

Final Causes and Action

By Matthew Sims

In his book *Physics*, Aristotle explicates a system of causes, classing them as four distinct types of explanation. When expressing the material cause of X, one provides an explanation of ‘that out of which X becomes’. The bronze, by which some particular statue of Socrates is constructed is an example of its material cause. In denoting an object’s formal cause, one provides an explanation as to ‘that which is essential to X’s being’. In this case it would be the likeness of Socrates which would be identified as its formal cause given that this very statue could not be what it is if it were the case that it somehow ceased to be a likeness of Socrates. ‘That which is the source of motion or rest in X’ is the explanation underlying the efficient cause. The efficient cause of our canonical example is the artisan’s *exercising* of her knowledge of sculpting that she actively engages in while sculpting this particular statue of Socrates. Aristotle’s last cause, what he calls final cause, explains ‘that for the sake of which X comes to be or is’. The artisan’s *intention* that the statue should *be a likeness of Socrates* denotes what its final cause is. Aristotle makes explicit that those things which are final and formal causes of X are often coextensive “for the ‘what’ and ‘for the sake of which’ are one” (*Physics* 198a 23-26). This is especially so in natural beings.

The point in my having just given a general presentation Aristotle’s causes is to emphasize the fact that they are to be understood as various types of interconnected explanations. In this essay, however, I will not be concerned with carrying out an in-depth analysis all of Aristotle’s causes nor arguing for (or against) the importance of any one of them with regard to its place in providing complete and systematic analysis of causation. Rather, my aim here

will be a more modest one. Firstly, I would like to consider how the notion of final cause may be applied to action. Secondly, assuming that causes are indeed kinds of explanations, and that the kind of explanation that one is involved in explicating for a given phenomenon places a requirement upon the level at which it bottoms-out, i.e. the level at which nothing additional is needed to explain that thing which a kind of explanation targets, it seems the following is true: If the final cause of an action, X, inherently involves an agent's intention as denoted by its intentional content, but an agent's having an intention that X be the case may just as succinctly be expressed as an agent's intending that X be the case, then the final cause of a particular action X from t_1 to t_n may be said to be another underlying action (call it a prior action or PA1) that occurs prior to t_1 and simultaneously to X's) being carried out. A problem arises, however, if we assume that a) final causes are meant to be bottom-out explanations, i.e. explanations which do not rest upon other more fundamental explanations to succeed in explanation the phenomena that they are targeting and b) PA1 may be said itself to have a final cause PA2. Given that PA2 must also have a final cause if all actions require prior intentions, we are faced with an infinite regress of prior actions (intendings) when attempting to get at the final cause of any one action. Thus finding an explanation which bottoms-out becomes impossible and hence so does locating the final cause of any particular action. As it stands both a and b cannot be true, so something in process has gone awry. What could this be? Are we to deny that actions have final causes – something which would be inconsistent with what Aristotle concludes in both *De Anima* (DA) and *De Motu Animalium* (MA)? I argue that we may avoid this inconsistent conclusion by constraining final causes, at least with respect to action, as those determined by the token phenomenon which is to be explained.

I

Let us begin by considering how the notion of final cause may be applied to actions.¹ This question might seem redundant given that Aristotle explicitly states “Now intelligent action is for the sake of an end” (Physics 199a 12). When Aristotle claims that this is the case, he is distinctly referring to the creation of artefacts and thus how a house’s coming to be may be explained in terms of its final cause.² The question which I am concerned with however is one of how actions themselves may be cogently explained in terms of having final causes. One way of going about answering this is to generally explore some of the relations of final causes to artefacts that have been canonically used as examples, showing how these final causes are qualified as such and then illustrating that actions satisfy the same criteria, thus may themselves qualify as final causes. In what follows I will limit my analysis of final causes to artefacts. Although the notion of final causes in nature is certainly an interesting and controversial topic, focusing on artefacts will bring us closer to the heart of the issue which this paper is concerned with bringing out into the open. Some of the examples of artefacts that Aristotle uses to exemplify final/formal causes of such things are houses and bronze statues of Socrates. What makes it the case that a house is not a collection of wood and stones? Aristotle’s answer that it is the form of the house, its *being a shelter from the environment*³, that the builder intends it to be which makes it a house. For that is that for the sake of which it has been constructed. Again, in referring to this intentional content, one also denotes what is essential to that particular structure being the thing that it is; one denotes its formal cause. Likewise, with a particular bronze statue of Socrates, that for the sake of which it has come to

¹ It is important to note that Aristotle did not hold that every phenomena has a final cause. One example that he gives are eclipse and eye colours as failing to have final causes because these are merely coincidental.

