

Aristotle on Change – *Physics* I.1-8

Notes on terminology and basic concepts (see also the text's Glossary, pp. 939ff, for useful discussion of Aristotle's terminology)

- Note the title, *ta phusika*, meaning “the *phusis* things” – i.e., natural things, things with a *phusis*, an internal principle of being.
- 184a11-16. Note the explicit reference to principles (*archia*) and their role in human knowledge of the physical world. Note too that Aristotle leaves open the possibility that some things lack an *arche* (principle), suggesting that some things lack order (or, anyway, lack a logical order).
- Notice, too, that Aristotle recognizes a complex system of principles, elements, forms, essences, and accounts. The form of a thing offers an account (*logos*) of its nature. E.g., The form of Socrates is “man”, roughly speaking, and also, in a somewhat different sense, “philosopher”. The elements, for Aristotle, were earth, air, fire, and water. These have their own nature (*phusis*), such that in various combinations they yield the various stuffs of the world (copper, oil, bone, etc.). In addition, certain things have an “essence”, for Aristotle, which is a complex form identifying its nature (*phusis*). The essence of Socrates would be identified by his taxonomical position: (as we now understand it -) eukaryot-metazoan-deuterostome-chordate-vertebrate-synapsid-mammal-eutheria-primate-catarrhin-hominid-homo-sapiens.
- Note the “data” collection at 189b33-190a13, for example, followed immediately by analysis/synthesis at lns. 13-22.
- Note the references to *logos* – i.e., “account” – e.g., 188b17, 190a18, 191a13.
- Note the reference to order (cosmos) at 188a32-3: the natural world acts not “in just any old way.” Rather, change occurs in an orderly fashion, from opposites (see below).
- Note the mention of order and disorder at 188b11-15, and the role of *logos* (account) in providing order, at the subsequent lines 16-20.

From Parmenides, we have the following puzzle (*aporeia*; see 191a24-28):

1. If change (becoming *P*) is possible, then it must come either from that which is (i.e., *P*), or that which is not (i.e., not-*P*).
 2. But *P* cannot come from *P* (i.e., for that would not be a change).
 3. And *P* cannot come from not-*P* (i.e., cannot come from nothing).
- Hence,
4. Change is not possible.

Aristotle's response

- Change does involve opposites – it is not “completely random” or disorderly.
 - o From *P* comes *not-P*
 - o From *not-P* comes *P*
 - o E.g., the dark, (not-pale) comes from the pale; the musical from the unmusical.
 - o But, he thinks, change does not involve *only* opposites.
- Changing things are not (merely) simple, but compound.
 - o Simple change involves that which comes or ceases to be, only. E.g., the musical thing (as such) comes to be from the non-musical thing (as such). Where change in simple terms is concerned, we speak solely of opposites.
 - o To speak of compound change, by contrast, is to speak of simple change in conjunction with a *subject* of that change. Thus, the non-musical *man* becomes musical. Note that the subject of this change, a substance, is not the “opposite” of anything. Substances *per se* do not have opposites, because substances are things and not simply properties. (Compare *Categories* 4a10.)
- So, in response to Parmenides, Aristotle can reject (1): *P* can come from the *compound* of *not-P* plus a subject (i.e., the subject of *not-P*). (Similarly for a change to *not-P*.)
 - o Note that Aristotle can rely here on the substance/property distinction already drawn in the *Categories*. Substances are ontologically prior to the properties that inhere in them.
 - o In other words, substances *persist* through change, whereas the property instances they instantiate come and go, replacing each other.

Two forms of change

- Aristotle further departs from Parmenides by recognizing both accidental and substantial change.
- Accidental change: a substance gains or loses an accidental property. E.g., man becomes musical; Socrates becomes pale. Accidental change always involves opposites.
- Substantial change: a substance comes/ceases to be by the gain/loss of an essential property.
 - o Here, Aristotle employs a distinction between *matter* and *form*, enabling him to identify a further persisting subject of change.
 - o Form: that which is gained/lost (these admit of opposites)
 - o Matter: the subject of substantial change (doesn't admit of opposites)
 - o For example: a (formless) pool of bronze is molded into the shape (form) of a statue. The persisting subject of change, here, is the bronze. It gains or loses a particular form.
- Aristotle's appeal to *matter* as a persisting subject of change will raise an evident conflict with his account in *Categories*. For if matter can be a subject of change, it would seem to contest substance's claim to being the most basic of beings. (We can put this puzzle in the form of this question: why isn't a shapeless pool of bronze itself a substance? Perhaps the answer will be that matter as such does not occur without some form or other.)