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CHAPTER 1

Aristotle on the Definition of What It Is to Be Human

Christian Kietzmann

According to a philosophical commonplace, Aristotle defined human beings as rational animals. When one takes a closer look at the surviving texts, however, it is surprisingly hard to find such a definition. Of course, Aristotle repeatedly stresses that he regards rationality as the crucial differentiating characteristic of human beings, but he nowhere defines the essence of what it is to be human in these terms. What is more, Aristotle's abundant remarks about human nature are scattered throughout his texts, and he offers no systematic treatise on human beings.

In this chapter, I will argue that this is no accident, and that the two facts are linked: Human being as an object for systematic explanation simply doesn't fit neatly into Aristotle's conception of the sciences: no single science covers the essence of human being. And, since definitions fix the basic terms for each science and serve as explanatory principles within them, it follows that 'human being' cannot be defined.

This is how I will proceed: I will first argue that Aristotle nowhere defines human essence (Section 1), and then I will say a few words about the place of definitions in Aristotle's thought more generally (Section 2). In light of these remarks and Aristotle's statements about uniquely human characteristics and their explanation, I will identify the most likely candidate for such a definition (Section 3). However, it will turn out that, by Aristotle's lights, humans cannot be defined in this way because human being belongs to two completely different ontological realms and, therefore, must be investigated by two different kinds of sciences: humans as animals are investigated by physics and, more particularly, by zoology, whereas humans as rational beings are investigated by theology (Section 4). I will then explain what qualifies the human intellect as a subject of inquiry for theology (Section 5). Finally, I will draw the conclusion that, for Aristotle, humans are ontologically divided and that, therefore, there can be neither a science of humanity nor a unified definition of what it is to be human (Section 6).

1 Does Aristotle Anywhere Define Human Being?

I begin with the question of whether there are passages in which Aristotle defines human being as a rational animal, or rational living being – as a *zōon logon echon*. The main contender for such a passage is a famous text from the beginning of the *Politics*. Here, Aristotle employs the formula and uses it to explain an otherwise puzzling human characteristic. This is the passage usually invoked when a definition of humans as rational animals is ascribed to Aristotle:

> Now, that man is more of a political animal than bees or any other gregarious animals is evident. Nature, as we often say, makes nothing in vain, and man is the only *zōon logon echon*. And whereas mere voice is but an indication of pleasure or pain, and is therefore found in other animals (for their nature attains to the perception of pleasure and pain and the intimation of them to one another, and no further), the power of *logos* is intended to set forth the expedient and inexpedient, and therefore likewise the just and the unjust. And it is a characteristic of man that he alone has any sense of good and evil, of just and unjust, and the like, and the association of living beings who have this sense makes a family and a state. (*Pol.* I 2, 1253a7–18)[1]

According to Aristotle, there are many gregarious animal species, such as horses and cows, and some among them form associations, such as bees, ants, and humans. However, the associations formed by humans are unique in that they are held together by a shared sense of justice and a shared awareness of the common good that is served by this association. This shared sense and awareness is made possible by human *logos*, which is likewise unique to human beings. So, for Aristotle, what explains the characteristic and unique form of sociality that we find in human life, i.e. families and states, is another uniquely human property, the possession of *logos*. Only man is a *zōon logon echon*, and, therefore, only man is a *zōon politikon* and a *zōon oikonomikon* in the specific sense of these terms that is characteristic of human beings: they alone live in city-states and proper households.[2]

Does this passage prove that Aristotle defined human beings as rational animals? I don't think so, for two reasons. First, he doesn't talk about reason or rationality here, but rather about speech. Aristotle explicitly contrasts human *logos* with mere voice. The sound-making of non-human species is

[1] Unless otherwise noted, Aristotle's works are cited from Barnes's *Revised Oxford Translation*.

[2] Compare Cooper (1990) and (2010) for a lively description of the specific way in which humans share goals and, therefore, form communities of kinds unheard of among other animal species.

merely expressive, indicating pleasure and pain. But indicating these states is not yet communication; it is no exchange of ideas. By contrast, human speech transports concepts, and makes possible the exchange and the sharing of ideas, such as conceptions of what is good and evil, and what is just and unjust. So the distinction Aristotle is interested in is that between animal voice and human speech. And, while speech and reason are closely related to one another, for speech articulates conceptually structured thoughts, they are, nonetheless, different things.[3]

My second reason for doubting that our passage offers a definition of humans as rational animals is that the formula of man as *zōon logon echon* does not seem to be intended as a definition. All Aristotle says is that *logos* is unique to humans, and that it is a feature that can explain another characteristic feature of humans, namely their specific sociality. He nowhere claims that the explanatory feature amounts to a definition – that it lays down *what it is to be human*.[4] It is more plausible to assume that, here, Aristotle is pointing out a characteristic (*idion*) property of humans and uses it to explain another characteristic property. And, although every defining property is *idion*, not every *idion* property is part of a definition. It may be something that itself stands in need of further explanation. If these considerations are legitimate, it is doubtful whether our text is evidence for the thesis that Aristotle defined humans as rational animals.