² For a superb exposition of Aristotelian final causes and their relation to form/essence see C. Witt (1989).

³ In what follows I will signal intentional content of an action with italics in many cases. There some other instances where italics are used as emphasis, however, the context should clearly provide a cue for the reader as to the function of the change in typeface.

be is denoted by the sculptor's intentions that it *be a likeness of Socrates*. If the statue suffered damage up until the point at which it would fail to be a likeness of Socrates, then it would also at that point fail to be the thing which it is now. Its essence, or form, is named by the very intentional content which denotes its final cause. They are coextensive.

Now how may these kinds of considerations with respect to artificial production provide us with any insight into whether or not some token action may be considered to be the kind of thing that may be explained in virtue of a final cause? One immediate insight that may be drawn is that an artefact's final cause is intrinsically linked to its having a function. Aristotle claims

“All things are defined by their functions: for in those cases where things are able to perform their functions, each truly is an F, e.g. an eye when it can see.” (Meteorologica 390a10-15).

'Function', being understood as a means to bring some particular type of thing about. The function of a sculpture of Socrates is *to look like Socrates*. The function of a particular house is *to shelter objects (its inhabitants) from the environment*. Now given that some abstract painting may also have a function, say *to be an expression of grief felt after a particular war*, generally it is not necessary to suppose that the functions of such artefacts need be always recognizable from the perspective of one who is not the artisan that created it. The point to emphasize is that artefacts which are subject to explanation via final causes are such as to necessarily have functions, whether or not those functions are recognizable to anyone other than the creator herself. To argue with a sculptor that her statue looks more like Democritus than Socrates does not alter that for the sake of which her statue has been sculpted and, hence, that which makes it what it is. We may therefore make a short and uncontentious jump from

the claim that an artefact's function is that for the sake of which it was created to the claim that an artefact's final cause is that for the sake of which it was created.

Like artefacts, actions are such as to have functions. The function of a particular action by a subject, S, is that for the sake of which S does the very action in question. My moving my arm in the direction of the coffee cup that is located on the table next to me has a function. It is a means to bring something about, namely, to satisfy my desire to take another sip of coffee. If this is true, then one may also claim reasonably that my moving my arm in the direction of the coffee cup may be explained in terms of being for the sake of something; that something being expressed by my intentional content *to satisfy my desire to take another sip of coffee*. Analogously to cases involving artefacts, the function of one's action is that which might be said to be essential to that token action being the kind of action that it is. Also this function needn't be known or recognized by any one outside of the agent in order to qualify as being that particular action. If there is a fly resting next to my coffee cup and someone sees my hand moving slowly towards the table upon which both are located, that person's belief that my arm is moving for the sake of swatting away the fly has no impact upon the kind of action which I am carrying out. My intentions to reach for the cup in order to drink coffee is what essentially types this action as the type of action that it is. Taking all of the above into consideration, there is compelling reason to hold that because actions may be typed by their functions and something's function maybe re-described without lose of meaning as being something's final cause, actions are such as to be explained in terms of their having final causes. That this is the case for Aristotle becomes explicit in his discussion of how animal motion comes about when he claims that

“all animals both impart movement and are moved for the sake of things, so that this is the limit to all their movement: the thing for-the-sake-of-which” (MA 700b14-7).

and afterwards that

“Now we see that the movers of the animal are reasoning and phantasia [imagination] and choice and wish and appetite. And all of these can be reduced to thought and desire (MA 700b17-23).

