly and firmly rejects is the solution to this problem in terms of the objects of such acts offered by the traditional view. He gives a clear illustration of his rejection with the example of a doctor and his intention to heal his patient:

(T12) Therefore, I say that it is absolutely not the case that on the health to be produced in Socrates depends the preceding operation of Plato, his doctor. For no one would say that the operation of the doctor depends on that health except because the doctor intends to produce that health and that this intention depends on that health . . .; but it must be certain that the intention of the doctor does not depend on that health to be produced; therefore <the operation of the doctor does not depend on that health>.



I declare therefore that the intention and the volition of the doctor who wants to heal Socrates does not depend on the health to be produced of Socrates. First of all, because that health is nothing. Secondly, because it is perhaps impossible that Socrates is healed. But in what way could the intention and will of Plato depend on something that does not exist nor can exist? This seems an absurd claim to me. Furthermore, if God intends to move the heavens and to generate the things here below, it is not necessary because of this that the heavens, their motion, or the things here below are the causes of the intentions of God or that the intention of God somehow depends on those things. And if this can be saved about God, so it can be saved about ourselves.<sup>44</sup>

This passage confirms Buridan's strong support for the existence-condition for being a genuine cause. It is indeed the non-existence of the health of the patient at the time in which the doctor intends to produce it (or the impossibility of its existence all together) that is the main ground on which Buridan denies any causal role to the health and more generally to the objects of intentions and volitions. One of the traditional solutions to the existence-problem for the final cause would object to Buridan that the non-existence of the object of an intention or volition disqualifies it from being an efficient cause of the intention but not also from being a final cause.<sup>45</sup> Buridan, however, does not elaborate on this proposal and regards it as simply absurd. In his view, actual existence is an essential property of any kind of cause.

## 8.7 Conclusion

In the medieval debate about final causality Buridan stands out for his firm and unconditional commitment to the idea that only what actually exists can be a cause. He also stands out for his open criticism of Aristotle's notion of the final cause, which does not comply with this idea. These are indeed salient aspects of Buridan's position, but they do not exhaust his contribution to the medieval debate. Simply regarding Buridan as someone who driven by that idea inflicts a fatal blow to Aristotle's theory does not do full justice to the complexity of his view. Buridan's project is much more ambitious. It also has a constructive goal, namely, that of offering an alternative account of the final cause that does not violate the existence-condition. This positive goal has a central place in his view, as I hope my reconstruction has shown. It is around this positive goal that Buridan articulates his discussion about the final cause in the two questions from his commentary on the *Physics*. More specifically, Buridan wants to replace Aristotle's theory of the final cause with an alternative one, which has three main desiderata: (i) it preserves the existence-condition, but also (ii) preserves the distinction between the final cause and the efficient cause, and (iii) explains the strong intuitive appeal of Aristotle's notion of final cause. The second of these desiderata is most challenging.

Buridan, however, does not devote to it the attention it deserves, and his alternative theory remains open to the objection that it reduces the final cause to the efficient cause.

### Notes

- 1 All references to these two questions are to the recent critical edition in Buridan 2015a.
- 2 Another, marginal, source is Buridan's commentary on Aristotle's *Metaphysics*, only available as early printed text in Buridan 1964.
- 3 An extensive presentation of Buridan's discussion in his questions on the *Physics* is found in the pioneering study Maier 1955a, 300–35. An illuminating assessment of the philosophical significance of Buridan's view is offered by Pasnau 2001, 315–22.
- 4 Aristotle, *Physics* 11.3, 194b32–35. The English translation is a slightly modified version of that in Charlton 1970, 29.
- 5 Buridan, *In Phys.* 11, q. 7, 294.3–12:

Quaeritur septimo circa capitulum de causis utrum finis sit causa. Verbi gratia, si medicus intendit sanare infirmum et ob hoc ipse conficit medicinas et dat eis infirmo ad potandum, utrum sanitas sit causa huius intentionis medici et confectionis medicinarum et potationis earum et sic de aliis. Et si ignis calefacit ligna finaliter ad generandum ignem, utrum ille ignis generandus sit causa illius calefactionis. Arguitur quod non quia: *Quod nihil est nullius est causa*. Sed ille ignis generandus nihil est, quando est iam illa calefactio. Sanitas etiam illa nihil est, quando medicus sic operatur. Igitur illa sanitas vel ille ignis non sunt causae praedictorum.