Furthermore, there are several passages in Aristotle's logical and metaphysical works where he does state a definition of what it is to be human. However, in those passages Aristotle consistently defines humans as two-legged animals.[5] One such text is from book VII of *Metaphysics*, in which Aristotle, in the course of bringing up the question of the unity of essence and definition, gives the example of human beings:

> Wherein consists the unity of that, the formula of which we call a definition, as for instance in the case of man, two-footed animal; for let this be the formula of man ... [T]he differentiae present in man are many, e.g. endowed with feet, two-footed, featherless. Why are these one and not many? (*Met*. VII 12, 1037b11–23)

[3] See McCready-Flora (Chapter 2) for further discussion of this passage in *Pol* I 2 and the relation between speech and rationality in Aristotle.

[4] In *EE* VII 10, 1242a22f, Aristotle talks of man as both *zōon politikon* and *zōon oikonomikon*. It is obvious that this cannot be intended as a fundamental definition of human essence.

[5] These passages include: *Cat.* V, 3a9–15, 21–25; *DI* XI, 21a15; *APo* I 14, 79a29; I 22, 83b3; II 4, 91a28; II 5, 92a1; II 6, 92a29–30; II 13, 96b32; *Top.* I 7, 103a25–28; V 4, 133b8–11; *Phys.* I 3, 186b25–30; *PA* I 3, 644a5–11; *Met.* IV 4, 1006a32–b3; VII 12, 1038a4; VII 15, 1040a16.

For the purposes of his discussion, Aristotle provisionally defines man as a two-footed animal – provisionally, because what he says, as he is careful to point out, is to be understood as a stipulation that will serve as an example, and not as his last word on the matter. Furthermore, he adds that the human has many differentiae, i.e. distinguishing features that somehow enter into the definition, not merely two-footedness, but also footedness and featherlessness. When they enter properly into a definition, these features somehow form a unity with the other parts of the definition. The essence to be captured is one, a unity, and, therefore, the parts of the definition taken together must likewise form a unity, and not merely a list of many items. Aristotle's question is how they do this.[6]

What this passage has in common with the others in which Aristotle gives a definition of human beings is that Aristotle is concerned with logical and not with anthropological questions. The definitions he gives serve purely illustrative purposes. They are meant to provide examples for, e.g. his discussion of the question of the unity of definitions. It is, therefore, easy to think of them as *mere* examples which do not express any systematic commitment on Aristotle's part.[7] It is even tempting to take them as a joking, tongue-in-cheek reference to debates in Plato's academy.[8]

As we have seen, Aristotle doesn't define human beings as rational animals, and when he does state a definition, albeit as a logical example, he talks about humans as two-footed terrestrial animals. What does that mean? Why doesn't Aristotle define humans straightout as rational animals, as we have come to expect of him? At this point, someone may suggest that the only reason we don't find a definition of humans in Aristotle's texts is that he isn't interested in defining animal species.[9] Humans are then no exception, because Aristotle's scientific programme doesn't aim at defining species, and so isn't interested in defining humans either. However, there are good reasons to think, on the contrary, that Aristotle does have this aim. For instance, he criticises dichotomistic approaches to definition for their

[6] Compare his final solution to the problem in *Met.* VIII 6, 1045a7ff., where the example reappears.

[7] For such a reaction, compare Jansen (2010, 159–60).

[8] For Plato's definition of humans as featherless biped land-dwellers, see his *Statesman* 266e. According to Diogenes Laertios, Diogenes of Sinope reacted to this definition in the following way: 'Plato had defined Man as an animal, biped and featherless, and was applauded. Diogenes plucked a fowl and brought it into the lecture room with the words, "Here is Plato's man". In consequence of which there was added to the definition, "having broad nails"' (*LEP* VI 4).

[9] Pierre Pellegrin argues that Aristotle is interested in animal parts and not in animal species; see e.g. Pellegrin (1985). For a forceful refutation, compare Lloyd (1996, 54–55), and Lloyd (1991, 375–80).

inability to give correct accounts of animal species.[10] There, he apparently approves in principle of the intention, finding fault only with the way it is pursued. What is more, given the close link between *to ti ēn einai* (essence) and *ousia* (substance), and Aristotle's consistent adherence to the thesis that *ousiai* are first and foremost individual animals, we should expect definitions of animal species, and not of single organs or organic systems, to be of ultimate interest in his zoology. And if Aristotle seeks to define animal species, we should expect him to define humans, given the central importance he confers to humanity in his zoology.[11]

Thus, we may conclude that it would be desirable for an Aristotelian scientist to give a definition of what it is to be human, even if Aristotle himself doesn't provide such a definition. So what could that definition be? As a first step towards an answer, let us clarify Aristotle's conception of definition.

2 Definition and Explanation

What role do definitions play in Aristotle's conception of science, and what does he demand of a good definition? For Aristotle, definitions have the form of a universal predication: they say that some attribute A belongs to all B, where A and B are concepts, and B is the concept of the species to be defined. Obviously, however, not every universal attribution to a species term is a definition of that term, but only an attribution that grasps the nature or essence of the species. In order to codify the *what it is to be* for a species, a proper definition must, therefore, fulfil some further requirements. Aristotle's remarks suggest the following four:

(a) Firstly, the terms of the definition must be *convertible*. A proper defining term A must be such that not only all Bs are A, but also all As are B. In other words, the terms A and B must be *coextensive*. Definitions must be extensionally adequate, i.e. the defining property must cover each and only those particulars that belong to the species to be defined.