Although there seems to be some apparent inconsistency with Aristotle’s claims about the role of reason along with desire for action in DA and MA, in what follows intentions should be loosely construed as a combination of desire and intellect (intellect involving choice or *prohairesis*). In doing so I hope to observe both an Aristotelian notion of final cause with respect to action and also honor the distinction between desire and intention.⁴

II

Moving on, I would now like to turn our attention to the notion of levels of explanation and how this notion applies to final causes. It is commonly acknowledged that one particular level of explanation might be more beneficial when explicating a particular phenomena or fact depending upon one’s purposes. Daniel Dennett frames this eloquently when distinguishing how explanations that are more complete terms of physical descriptions, and as a result less practical, may be contrasted to those explanations which are more practical and

⁴ John Searle makes explicit one such distinction by illustrating that the conditions of satisfaction of intentions are stricter than those of desires. One intends to do X only if one reasons to believe that X’s happening is possible. However, one may desire that X even when one knows that X’s happening is impossible (Searle, *Intentionality* 1983).

inherently make use of more assumptions with regard to knowledge of a things design and that the thing in question is functioning as it was designed to (D. Dennett ‘Intentional Systems’ 1971). Consequently, our purposes determine the level at which our explanations are best conceptualized. Today the notion of the reduction of the mental to the physical is as much of an contested issue as it was 100 years ago and how to understand the principle of causal closure of the physical domain, for example, are for some unsettled.⁵ Luckily for us, the concern of this paper is not that of reduction. What I would like, however, to emphasize is the large impact of our purposes upon the level of explanation that we settle for and how our purposes justify our choices of the kind of explanations we pursue. In what follows I will be using the term ‘bottom-out explanation’ as a term of the art in describing not the lowest physical reductionist level of abstraction, but rather that level of explanation which is sufficient given our explanatory purposes. Applied to Aristotelian causes, for example, locating a material cause might require an explanation that bottoms-out in a description expressing the concepts of, say, particle physics or observable material properties. Locating an efficient cause, on the other hand, might require an explanation, depending upon the kind of mechanism which is being explained, that bottoms-out using of one of the following notions: ‘geometrico-mechanical, electro-chemical, energetic, or electro-magnetic’ (P. Machamer, L. Darden, C.F. Craver ‘Thinking about Mechanisms’).

What about final causes? It would seem that when attempting to explain ‘that for the sake of which X has come about or is’, such explanations, with respect to artefacts at least, bottom-out in the notions of intentions of the agent’s whose artefacts or actions are those things that are to be explained. Of course a subject’s intentional process might be described as being a particular neurological event occurring in a particular substrate, however, such a description

⁵ See Montero, B. 2001.

would exceed our purposes of attempting to explain *final causes* in favor of a reduction of intentions to mechanisms (efficient causes) and material causes. Thus, when we attempt to explain the final cause of X's coming to be, conceptually we pursue a level of explanation that necessarily involves the notion of intention. These are specified as intentional contents which describe those final causes and which determine the truth conditions for the specific function or essence of the action (or artefact) in question. Again, the final cause of a certain bronze sculpture of Socrates is the sculptor's intention that *it be a likeness of Socrates* and the final cause of an instance of my moving my hand is that *it be a coffee cup-retrieving*.⁶

Comparing the explanatory purposes of final causes with those of material or efficient causes, there is an interesting requirement upon the former that the latter seems not to be forced to comply with. Material causes and efficient causes, given one's explanatory purposes, may equally use various concepts that all fall coherently under the class of material (or mechanism in the case of efficient causes). Let's call these kinds of concepts 'lateral concepts'. This kind of bottoming-out is done without sacrificing that explanation's purpose and hence falling under another explanatory kind. Choosing to explain a mechanism with an electro-mechanical lateral concept is no better or worse with respect to being a material or efficient causal explanation than choosing to explain a mechanism with an electromagnetic lateral concept. Without the context available by which to determine what is best for one's purposes, all levels of explanation are laterally on par. With respect to final causes, however, the notion of bottoming-out at intentions takes on a slightly different role. To denote an object's or action's final cause is to name the level at which there is no other lateral concept available that may equally account for a thing's or an action's coming to be (or being)

⁶ Now, say, that what I think is a coffee cup is actually a mere hallucination. According to the above, despite this mistake, the final cause of my moving my arm is nonetheless identified with the intentional content that '*it be a coffee cup retrieving*'. My intention in this case would not be satisfied, but this has little to do with the kind of action my arm-moving is or any effect upon what determines its final cause.

essentially that thing or action that it is. There is no other level at which an explanation of some particular house's final cause bottoms-out. Anything other than naming the intention of its designer, specified as 'its being a shelter against the environment', would be incorrect. Likewise, if my intention is for my action to be a coffee cup retrieving, then to name any other intention to explain my behavior as its final cause would be miss the mark. One might argue that this particular event of my arm-moving could just as well be explained, if not more efficiently, as *being a way to satisfy my desire to drink coffee* and that because this is the desire which determines my intention to retrieve the coffee cup, that it's more of an accurate explanation. And if this is the case then there are at least two ways in which the explanation of my action may bottom-out, i.e. there are at least two lateral concepts which one may refer to given one's purposes.

