Aristotelian Powers

Charlotte Witt

Aristotle’s theory of causation has multiple threads, and his texts invite multiple interpretations. The variation in interpretation is, in part, a result of different perspectives and questions that are brought to the text. For instance, Aristotle’s theory of the four causes has invited scrutiny from contemporary philosophers of science, who are interested in theories of explanation (van Fraassen 1977) as well as philosophers of biology, who are interested in teleology, taxonomy and other concepts. (Gotthelf 1987)

This paper looks at Aristotle’s theory of causal powers in relation to contemporary realist theories of causation in science and social science. Rather than try to dress Aristotle in contemporary philosophical fashion, however, I will simply describe his views on the relationship between causal powers in general, and causal powers that operate with reason. I will also describe the metaphysics presupposed by his realist theory of causal powers. The first topic should interest philosophers trying to extend a realist account of causation from the physical sciences to the social sciences. The second topic is of relevance to contemporary philosophers interested in exploring the metaphysical commitments of causal powers.

I devote particular attention to the ontology of causal powers as Aristotle develops it in *Metaphysics* IX. (Witt 2004)1 This focus will allow me to develop two points. First, Aristotle’s realist ontology of causal powers faces a challenge, which leads him to distinguish two ways of being for causal powers. Aristotle finds it necessary to defend the existence of inactive causal powers because of the challenge of Megarian actualism. The Megarians hold that a causal power only exists while and so long as it is active. A person can build a house only when she is actually building it; a fire can heat water only when it is actually heating water; an object is perceptible only when it is actually being
perceived-- and so on. But, it is part of the notion of a causal power that it exists whether or not it is active. In order to respond to this challenge Aristotle draws a distinction between two ways of being a power; when it is active the power exists actually; when it is inactive it exists potentially. Contemporary writers have noted that we need a way of understanding powers that includes their present but inactive existence (Harre 1970, p. 84), although Aristotle’s ontological response to this difficulty might seem wrong-headed or unnecessary. One objectionable aspect to his solution is the inherently teleological relationship between being x potentially and being x actually.

Second, Aristotle does not draw an ontological distinction between those powers that operate with reason (e.g. crafts like housebuilding or arts like medicine), and those that do not. He does provide different conditions of realization for the two kinds of powers, but those conditions are variants within the same ontology of causal powers. In this regard, Aristotle offers one possible realist framework of causal powers that sees human action (and hence the social sciences) on a continuum with the physical sciences rather than as categorically (ontologically) different from them, and therefore requiring an entirely different explanatory framework. It is important to note, however, that Aristotle’s paradigmatic physical science is biology and his framework for understanding natural living beings (organisms) is teleological. Perhaps a better way to put this is that Aristotle’s understanding of the physical sciences (e.g. chemistry) is entirely different from ours, and it is a good question how relevant Aristotle’s unified framework of causal powers is given current conceptions of the physical sciences, and the centrality of physics and chemistry as models of the physical sciences.

The common theme that unites both of these aspects of Aristotle’s ontology of causal powers is the central presence of teleology. It is because of the teleologically directed character of the potentiality-actuality framework that Aristotle can refute Megarian actualism. A dormant power is intrinsically dependent upon, and teleologically directed towards, activity, or actuality, and that is the character of its being; it exists
potentially. And, Aristotle conceives of human activities as on a continuum with the behavior of non-rational animals because of the unifying role of teleology that is common to behavior at both ends of the spectrum. It may be the case that a realist ontology of powers that spans both natural and human activity must rest on a teleological footing, but I will not argue this point on Aristotle’s behalf in this paper. The central role of teleology sets Aristotle’s views apart from contemporary versions of realist theories of causal powers.

