

The Organization of the Sciences

Texts

1. ... as in the case of knowledge (or science, *epistêmê*). This is classed as **theoretical, practical, and productive**. (*Topics* VI, 145a15-16)
2. There is a science of nature, and evidently it must be different both from practical and from productive science. For in the case of productive science the principle of production is in the producer and not in the product, and is either an art or some other capacity. And similarly in practical science the movement is not in the thing done, but rather in the doers. But the science of the natural philosopher deals with the things that have in themselves a principle of movement. It is clear from these facts, then, that **natural science must be neither practical nor productive, but theoretical (for it must fall into one of these classes)**. (*Metaphysics* XI. 1064a10-19)
3. And since natural science, like other sciences, confines itself to one class of beings, i.e. to that sort of substance which has the principle of its movement and rest present in itself, evidently it is neither practical nor productive. For the principle of production is in the producer—it is either reason or art or some capacity, while the principle of action is in the doer—viz. choice, for that which is done and that which is chosen are the same. Therefore, if **all thought is either practical or productive or theoretical**, natural science must be theoretical, but it will theorize about such being as admits of being moved, and only about that kind of substance which in respect of its formula is for the most part not separable from matter. Now, we must not fail to notice the nature of the essence and of its formula, for, without this, inquiry is but idle. Of things defined, i.e. of essences, some are like snub, and some like concave. And these differ because snub is bound up with matter (for what is snub is a concave nose), while concavity is independent of perceptible matter. If then all natural things are analogous to the snub in their nature e.g. nose, eye, face, flesh, bone, and, in general, animal; leaf, root, bark, and, in general, plant (for none of these can be defined without reference to movement—they always have matter), it is clear how we must seek and define the essence in the case of natural objects, and also why it belongs to the student of nature to study soul to some extent, i.e. so much of it as is not independent of matter. That natural science, then, is theoretical, is plain from these considerations. Mathematics also is theoretical; but whether its objects are immovable and separable from matter, is not at present clear; it is clear, however, that it considers some mathematical objects qua immovable and qua separable from matter. But if there is something which is eternal and immovable and separable, clearly the knowledge of it belongs to a theoretical science, —not, however, to natural science (for natural science deals with certain movable things) nor to mathematics, but to a science prior to both. For **natural science deals with things which are inseparable from matter but not immovable**, and some parts of mathematics deal with things which are immovable, but probably not separable, but embodied in matter; while the first science deals with things which are both separable and immovable. Now all causes must be eternal, but especially these; for they are the causes of so much of the divine as appears to us. **There must, then, be three theoretical philosophies, mathematics, natural science, and theology**, since it is obvious that if the divine is present anywhere, it is present in things of this sort. And the highest science must deal with the highest genus, so that the theoretical sciences are superior to the other sciences, and this to the other theoretical sciences. (*Metaphysics* VI.1, 1025b19-1026a23)

Comments

If logic is a science, it must be theoretical (since it is concerned with knowing, not with doing or making). And if theoretical, it must fall under mathematics, natural science, or theology.

But logic cannot be mathematics (since it does not concern numbers or figures), or natural science (since it is not restricted to material objects capable of change). That seems to leave theology. But how could logic be a branch of theology?

The usual solution: logic is not a science, but a **tool** (*organon*) used by all of the sciences.