(b) Secondly, the defining properties must be characteristic (*idion*) for the species in question. Not only must all Bs be A and *vice versa*, but this must hold of necessity. In other words, the terms A and B must be *necessarily coextensive*. This requirement ensures that an

[10] *PA* I 3, 642b30, 643a7, 643a17, 643b1–2, 644a10–11.

[11] Aristotle treats humans as models and points of comparison for other species; see *HA* I 6, 491a19–21 and *PA* II 10, 656a3–14.

explanation starting from a definition proceeds from the thing's nature and not just from some accidental property that all members of the species, and only these members, happen to have.

(c) Thirdly, the definition must have explanatory power,[12] for a definition encompasses those characteristic properties of a species that explain its other characteristic properties. Such an explanation – a demonstration (*apodeixis*) – shows that the characteristic properties to be explained belong to the species because of its essence or nature, and, therefore, with necessity.

(d) Fourthly, the terms of the definition must be taken from those that are characteristic of the science within which the definition is given. Aristotle thinks of sciences as sets of concepts that are hierarchically interrelated through explanatory syllogistic patterns. His idea seems to be that these bodies of concepts must be self-contained in order to be truly explanatory: sciences are concerned with specific kinds of objects, for which specific terms are required. Of course, there may be some overarching logical, metaphysical, methodological, and explanatory principles that recur in several sciences. Still, what makes a science *one* is its subject matter and the characteristic terms that are needed in order to properly grasp this subject matter.

These remarks show the importance for Aristotle of the explanatory function of definitions. He thinks of definitions as *archai*, as starting points, of scientific explanations. They are, as it were, the unexplained explainers within an Aristotelian science. We will later return to Aristotle's point that definitions are always in some sense relative to a single science.

From the central explanatory role of definitions derives a second, taxonomic function. By grasping the explanatory characteristics of a species, a definition systematically relates that species to other species. The definition codifies what the species in question has in common with other species and what distinguishes it from them. This is visible in the form a definition exhibits: on the one hand, it subordinates the species to a genus, thereby relating the species to other species that likewise fall under the genus; on the other hand, it demarcates the species in question from the other species falling under the same genus by means of specific properties that belong only to this species and not to the others. However,

[12] Compare *DA* II 2, 413a12–15: '[I]t is not enough for a definitional account to express as most now do the mere fact; it must include and exhibit the cause also'.

both genus and specific difference – and thereby similarity and contrast – are supposed to form a unity in the definition, and the question of how this is possible is an important topic for Aristotle in his logical and metaphysical works.

When we ask how to define a species, the Aristotelian scientist must keep these requirements of definitions in mind. Aristotle considers the requirements of necessary extensional adequacy and of explanatory power to be especially useful. The scientist should first establish facts about which characteristic properties a given species possesses, and then try to come up with the best possible explanations for these facts. Definitions will then develop quite naturally: the essence of the species in question will consist in the explanatorily most basic and most pregnant properties of that species.[13] So, when we ask how to define human beings within an Aristotelian science, we should first identify the characteristic properties of human beings, and then establish an explanatory order among them.[14]

3 The *Idia* of Human Beings and Their Explanatory Order

What is *idion* for humans, according to Aristotle? There are numerous claims, scattered throughout his works, about the features that make humans unique in the animal kingdom, or that humans exhibit to the highest degree among all animal species. These include bodily features: for instance, only in humans is the belly hairier than the back (*HA* II 1, 498b20–21; *PA* II 14, 658a16–25); humans are the only animals with a proper face (*PA* III 1, 662b19–22; *HA* I 8, 491b9–11); and humans exhibit the greatest multiformity of parts (*PA* II 10, 656a3–14). But they also include specifically human activities: for instance, humans possess the most finely discriminating sense of touch (*DA* II 9, 421a20–22); only humans engage in thinking, calculation, and reasoning (*DA* III 10, 433a11–12, and *Met.* I 1, 980b26–27); and only humans act (*EE* II 6, 1222b18–20). These and the other features Aristotle mentions are material for a scientific understanding of human beings. Properties like these enter into explanations, either as *explananda* or as *explanantia*. And, in a complete scientific understanding of human beings, these explanations will form a hierarchical order, such that eventually certain characteristic properties of humans will explain, directly or indirectly, all the rest.

[13] This seems to be the message of Aristotle's programmatic remarks in *DA* I 1, 402b16–403a2.
[14] Aristotle explicitly remarks that humans are a species in *PA* I 1, 645b25.