In response, I would agree that this objection does get something correct. If my intention is to drink coffee from the cup located next to me and my arm-moving is a means in which to satisfy that intention, then yes my arm-moving may be explained in terms of having the final cause of its *being a means to satisfy my desire to drink coffee*.⁷ However, given that this really was my intention, it would still fail to be the case that this arm-moving could just as sufficiently be explained as coming about in virtue of *being a coffee cup-retrieving*. For the latter does not logically entail the former. Intending to retrieve my coffee cup and intending to satisfy my desire to drink coffee from that cup come apart. There is no inconsistency in the claim that I could have intended that my arm-moving function as a coffee cup-retrieving without ever intending to drink coffee. I just might want to hold the cup in my hand – end of story. Such an intention might appear strange but strangeness does not detract from the fact

⁷ That this is the case may be illustrated by invoking the notion that if one intends that d comes about and is committed to d's coming about, then one also intends that, and is committed to, the set of events {a,b,c,} which lead to d's coming about also come about. However, the set or no single member of the set is sufficient for a bottom-out explanation of one's action. Only referring to one's intention that X come about is sufficient. On the other hand, if I intend that a come about, any mention of b, c, or d as an explanation of my action with respect to satisfying my intention would be superfluous.

that these two kinds of intentions are neither bound logically nor metaphysically. So to claim that in the context of final causes there *is a choice* at which an explanation could bottom-out depending on our purposes is incorrect. For our purposes co-refer to those things which are denoted by our intentional content.

III

With this in mind, I would now like to turn the reader's gaze upon a problem, one which I hope to convince is not insurmountable but nonetheless deserves our attention if any of what we've concluded to be the case above isn't merely well packaged snake-oil.

The problem may be made explicit in the following *reductio*:

- i. Actions may be explained in terms of their final causes (assumption).
- ii. An action's final cause bottoms-out at that level of description which makes explicit an agent's intentions specified in terms of intentional content.
(assumption)
- iii. There is no distinct bottoming-out explanation (no sufficient lateral concept) for a given action other than that which the intentional content of that very action denotes as final cause.

- iv. That iii. is the case is supported by the notion that an object or an action may not have more than one essence, which in Aristotelian physics is coextensive with a thing's final cause. For if an object (or action) O is identical to its essence and both X and Y, which are not themselves identical, are O's essences, then O is identical to itself and not identical to itself.
- v. Having an Intention that 'X comes about' is itself an action, i.e. an *intending*.
(assumption)
- vi. There is no action in the absence of intention (assumption).
- vii. Then intendings must themselves have final causes which explain their coming about and hence require prior intendings for the sake of which they come about.
- viii. But these prior intendings themselves require having further prior intendings for them to come about and which are their final causes, ad infinitum.
- ix. If any token action is dependent upon having a prior intending which via its content denotes that action's final cause, then any token action is dependent upon an infinite number of prior intendings.
- x. If any token action is dependent upon an infinite number of prior intendings, then any token action fails to have an explanation which bottoms-out.
- xi. Actions may not be explained in terms of having final causes.

- C. Premise i. and xi. are inconsistent, thus one or more of the premises leading-up to them are false.

Given Aristotle's explicit support of that actions may be explained by final causes found in DA and MA, premise i. may be assumed to be correct. Thus, we should turn our attention to finding what it is that leads to premise xi., given that it must be false if premise i. is true.

Premises ii. through v. also seem to be sufficiently supported by the various considerations we've encountered above. That there is no action in the absence of intention might be said to be a conceptual truth.⁸ The culprit, I suggest, is premise vii. That this is the case requires a bit of tweezing and this is exactly what I plan to do next.