(my italics)

Buridan's example of health as cause of the actions of a doctor is also given by Aristotle immediately after the example of the walk in *Physics* 11.3, 194b36–195a3.

- 6 For a comprehensive overview of the medieval debate, see Maier 1955a, 273–99, and Pasnau 2001, 301–22. For studies on specific authors, see Adams 1998; Trifogli 2007; Majcherek 2019.
- 7 Buridan, *In Metaph.* v, q. 1, fols. 26rb–27rb. A parallel question on this topic is also found in another version of Buridan's questions on the *Metaphysics*, the so-called *Lectura Erfordiensis*. See Buridan 2008, q. 18a (*Utrum sint quatuor genera causarum et non plura*), 122–27. The two questions do not present any relevant differences.
- 8 This argument originates from a claim of Aristotle in *Physics* 11.7, 198a25–27.
- 9 Buridan, *In Metaph.* v, q. 1, fol. 27ra:

Ad aliam dicendum est quod, licet aliquando finis et agens vel etiam forma coincident, tamen aliquando inveniuntur distincta ab invicem et non coincidentia, ut servus gratia domini agit domum vel aliquid aliud, et dominus hoc non agit, sed est causa finalis et servus est qui agit, et praeter illa sunt forma domus et materia domus. Et propter hoc in aliquibus inveniuntur haec distincta. Et quia etiam ubi non sunt distincta secundum rem, tamen erit distinctio secundum rationem, ideo illa quattuor nomina poterunt poni quattuor genera distincta.

All translations of passages from Buridan's works are mine, unless otherwise stated.

- 10 This is the expression that Buridan uses in the reply to the same argument in the parallel question from the *Lectura Erfordiensis*, q. 18a, 127, ll. 6–8: “Ad ultimum dictum fuit quod ista quatuor genera dicuntur secundum diversas rationes causandi, et non quia semper supponant pro diversis rebus.”
- 11 Buridan, *In Metaph.* v, q. 1, fol. 26vb: “sciendum quod sufficit ad rationem causae quod res dependeat ab ea aut (i) in esse, aut (ii) in fieri aut (iii) in facere aut (iv) etiam in aliquo aliter se habere.” (i)–(iv) correspond to the material, efficient, final, and formal cause respectively.
- 12 See Buridan, *Lectura Erfordiensis*, q. 18a, 125, ll. 12–15: “Dico quod efficiens est causa, quia ab eo dependet res in fieri, et sine isto non fieret. Similiter dico quod finis est causa, quia agens agit per finem; et cum <hoc> hec dictio ‘propter’ significat causalitatem.”
- 13 Buridan, *In Metaph.* v, q. 1, fol. 26vb:

Ad finem autem dictum fuit super librum *Physicorum*, scilicet quod quid<am> est finis prior naturaliter ipso agente et eius actione et ordinat ipsum agens in agendo et est una causa agentis a qua agens dependet in agendo, et sic in agendo etiam talem effectum. Sed etiam aliquando effectus productus ab agente vel producendus vocatur finis vel causa finalis ipsius agentis. Et credo quod haec non sit propria locutio. Immo est denominatio extrinseca et attributiva sicut si diceremus ‘urina est sana’. Unde in attributione ad finem ordinantem ipsum agens vocatur finis vel causa finalis, quia vera causa finalis determinavit agens ad producendum illum effectum.

In the *Lectura Erfordiensis* Buridan gives a very similar outline of his discussion in the *Physics*. See *Lectura Erfordiensis*, q. 18a, 125, ll. 12–24.