What explanatory patterns emerge? A central class of explanations concerns bodily features, which are explained as realising soul functions. The idea is that bodily parts are designed in such a way that they serve a certain function, and serve it best. The kind of necessary connection that underwrites functional explanation is hypothetical necessity: a property A is hypothetically necessary for all B if some end C can only be attained for Bs (i.e. if Bs can only be C) if A belongs to all B.[15] For instance, a saw can only fulfil its function of sawing if it is made of hard and sharp material like iron. Only if the property of being made of such material belongs to all saws can the property of being able to saw also belong to them.[16] Aristotle seems to think that *idion* properties of bodies can usually be understood as serving one function or another: a heuristic principle of his science of nature is that 'nature makes nothing in vain'.[17]

I will discuss in greater detail one interesting example of an explanation of specifically human bodily design in terms of function. This example is Aristotle's explanation of humans' upright posture through their divine nature and essence, which consists in their ability to understand and think. Here is the relevant passage in full:

> Mankind . . ., instead of forelimbs and forefeet has arms and what are called hands. For it alone of the animals is upright, on account of the fact that its nature and substantial being are divine; and it is a function of that which is most divine to understand (*noein*) and to think (*phronein*). But this is not easy when much of the body is pressing down from above, since the weight makes the intellect and the common sense sluggish. For this reason, when their weight and bodily character becomes excessive, it is necessary that their bodies incline towards earth, so that for stability nature placed forefeet beneath the four-footed animals, instead of arms and hands. For it is necessary that all those able to walk should have two hind limbs, and such animals become four-footed because their soul is unable to bear the weight. (*PA* IV 10, 686a25–b2, transl. Lennox)

In accordance with Aristotle's usual explanatory pattern in terms of hypothetical necessity, this explanation has two parts: Aristotle first identifies a formal characteristic of humans, and then explains their upright posture as hypothetically necessary for realising this form. The formal characteristic is

[15] Hypothetical necessity is introduced in *Phys.* II 9 and *PA* I 1 and helpfully discussed by Cooper (2004).

[16] The example of the saw occurs in *Phys.* II 9, 200a10–12, a similar one of an axe in *PA* I 1, 642a9–11.

[17] The principle that 'nature makes nothing in vain' is fundamental and pervasive in Aristotle's physical writings: *Resp.* 10, 476a11–15; *PA* III 1, 661b18–25; *IA* 2, 704b12–17; *GA* II 5, 741b4; *GA* V.8, 788b20–25; *Pol.* I 2, 1253a8–9.

that human nature or substantial being, i.e. what it is to be a human being, is divine. In other words, humans are not merely one animal species among many others and, thus, the subject matter of a natural scientific understanding. They have another side beyond their animality, for they are divine, and this is what characterises them formally or substantially. Their divine nature or essence is evident in the fact that they engage in understanding and thought.

Now, what must be the case for this to be possible? How must humans be arranged, physiologically speaking, such that they can understand and think? Aristotle seems to believe that a necessary physiological precondition for understanding and thinking is that not too much weight presses down on the heart. However, the details of this claim are difficult to understand and only intelligible in light of some background assumptions Aristotle states elsewhere. Here is an interpretation of what Aristotle might have had in mind: He thinks that understanding requires *phantasmata*, mental images. He repeatedly stresses that we 'never understand without *phantasmata*' because 'the *noētikon* understands the forms in *phantasmata*'.[18] This needn't mean that understanding *consists* in the exercise of *phantasia*. In fact, it cannot mean that, because *phantasmata* are *kinēseis*, and Aristotle denies that understanding consists in a *kinēsis*.[19] However, the occurrence of *phantasmata* can, nevertheless, be a *precondition* of the activity of understanding. For Aristotle, understanding what, say, a triangle is entails being able to imagine a triangle and conceive of that imagined triangle in a certain way: you think of it as a paradigm of triangularity, and thus as standing in for the *eidos* of triangles (*Mem.* 1, 449b32–450a6). *Phantasmata* come from the *phantastikon*, the part of the soul responsible for imagination, which is part of the *aisthētikon* or perceptual part of the soul. The organ with which the *phantastikon* is correlated is the heart (*PA* II 1, 647a25–b8).[20] So Aristotle's idea seems to be that, when too much weight presses on the heart, the *phantastikon* which has its seat there is impeded in its operation and becomes tardy.[21] And since understanding and thinking depend on imagining, understanding and thought are impeded, too. To avoid this, there must be little weight pressing on the heart. In animals with a bulky body above the heart, thinking and understanding are seriously impeded, so much so that they seem to lack understanding

[18] *DA* III 7, 431a14–18; III 7, 431b3–4; *Mem.* 1, 449b32–450a1. See also *DA* III 8, 432a9–10.
[19] Compare *DA* III 3, 428b11–12: '*Phantasia* seems to be some kind of *kinēsis*'. For the denial, see Section 5.
[20] For the heart's role in perception, compare Lloyd (1978, 222–24).
[21] Compare his explanation for why we fall asleep at *PA* II 7, 653a10–19.

altogether; and because of the bulkiness of their upper parts, these parts incline towards the ground, which is why these animals have four feet.[22] By contrast, humans have a light upper body, which is further propelled upwards by heat coming from the heart, so that the body's weight doesn't press down too much.[23] Thus, humans have an upright posture.