IV

When thinking about the notion of intention (and also intending), there are some somewhat trivial aspects of this concept that may be explicated. Firstly, it is logically impossible that there is such a thing as an accidental intention. For this would render that which accidental describes something other than an intention and hence this compound term would not refer to anything – much as the compound term 'healthy deceased thing' fails to refer. This is also true of the notion of an 'intentional accident'. One less trivial point may be brought forth by asking the question of whether or not an agent may intend that X be the case in the absence of being aware of her intention that X be the case? To return to our example above, I certainly

⁸ This is certainly open to repudiation by those, such as Searle, who distinguishes intentions from 'intentions in action' (Searle, 1983).

may intend to drink from a particular cup of coffee and be aware of that intention without being aware of all of the intermediate steps of action which are necessary (non-logically) which I must also intend to bring about as a means to satisfying the intention I am aware of. My intention to contract my individual finger muscles as I grasp the cup's handle is something which I am not aware of but something which is a means of carrying out the intention that I am aware of. It would be incorrect to deny this intermediate action's status as an action and instead regard it as a mere bodily reflex like the beat of a heart – something that I am not aware of doing because it something which I am not doing. That this is the case is apparent when using our intuitions about error. We cannot error with respect to bodily reflexes. It fails to be anything other than non-sense to accuse one's heart of beating 'falsely' if one has a heart attack. Error and blame becomes available only in light of intending. On the other hand, if I fail to carry out the actions required for satisfying my intentions to drink from my coffee cup, one may certainly and reasonably make the claim that I failed to successfully grasp the cup.

Could it be the case that there are intentions to act that we could never be aware of? It might be helpful to glean an answer to look briefly at beliefs. It is commonly accepted that we have beliefs which we are currently conscious of, i.e. occurrent beliefs, and those which are dispositional, i.e. non-occurrent beliefs. To this it might be suggested that there are beliefs which are non-occurrent and fail to be the kinds of contents which we could be consciously aware of. It is of course controversial what kind of benefit such beliefs would have to us, but this is beyond the point. Such never-occurrent beliefs count as beliefs because they play the correct functional role – caused by sensory input and causing other beliefs, informing desires and causing action. As long as a belief plays this role, then regardless of whether or not it could ever be occurrent, it is nonetheless a belief. Analogously, intentions, may be classified

to be states such that as long as they satisfy a particular functional role, that fact that some such state could never be occurrent fails to have an impact upon its being an intention. How to characterize the functional role of an intentions is an open question which falls out of the scope of this present essay, however, it will be assumed henceforth that there is a correct characterization and thus that there is nothing inconsistent with the notion of a cognizer having an intention that could not be known to him. After all, we do have cognitive limitations and these kinds of intentions (and also beliefs) might be resultant from them.

If it is the case, then there are intentions which we are aware of, intentions which we are not presently aware of but could be aware of, and those which for some reason or another we are not aware of and could never be aware of. Thus it might be suggested that the solution to the problem constructed above is to constrain intentions which qualify as final causes of action (or objects) to be those that the agent is or could be aware of. This, however, must be wrong. For if the reason that an intention counts as an intention is that it plays a certain causal role leading up to behavior, then that behavior which is brought about, regardless of its being the result of an intention that the agent could not become aware of, may be explained by that intention being its final cause – something without which that action would have been not carried out or a wholly distinct action. This, it might be argued, conflicts with what we have established earlier; an agent has a privileged epistemic role in determining the final cause of her actions. If she, herself may not identify the final cause of a particular action of hers, then what sense is there in the claim that her action had a final cause? Wouldn't our doing this overstep our third-person non-privileged epistemic status as determiners of other's intentional content?

This objection may be met by simply reminding ourselves that although any agent does have a privileged role in determining the final causes of her actions because of the intrinsic epistemic relation that she has with her own intentional content, the fact that she in some instances cannot be aware of this content does not entail that her actions do not have final causes or that a person other than her has a more privileged epistemic role with respect to her knowledge of her intentions. It does, however, entail that in such cases the final causes of one's actions needn't be known and that some action's being carried out may be underdetermined as being the conditions of satisfaction for an unknown intention.

There is another suggestion that I would now like to make in hopes of avoiding making final causes with respect to actions an inconsistent notion. It's a very simple suggestion indeed and one which has been there waiting in front of our noses for a good part of this paper. Simply stated, where the final causes of actions bottom-out is determined by *that phenomenon which is to be explained*. Premise xii. equivocates between explanatory targets in order to open up the possibility of an infinite regress. So it may be the case that S intends *that X comes about* and that S has a second order intending *that he intends that X comes about*, but there is a limit to the intendings that as such would count as a final cause of S's action. This limit is determined by that which is to be explained. When S is constructing her house, she might intend that this pile of wood, metal, glass and stone be organized as such as to eventually be a house. It is likely also that she intends to intend that this pile be organized as such as to be a house and that she may or may not be aware of her intending this. This latter intention, however, is the final cause of her intending that this pile be organized as such as to be a house and not the final cause of the pile being a house! Similarly, my arm-moving may be explain by my intention to retrieve the cup of coffee situated next to me. This is what I intend and its content serves to explicate the final cause of the action I engage in. There of

course may be a distinct intention of mine to intend to retrieve the cup of coffee. This intention, however, does not offer an explanation of my arm-moving but rather serves to explain for the sake of which my intention to retrieve the cup of coffee came about.