- 14 Aristotle, *De anima* 11.4, 415b1–2. See the comments in Shields 2016, 202.
- 15 On the medieval interpretations of Aristotle’s distinction, see Maier 1955a, 280–81.
- 16 See above, p. 137–138.
- 17 For example, Aquinas 1954, 11, l. 9, n. 2, 117.
- 18 See Maier 1955a, 280, n. 13.
- 19 Averroes 2003, vol. 2, 299. Buridan presents Averroes’ distinction as a third linguistic formulation of the distinction between two kinds of end. See Buridan, *In Phys.* 11, q. 7, 296.20–297.3:

Finis enim dicitur alius quo, alius gratia cuius, alius operationis vel generationis, alius rei operatae vel genitae. Et ut dicit Commentator secundo *Caeli*, alius dicitur finis prima intentione et alius secundaria intentione. Et idem possumus intelligere per ‘finem dictum primaria intentione’ et per ‘finem gratia cuius’ et per ‘finem rei operatae’. Finis autem operationis dicitur illud ad quod terminatur generatio vel operatio; et hoc est etiam finis secundaria intentione dictus; et etiam vocatur finis quo, quia mediante eo attingitur finis gratia cuius, qui est finis principalis.

- 20 To establish whether Buridan only borrows from Averroes the terminology or also some of the ideas behind Averroes’ distinction requires further work.
- 21 Buridan, *In Phys.* 11, q. 7, 298.14–20: “Sic igitur concedendum est quod finis prima intentione dictus vere est causa eorum quae gratia ipsius sunt vel agunt vel aguntur ... Sed concedendum est etiam quod non oportet finem secundaria intentione dictum esse proprie loquendo causam suorum agentium vel actionum praecedentium ipsum.”

22 Buridan, *In Phys.* II, q. 7, 297.4–298.5:

Et est tanta differentia inter istos fines, quia finis dictus prima intentione est prior aliis in esse et bonitate et perfectione et necessitat et dirigit alia agentia quae agunt propter ipsum, et dirigit ea et actiones eorum. Et secundum exigentiam illius oportet etiam omnes actiones et fines secundaria intentione dictos moderari et ab isto et ipsius gratia omnia alia habent bonitatem et perfectionem. Sic enim Deus est finis omnium naturalium, sive activorum sive passivorum, vel etiam actionum et transmutationum. Sic enim stando citra Deum homo faciens domum est finis gratia cuius facit domum, et non est sic domus finis eius, quoniam ipse facit domum propter seipsum et salutem suam. Et si facit eam propter pecuniam habendam, adhuc illa erit propter se ipsum. Et si facit eam propter filios vel amicos, adhuc hoc est finaliter propter se ipsum, quia reputat illos tamquam ipsum et bona ipsorum tamquam bonum suum. Nam ut dicitur in *Moralibus*, pater quodam modo vivit in filio et amicus est alter ipse. Et non est inconveniens, si agens est finis suae actionis et factorum suorum, quia dicit Commentator in *De substantia orbis*: ‘finis significat agens significatione necessaria’. Unde et Deus est finis omnium et agens omnia. Et manifestum est quod Deus est principalis ordinator omnium aliorum; necessitat enim et ordinat caelum in motu suo. Et consequenter per caelum et motum caeli necessitantur et ordinantur ista inferiora principalius quam per agentia particularia, ut patet secundo *De generatione*. Sed etiam ulterius agentia particularia necessitant et ordinant effectus, quos producant secundum exigentiam ipsorum et agentium superiorum. Unde dissimilia agentia dissimiles producant effectus, et etiam facientes domos pro se ipsis vel aliis secundum exigentiam ipsorum diversas faciunt etiam eas diversas, ut dives facit magnam domum et fortem, pauper autem parvam et debilem.

23 This cosmological arrangement of agents is described in detail in Buridan, *In Phys.* II, q. 13, 339.15–342.11.

24 Buridan, *In Phys.* II, q. 13, 342.4–6.

25 Averroes 1562, cap. 2, fol. 6vbM: “Finis enim significat agens significatione necessaria, sicut motum significat movens.”