This is one important example of how Aristotle thinks the functions of the human body's parts account for their design. These functions are fixed by the different capacities for life activities whose unity is the human soul. Is there an explanatory hierarchy among these activities? If so, we need to look to the highest activities, i.e. to those on which all the others depend, in order to establish what humans first and foremost are.

In *Nicomachean Ethics* I, Aristotle distinguishes between two parts of the soul, one which has *logos* and one which does not. The non-rational part is common to all animals, both human beings and other animal species. It comprises faculties of sensation and locomotion, as well as the nutritive powers of growth and digestion (*EN* I 7, 1097b34–1098a6).[24] Aristotle elsewhere notes that the presence of higher faculties in a species imply the presence of the lower ones. For instance, beings with a perceptual capacity will also have nutritive capacities, presumably because the latter stand in the service of the former by providing for the necessary preconditions of their exercise.[25]

According to *EN* VI, the rational part also has two parts of its own: the *epistēmonikon*, which is concerned with theoretical understanding and aims at truth and knowledge, and the *logistikon* or practical part, which is concerned with action, and aims at practical truth and a good life. The practical part of reason contains knowledge of how to produce things, that is, the different *technai* which enable their possessor to engage in *poiēseis* of this or that kind. However, since such productive actions are never chosen for their own sake, but are always supposed to contribute to a good life, the possession of *technai* depends on the possession of a further faculty,

[22] Aristotle sometimes ascribes *phronēsis* – which I have here translated as 'thought' – to animals other than humans. See Coles (1997) for an extended discussion and an (to my mind somewhat too) optimistic view of Aristotle's outlook on animal thought.

[23] As Aristotle had explained earlier on: 'This is also why human beings alone among animals are upright; for the nature of the prevailing heat produces growth from the middle according to its own movement' (*PA* II 7, 653a30–33, transl. Lennox).

[24] See also *DA* II 3 on the nutritive, the perceptive-locomotive, and the rational soul.

[25] Compare *DA* II 3, 414b28–415a14 for the containment relations among the different parts of the soul. Interestingly, Aristotle states that these containment relations hold for faculties up to and including those responsible for reasoning (*logismos*) and discursive thought (*dianoia*). However, he explicitly excludes the intellect: 'The consideration of theoretical *nous* is another matter' (*DA* II 3, 415a12–13).

practical wisdom (*phronēsis*), which enables their possessor to deliberate and choose with a view to correct ends. The theoretical part of reason contains bodies of material knowledge about different subject matters, e.g. physics or theology, which have the explanatory structure described in *Posterior Analytics*. Such understanding knowledge depends in turn on having insight into the essences of the things the respective sciences deal with. Possessing such insight means to have understanding, i.e. to have an intellect (*nous*).[26] So within the two parts of the rational soul, we find a kind of hierarchical order. In the *logistikon*, *technai* are in the service of the good life, and thus are dominated or 'ruled' by *phronēsis*, which deliberates correctly about what is conducive to our good life. In the *epistēmonikon*, *epistēmai* depend on insight into the essences of the objects with which the sciences are concerned, and thus on *nous*.

In *EN* X 7, Aristotle famously announces that the two parts of the rational soul are ordered hierarchically. The activities of the *logistikon*, he argues, are inferior to the activities of the *epistēmonikon*. True being and the ultimately good life for human beings doesn't consist in the practical life, which is an exercise of *phronēsis* and ethical virtue, but in the theoretical life. It consists in the full activity of the highest part of the *epistēmonikon*, in the contemplation (*theōrein*) of the essences of things.

Given these hierarchical orders, we must say that all human life activities are ultimately in the service of contemplation. For this reason, *nous*, which is the human capacity that is fully exercised in contemplation, is ultimately the defining characteristic of what it is to be human. Every other human capacity must be understood as standing in the service of *nous*. This explains why Aristotle tries to account for many of the peculiar properties of the human body in terms of human rationality. Since the body serves as a tool for the soul, we should expect the possession of reason to have repercussions on how the human body is designed. As we have already seen, Aristotle explains human two-leggedness by means of hypothetical necessity through the intellect. Similarly, he explains the uniqueness of human hands by their serving as a tool of tools, and thus by human intelligence (*PA* IV 10, 687a2–687b23);[27] and he makes several rather speculative remarks about the human body as the most natural body, presumably because he thinks of it as serving as a tool for understanding, whose articulation in members somehow mirrors the objective world order revealed by *nous*.[28]

[26] For *nous* as the grasp of essences, compare Frede (1996) and (2008).
[27] Note, however, that Aristotle does not speak here of *nous*, but rather of *phronēsis*.
[28] See *PA* II 10, 656a9–14. Compare also *IA* 4, 706a19–20, and *HA* I 15, 494a26–494b1.

Given the role Aristotle assigns to definitions, and to *nous* when it comes to understanding what human beings are, we should expect Aristotle to define humanity as *zōon noon echon* – as the essence-grasping animal. However, as we will see in the next section, there are also strong reasons to think that such a definition is impossible within the framework of Aristotelian science.