Aristotle’s Theory of Causal Powers

In ordinary Greek *dunamis* means “strength” or “power” and also “ability” or “faculty”. The term occurs with this range of meaning in both philosophical and non-philosophical contexts. We say that fire has the power to heat other substances and we think that it has that power whether or not it is actually heating anything. We also speak of a person’s abilities, like the ability to play the viola or to speak French. These abilities, we think, exist even when we are not using them, when we are asleep or engaged in other activities. One way to think about the powers or abilities of substances is as dispositional properties, which are exercised in certain circumstances but not in others. We can contrast the dispositional properties of a substance with its categorical properties, like height or weight. Since substances, like animals or plants, have both dispositional and categorical properties, it seems uncontroversial that powers and abilities exist. In *Metaphysics* IX, however, Aristotle tells us that some philosophers disputed the existence of *dunamis* and held, for example, that a person can play the viola or build a house only when she is actually or actively engaged in those activities. Actualists do not think that inactive powers or abilities exist. And, since it is part of the notion of a causal power that it exist even when inactive, the actualist argument is really an argument against causal powers. I return to this issue later.
Aristotle’s definition of the term *dunamis* builds on its use in ordinary language. For Aristotle the primary, or basic, meaning of *dunamis* is “the origin of change in another thing or in the thing itself as other”. (*Metaph.* IX 1046a 10-11). A *dunamis*, in this sense, is a power to change another thing. As examples, Aristotle mentions the art of building and the power of heating. These powers are origins of changes, of building and of heating, respectively, that are located in an object separate from the building materials or the cold body. The act of building a house or heating a body has its beginning in a power or ability of the builder or heating agent. The primary meaning of *dunamis* centers on the idea of an agent or an active power. In the case of a builder, the power or ability to build originates in his knowledge of the art of building. A heating agent, in contrast, is able to heat by virtue of being hot. In one case, the power that originates the change is like the product (heat) and in the other case it is different (the art of building is not a building). It is interesting to notice that Aristotle explains both human agency and physical causal interactions by means of the notions of agent and passive powers. Although Aristotle distinguishes between the realization conditions of rational and non-rational powers, the distinction between rational agency and physical causation is not fundamental to his thought. I return to this point below.

Corresponding to the idea of an agent power is a passive power, the power an object has to be changed in some respect. Each agent power or agent requires a corresponding receptivity to change in the object. “For the one is in the thing acted on; it is because it contains a certain motive principle, and because even the matter is a motive principle, that the thing acted on is acted on . . . For that which is oily, can be burnt and that which yields in a particular way can be crushed.” (1046a20-25) These examples
might give the impression that all agent powers originate in the form of a substance, while all passive powers originate in its matter. For example, the agent power of the doctor’s art originates in her soul or form, and the passive power of an olive to be crushed is clearly a material feature. The correlation between agent power and form, and passive power and matter, does not hold in all cases, however. For example, the agent power of heat is material, and the ability to learn music is a passive power that originates in the form or soul of the student. Therefore, agent and passive powers cannot be systematically correlated with form and matter.

With one exception Aristotle insists on the separate location of agent and passive powers: in so far as an agent changes something, it changes another object, and not itself. The agent power and the passive power are in two different objects. If an object changes itself, as for example a doctor might cure herself, then Aristotle’s different object requirement holds that we must divide the doctor into agent and patient. Aristotle adds “And so, in so far as a thing is an organic unity (sumpephuken), it cannot be acted upon by itself; for it is one and not two different things.” (1046a28-29) The different object requirement obviously does not govern changes which are internal to a natural substance, if that substance undergoes the change as a unified whole. So, for example, we cannot use agent and passive powers to explain the process of development a human being undergoes from baby through childhood to adulthood since that happens to the human organism as a whole. And, since every plant and animal is a natural unity that undergoes development, not all the changes that natural substances cause and undergo can be explained within the framework of agent and passive powers.
Towards the end of *Metaphysics* IX Aristotle tells us that he is particularly interested in a kind of *dunamis* or power that he calls ‘nature’. Nature is an internal principle of change within a unified organism, which Aristotle explicitly distinguishes from agent and passive powers by invoking the different object requirement. (1049b5-9) Hence, Aristotle’s understanding of *dunamis* is not restricted to the agent and passive powers of substances; it includes the internal origin or agent of their teleological development. Although it is fair to infer that nature is a power with different realization conditions from agent and passive powers, Aristotle does not explicitly spell out realization conditions for nature here. Of course, Books I and II of the *Physics* contain an extended discussion of nature and its principles.