26 In fact, Averroes’ view about the end seems to be in sharp contrast with Buridan’s. On Averroes’ view, see Maier 1955a, 282–83.

27 See above, p. 138.

28 The association between the end and the good is put forward by Aristotle and repeated throughout in the medieval tradition. See Aristotle, *Physics* II.3, 195a25–27.

29 For a more accurate explanation of Aristotle’s notion of conditional necessity, see Charles 1991, 119–21.

30 Aristotle, *Physics* II.8, 198b24–29. On the Aristotelian example, see Bolton 2015, 139–42.

31 Buridan, *In Phys.* II, q. 13, 351.20–352.9:

Ad aliam concedendum est quod materia est necessaria simpliciter in essendo et non finis, nisi ille finis sit de numero agentium superiorum, cuiusmodi sunt Deus, intelligentiae et corpora caelestia. Sed in istis inferioribus non sunt motus et transmutationes et operationes vel etiam fines dicti secundaria intentione necessari simpliciter in essendo. Ideo de

tali necessitate non intendebat hic Aristoteles inquirere, sed intendit de necessitate in consequendo unum ex alio, verbi gratia ex quibus causis sequitur necessario quod dentes in homine fiunt acuti antierius et lati posterius et oculi in capite et non in pede. Antiqui enim dixerunt hoc sequi ex eo quod erat materia in ore subtilior antierius et grossior posterius. Et hoc non est verum, immo materia a principio formandi erat consimilis. Sed hoc provenit ex agentibus. Ex hoc enim quod applicatum est sperma viri materiae foetus formandi provenit necessario, si non sit impedimentum, quod generabitur foetus humanus et formabuntur membra talia et quod in diversis membris diversimode disponetur materia et quod tandem generabuntur oculi et pedes et quod ille videbit et ambulabit. Haec enim omnia ordinate necessitat et determinat natura agens directa a Deo et non ipsa materia . . .

- 32 Buridan, *In Phys.* II, q. 13, 341.19–24: “Sed iterum sexto dicendum est quod, si ex diversis dispositionibus materiae proveniat talis diversitas effectuum, tamen illas diversas dispositiones materialium oportet reducere in priorem diversitatem agentium. Cum enim materia sit de se indifferens ad omnes dispositiones, necesse est, si haec materia et illa fuerint diversimode dispositae, quod hoc fuerit per diversa agentia sic ea diversimode disponentia.”
- 33 The passage quoted in the text comes at the end of Buridan’s treatment of the example of the actions of swallows:

Sed de animalibus credo quod hirundo coiens, nidificans et ovificans non plus cognoscit pullos generandos quam arbor frondens et florens cognoscit fructum generandum. Nec hirundinis coitus, nidificatio et ovificatio dependent in esse et ordine eorum ab illis pullis, sed econtra. Nec illi pulli determinant hirundinem ad sic operandum, sed *forma et natura* hirundinis et corpora caelestia determinatis temporibus et Deus supremus per suam sapientiam infinitam determinant hirundinem ad coitum, ex quo consequenter sequitur generatio ovorum. Et iterum hirundine sic disposita *natura* hirundinis cum corporibus caelestibus et Deo determinant illam ad nidificandum et tandem ad ponendum ova et consequenter ad covandum et generandum pullos et ulterius ad nutriendum etc. Et igitur omnia proveniunt ab arte divina et corporibus caelestibus et *agentibus particularibus tam extrinsecis quam intrinsecis, quae sunt formae substantiales ipsorum corporum naturalium.*

(Buridan, *In Phys.* II, q. 13, 347.1–14; my italics)

- 34 Buridan, *In Phys.* II, q. 7, 295.18–25:

Videtur mihi quod omnes instinctu naturali tamquam a natura determinata (*read*: determinati) concedunt finem esse causam nostrarum operationum. Unde si petas a vetula propter quam causam vadit ad ecclesiam vel ad forum, dicet tibi ‘propter audire missam’ vel ‘propter emere tunicam’. Et si quaeratur a te ‘propter quam causam vadis ad scholas?’, respondes ‘propter addiscere’. Talia autem quae sic ab omnibus conceduntur non debent omnino negari, quia ad oppositum probandum non posset aliquid probabilius et magis concessum adduci, sicut dicit Aristoteles septimo *Ethicorum*.