4 Are Human Beings the Subject Matter of a Single Theoretical Science?

Recall Aristotle's requirement that definitions be given within one science employing terms that come from the body of concepts of this science, or from a superordinate science. Why does Aristotle require this? The unity of a science is achieved through the unity of the *genos* under which its terms fall (*APo* I 28, 87a36–38). And Aristotle insists that there are no genus-crossing demonstrations, i.e. no demonstrations that employ terms from different *genē*: 'One cannot ... prove anything by crossing from another genus – e.g. something geometrical by arithmetic' (*APo* I 7, 75a38–39). So we should expect a definition to contain only terms that fall under the *genos* delimiting the reach of the science in which that definition serves as a first principle.[29]

If there is a definition of what it is to be human, we must ask, then, for which science it serves as an explanatory starting point. In *Metaphysics* VI, Aristotle distinguishes between three kinds of theoretical science in accordance with their subject matter. His criteria for this distinction are whether the objects of the sciences are subject to change or not, and whether they are ontologically independent (*chōriston*) or dependent. This gives us three sciences: *physics* (or *natural science*) deals with changeable and ontologically independent objects, *mathematics* with unchangeable and ontologically dependent objects, and *theology* with unchangeable and ontologically independent objects (*Met.* VI 1, 1026a7–23).[30]

A definition of human being would have to be a starting point for a science that corresponds with one of these three broadest sciences. No doubt

[29] However, Aristotle also stipulates an important qualification: sciences are hierarchically ordered through the containment-relations of their delimiting *genē* – there are subordinate and superordinate sciences. A subordinate science may be able to establish a fact, but unable to demonstrate why it holds of necessity, whereas a superordinate science may be unable to get hold of the relevant fact, but able to give a demonstration for it; compare *APo* I 13, 78b34–79a7.

[30] There is no science of changeable and ontologically dependent objects – in other words, there is no science of accidents. There cannot be such a science, because facts concerning accidents do not have the universality and necessity that is a precondition of scientific intelligibility.

the most likely candidate here is physics. For one, humans are changeable objects – they are subject to change in the categories of substance (coming-to-be and passing-away), of quantity (growth), of quality (alteration, which occurs e.g. in perception) and of place (locomotion). And, second, humans are ontologically independent – they are proper substances and not accidents of substances, in the way that mathematical objects such as geometrical figures or quantities are. Does this mean we should expect a definition of humans in the science of physics? For this to be the case, all characteristic properties of human beings would have to be graspable by the definition of what it is to be human, and all these characteristics would have to be terms of a single science subordinate to physics.

However, Aristotle denies that all properties of human beings are investigated by physics. This comes out in a passage from the methodological treatise at the beginning of *De Partibus Animalium*. This is a work of physics, a work that deals with the bodily constitution of living beings and aims at explaining the properties of several different kinds of bodily organs through their function. Relevant functions are given in an account of the life activities that the organs are to serve. Such an account is an account of the soul. At one point, Aristotle wonders whether all of the soul is subject matter for natural scientific explanation. In other words, Aristotle wonders whether all life activities fall within the ambit of a science that investigates the being of changeable and ontologically independent objects:

> [O]ne might puzzle over whether it is up to natural science to speak about all soul, or some part, since if it speaks about all, no philosophy is left besides natural science. This is because intellect is of the objects of intellect, so that natural science would be knowledge about everything. For it is up to the same science to study intellect and its objects, if they truly are correlative and the same study in every case attends to correlatives, as in fact is the case with perception and perceptible objects. However, it is not the case that all soul is an origin of change, nor all its parts; rather, of growth the origin is the part which is present even in plants, of alteration the perceptive part, and of locomotion some other part, and not the rational; for locomotion is present in other animals too, but thought in none. So it is clear that one should not speak of all soul; for not all of the soul is a nature, but some part of it, one part or even more. (*PA* I 1, 641a33–641b9, transl. Lennox with alterations)

Here Aristotle gives two arguments for excluding *nous* from the study of the science of natures. First, to study *nous* means to study not only its capacity, but also its objects, i.e. the intelligible forms. This is so because

the capacity of *nous* is in this respect similar to the capacity of perception: both are defined as what they are by their full activities, and the fully actualised exercise of these activities is identical with their objects.[31] According to this picture, humans have the capacity to understand the things around them, to grasp their essences, and, correlatively, these things have in them the potential to be understood, to be grasped with respect to what they are. To fully exercise one of these two capacities is at the same time to fully exercise the other. For a human being to understand the essence of a horse, say, is *ipso facto* for horses to be understood with respect to their nature or essence. But, if this is right, then *nous* and intelligible forms belong together in such a way that one cannot understand or investigate *nous* in its full activity without at the same time investigating the essences grasped by it. And, if to understand *nous* is to understand it in its full activity, we cannot understand it fully without understanding all intelligible forms, i.e. without understanding everything there is. Therefore, if *nous* were a proper object of natural scientific investigation, natural science would be a science of everything – which would be, as Aristotle seems to think, plainly absurd. So natural science cannot be concerned with *nous*.