In contrast Aristotle’s discussion of agent and passive powers strongly suggests that they can be given a dispositional analysis. To say that oil has the passive power of being flammable is to say that under certain conditions (which can be given a general or lawlike specification) oil will burn. Similarly, to say that fire has the agent power of heating is to say that under certain conditions (which can be given a general or lawlike specification) fire will heat another object. Absent the appropriate set of conditions, however, neither power will be activated or expressed. Hence, its agent and passive powers are dispositions that a substance has to act upon another substance or to be acted upon by another substance.

Aristotle’s basic notion of a causal power is that of an agent, which is activated when it meets up with a correlative passive power (in the appropriate circumstances). These powers, together, achieve a single outcome: “the wholesome produces only health, and the calorific only heat, the frigorific only cold”. (1046b19-20) In *Metaphysics* IX
chapter 5, Aristotle gives the conditions under which an active power acts. “When the agent and the patient meet in a way appropriate to the power in question, the one must act and the other be acted upon.” (1048a5-7) Indeed, Aristotle proposes to define a power in terms of its realization or activation conditions: “that which is capable is capable of something and at some time and in some way (with all the other qualifications which must be present in the definition).” (1047b35-1048a2) In order to act, an agent power like heat must meet up with something with the passive power to be heated, in the appropriate circumstances. And the agent power of heat can be defined by means of a specification of these activation conditions.

The operation of causal powers is necessary if and when all of the activation conditions have been met (“the one must act and the other be acted upon”). It is important to emphasize that Aristotle maintains the reality of causal necessity throughout his discussion of causal powers including those causal powers that underwrite human agency. Yet, Aristotle also recognizes that physical causal powers without reason differ from those that operate with reason with regard to their activation conditions.

Aristotle on Powers with Reason

Not all agent powers have precisely the same realization conditions. Aristotle distinguishes powers that inhere in things with souls from powers that inhere in things without soul. But, he does not develop a systematic distinction between powers based on the contrast between living and non-living substances. Some substances with souls have powers of two kinds; they have both rational (*meta logon*) and non-rational (*alogon*) agent powers. For Aristotle the central cases of the rational powers of beings with soul are the arts or other productive understandings. Arts are “originative sources of change
in another thing or in the artist himself considered as other.” (1046b2-4) The art of housebuilding is an example of a rational power that is the origin of change in another thing (the building materials) and the art of medicine is an example of a rational power that can originate a change in the doctor, in the case where the she heals herself. Although Aristotle is clearly thinking of human activities, and he believes that only human beings have rational powers, the centrality of productive (craft) activities might allow for an extension of rational powers to non-human animal species.

Agent powers that operate with a *logos* follow a slightly different pattern from those that do not. What does the word *logos* mean in this context? Some scholars argue that it should be understood to mean the power of reasoning, a part or function of the soul parallel to the power of growth or desire. Here the emphasis is on art as requiring reasoning; a doctor has to reason about the best means to achieve health in the patient. Others argue that “with a logos” means with a principle or rule. Here the emphasis is on art as a rule-governed activity; a doctor has to follow the rules or principles of medicine. Pretty clearly Aristotle does think of arts, like medicine and housebuilding, as involving a means-end reasoning process. And, since Aristotle sometimes says that the active power in the doctor is the art of medicine, he might think of the doctor as following a medical rule or principle. Probably he includes both of these explanations in his phrase “with a logos”.

Aristotle describes two differences between rational and non-rational agent powers. The first difference concerns the effect that is brought about. A non-rational power or agent is capable of only one effect (in one set of circumstances); a heating agent heats. Non-rational powers are single outcome. (1046b19-20) A rational power like the
The art of medicine, in contrast, can produce either one of a pair of contrary effects (in one set of circumstances); a doctor can improve or cure the patient and a doctor can worsen or even kill the patient. Rational powers have multiple possible outcomes. Someone who knows what health is, and can bring it about, also knows what disease is, and can bring that about as well. And, even if the doctor has good motives, there is more than one possible outcome. Second, a rational power does not bring about an effect that is the same as itself in the way that a non-rational power can. A physician, whose knowledge of medicine is a rational agent power, cures a patient. She brings about the state of health in the patient rather than teaching him medicine. Similarly, a housebuilder does not make the art of housebuilding or an object with that art (which is a rational power); he builds a house. In contrast, non-rational powers can convey the property they embody directly to the object. Heat makes the object hot.