The English translation is that of Pasnau 2001, 316 (with minor changes).

- 35 Buridan, *In Phys.* II, q. 7, 296.17–19: “Propter hoc igitur notandum quod, sicut sanum dicitur multipliciter et non una intentione (aliter enim animal dicitur sanum, aliter urina et aliter cibus), ita causa etiam in unoquoque quattuor generum causae dicitur multipliciter.”
- 36 The first two conclusions are those stated in text (T3) above.
- 37 Buridan, *In Phys.* II, q. 7, 298.22–25: “Sed tamen tertio concedendum est quod talis finis secundaria intentione dictus solet dici causa et causa finalis impropria locutione propter similitudinem vel quandam attributionem ad veram causam finalem, sicut urina diceretur sana propter attributionem ad veram et proprie dictam sanitatem.”
- 38 Buridan, *In Phys.* II, q. 7, 299.3–300.20.
- 39 Following a common medieval idea, Buridan attributes intentions to natural/non-rational agents too. The intention of a natural agent is its power and determination to act and produce effects that are appropriate to its nature, e.g., the intention of fire is its natural power and inclination to make other bodies hot and produce fire. See Buridan, *In Phys.* II, q. 7, 300.21–301.8; q. 13, 347.15–348.12. On Buridan’s view, see Maier 1955a, 312–17.
- 40 See above, p. 146–147.
- 41 Buridan, *In Phys.* II, q. 7, 300.9–14: “Et tunc secundum attributionem rerum ad intentiones nos attribuimus rebus intentis ordinem et denominationem intentionum. Ideo effectus ultimus vocatur causa praecedentium, et quia secundum veritatem est ultimus, vocatur causa finalis. Sed hoc non debet dici nec intelligi nisi ad istum sensum quod intentio eius est causa intentionis aliorum.”
- 42 Buridan, *In Phys.* II, q. 7, 300.14–20:

Nec valet ratio Aristotelis, ut mihi videtur, nisi ad concludendum praedicta. Non enim ad quaestionem quaerentem propter quid vel propter quam causam responderi debet effectus ultimus, sed intentio vel voluntas vel causae priores in esse sive termini pro praedictis supponentes. Unde si quaeratur propter quam causam vadis ad ecclesiam, debet dici ‘quia intendo vel volo audire missam’. Et si aliter respondetur, tamen veritas responsionis est ad illum sensum.

- 43 Buridan, *In Phys.* II, q. 13, 345.25–346.27.
- 44 Buridan, *In Phys.* II, q. 13, 345.9–24:

Dico igitur quod ex sanitate producenda in Socrate nullo modo dependet operatio praevia Platonis medici sui, quia nullus diceret quod operatio medici dependeret ex illa sanitate nisi quia medicus intendit illam sanitatem facere et quod haec intentio dependet ab illa sanitate . . . sed certum debet esse quod intentio medici non dependet ab illa sanitate producenda; igitur etc. Declaro igitur quod intentio et voluntas medici volentis sanare Socratem non dependet ex sanitate Socratis producenda. Primo, quia illa nihil est. Secundo, quia forte impossibile est Socratem sanari. Sed quomodo ex eo quod nec est nec esse potest dependeret intentio et voluntas Socratis (*read*: Platonis)? Hoc apparet mihi absurdum dicere. Iterum, si Deus intendit movere caelum et generare ista inferiora, non propter hoc oportet quod caelum vel motus caeli vel ista inferiora sint causae intentionis Dei nec quod aliquo modo intentio Dei dependeat ex illis. Et si hoc potest salvari de Deo, ita poterit salvari de nobis.

- 45 See above, p. 136.