Aristotle's second argument presupposes that natures are origins of change and rest. Therefore, only those parts of soul that are principles of change can reasonably be investigated by natural science. But not all of the soul is a principle of change. The changes living things undergo are growth, alteration, and locomotion. These are respectively located in the vegetative, perceptive, and, as we might say, locomotive parts of soul. But *nous* overlaps with none of them. It is not an origin of change, because it is not responsible for growth, alteration, or locomotion, and that for which it is responsible, namely theoretical understanding, is not a change at all.[32] Therefore, *nous* is not a nature in Aristotle's sense, and thus no proper object of natural science.

That *nous* is not a topic for physics follows from the nature of thought: one cannot understand thinking without its object, and thinking is not a change. Since *nous* is not an ontologically dependent object, like the abstract objects of geometry, it is not a topic for mathematics either.[33]

[31] I take this to be the message of the difficult passages in *DA* III 4–5, where Aristotle works on the assumption that the perceptual grasp of perceptible properties as it had been laid out in the preceding chapters can serve as a model for understanding the intellectual grasp of intelligible forms.

[32] Aristotle makes and defends this claim in *Phys.* VII 3, 247b1–248a9.

[33] Aristotle explains the ontological dependence of mathematical objects in *Met.* XIII 1–3.

The only science that is left is theology: *nous* is a theological term insofar as it is unchanging and ontologically independent.[34] It is noteworthy that Aristotle here and elsewhere talks about *nous* as divine, ascribing divinity to humans because and insofar as they have *nous*. His thought must be this: humans are divine, and thus the proper subject matter for theology, *qua* their possession of *nous*.

5 Why Is *Nous* Divine?

But what is it that makes *nous* divine? Going by Aristotle's classification of the sciences, we can already say this much: *nous* is divine insofar as it is ontologically independent and not subject to change. But to what extent is *nous* independent and not subject to change? In his theological speculations in *Metaphysics* XII, Aristotle ascribes the properties of eternity and life to God (*ho theos*). As a living thing, God is ontologically independent; and, as an eternal being, God is not subject to change. In this context, Aristotle equates God's activity with thought thinking itself, and God thus with *nous*. But why should we think of *nous* as having these properties in the first place? And do the properties of ontological independence and unchangeability apply to *nous* in general, or only to divine *nous* and not to its finite human cousin?

Let us consider the first question. In *De Anima* III, Aristotle takes his account of perception as a model for understanding the activity of *noein*. According to this model, perceivers have a capacity to perceive (e.g. to see), to which corresponds a capacity in objects to be perceived (e.g. to be seen). When I see a red blotch on my shirt, my capacity to see is fully active; at the same time, the blotch's visibility is fully active. These activities are identical: there's only one activity of seeing, which is also the activity of being seen. When we apply this model to understanding, we obtain a similar structure. Thinkers have the capacity to grasp the essence of things, i.e. they have *nous*, to which corresponds a potentiality in objects to be understood with respect to their essence. Having an essence, Aristotle seems to think, means *ipso facto* being intelligible in this way. When the thinker understands the essence of an object, the thinker's *nous*, and the object's essence, are active together. This double activity is understanding (*noein*). The full activity of

[34] The importance of the ontological independence of *nous* might account for Aristotle's frequent worries about whether *nous* is detachable (*chōriston*) or not; cf. *DA* I 1, 403a8; I 4, 408b18–25; II 2, 413b4–24; II.3, 415a12; *GA* II 3, 736b21–28. That worry reflects the question of where *nous* is to be located in the Aristotelian taxonomy of sciences.

nous is therefore identical with the full activity of the intelligibility of things. And, since the intelligibility of a thing is its essence, and its essence is the thing's being, the full activity of *nous* is identical with the full activity of the being of the thing that is being understood (*DA* III 5, 430a20–21). In this sense, *nous* becomes everything that it understands. And since there are no limits to what *nous* can understand, in the way there are limits to what can be perceived, the fully active *nous* that manages to understand everything 'becomes everything' (*DA* III 5, 430a15). This result – that *nous*, when fully active, is *in some sense* identical with everything there is – is evidently intriguing for Aristotle. It must be a truly marvellous, divine thing that is able to achieve this feat!

The parallel between perceiving and thinking notwithstanding, Aristotle emphasises that thought differs from perception in a crucial respect: it is not a change. When you engage in the activity of perceiving, you change in some respect: perception is an alteration of sorts.[35] But when you engage in the activity of understanding something you do *not* change: knowledge and understanding are *not* alterations (*Phys.* VII 3, 247b1–248a9). *Nous*, whose being consists in understanding, thus fulfils Aristotle's first criterion for divine objects: it is beyond change.

Since understanding is not an alteration, it does not involve a material transaction between the thinker and her thought's object. Understanding, therefore, is not passive, being activated by something outside itself. It is self-activating (*DA* II 5, 417b24–25) or, as later philosophers put it: it is spontaneous. Where there is no material transaction, no medium is needed for interceding between a thinker and thought's object.[36] For the same reason, understanding need not involve an organ. And it better had not, because the material composition of sense organs inevitably limits what the sense can perceive; but understanding is unlimited (*DA* III 4, 429a18–27).[37] Given this threefold independence of understanding from objects different from itself – no activating object, no medium, and no organ – *nous* and its activity is in a supreme sense ontologically independent.