Hence, with regard to their effects, rational powers differ in two ways from non-rational powers. Their effects are always different from themselves, and they are capable of multiple effects. There is a kind of distance between a rational power and what it brings about. Because it does not simply duplicate itself in another object, a rational power can bring about the full range of different effects that fall between the contraries that specify the range in question (e.g. health and illness for the doctor). Rational powers are not as limited in what they can cause as non-rational powers are.

Since the rational power of medicine could be the origin of a range of states in the patient from health to its opposite, it is clear that the power itself (the art of medicine) cannot be the sole origin of the change. If the art of medicine can produce either health or sickness (or some state in between the two), but cannot produce both at once, then
some other factor must determine which of these will eventuate. Hence, Aristotle adds a realization condition to powers with reason--either desire or choice (orexis, proairesis) is the deciding principle. This is the third difference between rational and non-rational powers. Non-rational powers do not require any additional principle “when the agent and the patient meet in the way appropriate to the potency in question, the one must act and the other be acted on”. (1048a6-8)

Choice is a central concept in Aristotle’s ethical theory; choice knits together the rational process of means-end deliberation to our actions. He defines choice as “a deliberative desire for things that are up to us” (E.N. 1113a11) Prohairesis means “preference”; it is a choosing-before that incorporates desire into the process of reasoning. Is Aristotle in this text trying to make some human activities non-deterministic and voluntary? Is his distinction between rational powers and non-rational powers meant to carve out a non-deterministic realm for human ethical, or practical, action?

In different places Aristotle lists several conditions for voluntary actions. Voluntary actions are those that are “up to us” to perform or refrain from doing. If I were a divinity, a necessary being, then my actions would be necessary and not “up to me” to perform. (E.E. II 6 1222b20-23) Human actions are contingent and not necessary like divine action. The action must also have its causal origin in me. I am not responsible for what happens when my ship is blown off course by a typhoon. Finally, the agent must know the relevant facts concerning the circumstances surrounding the action. Oedipus did not kill his father voluntarily, since he did so in ignorance that the person he struck was his father. Although there are apparent tensions between what Aristotle says in different texts, it is clear that Aristotle’s analysis of voluntary actions includes a causal condition and an epistemic condition. Actions that are “up to us” to perform or to refrain from
performing are those whose origin is internal to the agent. However, the internal causal principle requirement does not require further that the internal origin itself is entirely unconditioned and a break in the causal order. On the contrary Aristotle thinks that a medical action like purging is up to the doctor to perform (or not) and the action has an origin internal to the doctor. But the action is fully causally explicable within Aristotle’s framework of the four causes.

Once choice or desire is added to tilt the scale, the activation of rational powers turn out to be no less necessitated than active powers like heat. “Therefore every agent, which has a rational power, when it desires that for which it has a power, and in the circumstances in which it has the power, must do this.” (1048a13-15) Rather than making an exception for rational powers, Aristotle wants to make the activity of agent powers all equally necessitated in the appropriate circumstances, which raises a problem for those powers which can result in opposites. Choice and desire are causal principles Aristotle uses to make rational powers like all other agent powers-- as necessitated by their realization conditions-- rather than to make them different. Hence, it is a mistake to interpret the importance of Aristotle’s distinction between rational and non-rational powers as primarily ethical or as concerned with the issue of free will and determinism in the sphere of human action. For Aristotle both rational and non-rational powers can be given a dispositional analysis; both are to be defined in terms of their activation conditions. And both are necessarily activated when these conditions are met. With regard to the necessity governing causal powers, both rational and non-rational powers are the same.