Explanatory targets demarcate where the explanations, in terms of being final causes, bottom-out. This is exactly what premise iii. states:

iii. There is no distinct bottoming-out explanation (no sufficient lateral concept) for a given action other than that which the intentional content of that very action denotes as final cause.

By referring to my intention of intending that X comes about when seeking an explanation for X's coming about, my explanation fails to be sufficient because it offers too much. To offer a definition of a cube as a geometrical figure with at least 6 square faces of the same size fails to be a sufficient definition because it offers too much. Sure, at least 6 equally sized square faces are *necessary*, anything less would fail to be a cube, but in order to be a sufficient definition one must account for the fact that a cube has *exactly* 6 equally sized square faces. In short, the fact that any action, in order to be an action, requires a prior intention does not entail that every prior intention leading up to any action counts as the final cause of that action.

But does this really halt the infinite regress of intentions? It seems as if we've found a limit to how far back final causes reach and explanatorily bottom-out, however, as such, this limit

does not demarcate how far back intendings reach. As a result, we are still faced with an infinite regress of intentions for any and all actions – a result that certainly doesn't sit well.

Although finding a means to stop this intentional regress falls outside the scope of this paper, I will say that I think a key to halting it might be recovered from paying close attention to Aristotle's response to Parmenides and Eleatics with respect to the possibility of change. Matter may not come to exist *ex nihilo*. Form, however, may be transferred or altered. Alteration may be in one sense understood as moving from one kind of actuality, e.g. a thing's having knowledge given its nature that may be potentially exercised, to an actuality that involves exercise, i.e. actually exercising the knowledge which it has given its nature (DA 412a11 -417a22). Being the type of agential creatures that we are entails that it is part of us essentially to have intentions. These may be non-active and thus had but not exercised in the case of higher order intending, but nonetheless we would fail to be the kind of creatures we are without them. When they become exercised, when given what we perceive we deliberate with respect to our desires – forming a choice to act in one way or another, it is the point at which our intentions may be said to become actualized as the final causes of our action. So to ask where our higher order intentions end becomes a question as to the kind of creatures that we are; they end where and when we fail to be agents. This kind of response, to be compelling, of course requires more fleshing-out.

Conclusion

Aristotle's final causes have been a source of great interest and attention in western philosophy since they were introduced. Rather than trying to make sense of final causes in

natural beings, this essay has attempted to argue that final causes may be used to explain actions and not just artificial production. One of the challenges of this latter application might be thought to be an opening of an infinite regress, which itself results in the denial of the initial claim that actions have final causes. I have argued that the threat of denying that actions have final causes may be avoided by paying particular attention to the weight of our explanatory targets. It is these targets which determine where and when our explanations of our actions bottom-out and, hence, ‘where the buck stops’ in terms of the final cause of any particular action.

Bibliography

Aristotle. *De Anima*. Translated by Christopher Shields.

———. *De Motu Animalium*. Translated by Martha Nussbaum.

———. *Meteorologica* Translated by H.D.P. Lee

———. *Physica* Translated by R.P. Hardie and R.K. Gaye

Dennett, D. 1971, “Intentional Systems”, *The Journal of Philosophy*, Vol. 68, No. 4, pp. 87-106.

Machamer, P. Darden, L and Craver, C.F. 2000, “Thinking about Mechanisms”, *Philosophy of Science*, Vol. 67, No. 1. pp. 1-25.

Montero, B. 2001. Varieties of causal closure. In *Physicalism and Mental Causation*, ed. S. Walker and H.-D. Heckmann, 173-187. Exeter: Imprint Academic.

Searle, J. 1983, *Intentionality: An Essay in the Philosophy of Mind*, Cambridge University Press.

Witt, C. 1989, *Substance and Essence in Aristotle: An Interpretation of Metaphysics VII-IX*, Ithaca, NY: Cornell University Press.