The Ontology of Powers in Aristotle
Intuitively, the existence of causal powers is obvious and uncontroversial. We often talk about the powers and abilities of substances—humans, plants, material stuffs. What could be less controversial than the idea that objects and materials have abilities and powers, which they exercise (or express) at certain times, but not at others? What could be more obvious than the idea that objects have the potential to do things other than they are doing at present or to be other than they are at present? Who could doubt the fact that human beings have a wide range of innate faculties, like perception and acquired abilities for activities like playing the viola or building a house?

No matter how uncontroversial the existence of powers and abilities might appear to us, there were (and are) philosophers who question their existence. According to Aristotle, “there are some who say, like the Megarians, that a thing can act only when it is acting”. (1046b29-30) If a thing can act only when it is acting, then there are no abilities and powers that the thing has even when it is not actually using them. Aristotle presents several arguments against the actualist position. It is important to see that what is at issue between Aristotle and the actualist is not the existence of \textit{dunamis}, but the existence of inactive \textit{dunamis}. The disagreement between Aristotle and the actualist turns on whether or not the idea of a \textit{dunamis}, which can exist in two ways, as inactive \textit{and} as active, is philosophically acceptable.

Aristotle has two responses to the Megarians. First, he argues directly against the coherence and intelligibility of their account of powers. I have discussed the details of these arguments elsewhere. (Witt 2004) Aristotle’s second response is important for the purpose of understanding Aristotle’s ontology of powers. Aristotle responds to the Megarian’s position that inactive powers do not exist by reference to the ontological
distinction between being x potentially (an inactive power) and being x actually (an active power). Notice that Aristotle does not think that a contrary to fact analysis of powers as dispositions is sufficient to account for the present existence of inactive powers. (Harre 1970) To account for the present existence of inactive powers, Aristotle thinks, you need the concept of potentiality.

But the concept of potentiality is a relational concept, and must be understood in relation to actuality. Further, Aristotle thinks that being x potentially and being x actually should be grasped by example and that neither term can be defined. Aristotle’s examples include that of the exercise of a power or capacity of a substance to the inactive capacity (e.g. someone actually seeing to someone who can see but has her eyes shut), and that of a completed substance to its matter. Aristotelian powers exemplify Aristotle’s distinction between being x potentially and being x actually. When an agent power like housebuilding is inactive it exists potentially, and when it is active, it exists actually. Aristotle’s distinction between two ways of being responds to the actualist claim that only active powers exist. In a sense, Aristotle splits the difference between his view and the Megarians. He denies the Megarian view that powers exist only when active; but he does not claim that inactive powers exist simpliciter. When they are inactive, they exist potentially; when active, they exist actually.

By applying the potentiality/actuality distinction to causal powers, Aristotle places them within a relational, teleological framework. Potentiality and actuality are relational terms in Aristotle because something that exists potentially only does so in relation to existing actually. Being x potentially is a relational way of being that is both teleologically directed towards, and ontologically dependent upon, being x actually.
What is potentially is for the sake of an actuality, but actualities do not exist for the sake of potentialities. There is a one-way dependency that tracks the teleological directedness between what is potentially (the power of sight) and what is actually (seeing). In short, the priority of actuality in relation to potentiality is central to Aristotle’s ontology of powers, and the basic structure that underlies this priority relation is teleological. It is this metaphysical teleology that might be most worrisome for contemporary philosophers, who are otherwise attracted to Aristotle’s realist theory of causal powers.

A second difficulty also arises from Aristotle’s teleology and the central place of biological organisms in his scientific framework. Contemporary philosophers of science take physics and chemistry to be the paradigmatic sciences and their theoretical requirements shape the conceptual resources of scientific explanations, including causation. But for Aristotle natural, biological substances are the central subject matter of natural science, and understanding them shapes Aristotle’s theory of causal powers. As I remarked earlier, the centrality of biological organisms makes teleological explanations basic to Aristotelian science of the natural world. From this perspective it is easy to see human actions as explicable using the framework of causal powers appropriate to understanding the teleological activities of non-human natural beings—with just a little tweaking. But, if we restrict teleological action to the human realm, then the common thread that Aristotle finds between human action and nature is severed. Without the teleological thread it is unclear on what basis it makes sense to extend a realist theory of causal powers from nature to social life.