This answers the first question I introduced above, in what sense *nous* is beyond change and ontologically independent. Let us now return to the

[35] *DA* II 5, 416b34–35, and II 4, 415b24; compare also *DA* I 5, 410a25–26. For discussion, see Burnyeat (2002).

[36] However, in *DA* III 5 he mentions the active *nous* as an *analogue* to a medium in the case of understanding.

[37] Compare also *GA* II 3, 736b21–30. The provenance of this thought is Platonic: see *Theaetetus* 184d8–185e9, and also *Phaedo* 65d–67b for an argument to the effect that we cognise many things that cannot be perceived, and that the body is in fact a hindrance to proper thought (Plato, 1997).

second question, whether every kind of *nous* is divine. This question is urgent because Aristotle seems to think that human *nous* and, therefore, human contemplation (*theōria*) differ from God's, as it were, pure or fully divine *nous* and *theōria* in several respects. Aristotle notes that humans contemplate only for limited stretches of time since they get tired, whereas God's intellect contemplates forever (*Met.* XII 7, 1072b14–26). In other words, for humans, there can be knowledge without contemplation, whereas for God's *nous*, knowledge and contemplation always go together. Presumably the reason humans get tired while thinking is that their contemplation depends on the imagination, and, therefore, indirectly on perception and memory, which are tied to a bodily organ, namely, the heart. So if the heart is suitably materially affected, this will have consequences for perception, memory, and *phantasia*, and, therefore, also indirectly for understanding. According to Aristotle, the heart's activity is prone to be affected by paralysis caused by certain vapours emanating from food. This paralysis is what we know as sleep.[38] So human understanding and contemplation, in contrast to God's, depends on imagination, thus on the heart as the central bodily organ of the perceptual–imaginative faculty, and, therefore, is prone to being impeded and even interrupted by sleepiness.

This point opens into a more general difference between human understanding and God's understanding. For Aristotle, human understanding comes in three levels of activity, whereas God's understanding is always fully active.[39] Humans are born with passive *nous*, a potential to acquire knowledge, which they actualise through learning or inquiry. In other words, they must be taught or must engage in inquiry and reasoning in order to acquire knowledge of definitions. This process of knowledge acquisition brings the first potentiality that is passive *nous* into the first activity that is habitual knowledge or understanding. But, even where such understanding is present, it is not always fully active in contemplation. Humans don't contemplate their knowledge about essences all the time, but only intermittently. That is to say, in humans the second potentiality that is habitual knowledge of essences is not always exercised in the second activity that is contemplation. By contrast, these distinctions collapse when we come to God's intellect, whose activity of being consists essentially in incessant fully actual contemplation.

[38] These vapours are first hot, which is why they ascend to the brain, where they are cooled, before descending again to the heart. For the physiology of sleep, compare *PA* II 7, 652b10–20 and *Somn.* III, 456a30–458a32.

[39] For the distinction of levels of actuality, see *DA* II 5, 417a22–b28 and the commentary in Burnyeat (2002). For the full activity of God's intellect, see *Met.* XII 9.

Do these differences between a human intellect and God's intellect undermine my point that, for Aristotle, human understanding is something that transcends our animal nature, that it is something divine? I don't think so, because the differences I have mentioned don't touch the salient features of *nous* which make it divine. Those features are shared by human *nous* and God's *nous* alike. Three things make *nous* in general divine: First, in understanding, a thing's intelligibility and a thinker's intellect are active together; in understanding everything, the intellect, thus, in a sense becomes everything. Second, understanding is not a change. Third, *nous* is in three senses ontologically independent: understanding is not activated by an external object, it does not presuppose a medium and it does not consist in the activity of some organ. All three of these features make *nous* divine, and they apply to both human intellects and God's intellect. We should, therefore, conclude that the former is divine in the same sense and to the same degree as the latter is.

6 There Cannot Be a Complete Definition of What It Is to Be Human

From the point of view of Aristotelian theoretical science, human being emerges as a kind of being that has each of its two feet in a different ontological domain – one in the realm of natures, and one in the divine realm of the intellect. Being ontologically divided in this way, human being apparently cannot be investigated by a single science. On the one hand, humans are studied as animals by natural science, which must remain silent concerning the divine side of humanity. On the other hand, humans are studied as intellects by theology, at the price of abstracting from their being embodied animals. This should be reflected in a definition of what it is to be human. There cannot be a unified definition that grasps everything in human essence. There can only be partial definitions: one of the intellectual side of what it is to be human, which is given in theology; and one of the animal side, which is given in physics, and more precisely in biology or zoology. Perhaps human being as two-footed animality is at least a plausible contender for the latter definition.[40] No

[40] Compare *IA* 4, 706a19–20, and *HA* I 15, 494a26–494b1, where Aristotle says that human bodies are 'most natural' because their directions are most articulated and mirror the objective directions of the universe. This includes the differentiation into left and right, upper and lower, and front and back, which is expressed in upright bipedity.

wonder, then, that Aristotle never wrote a treatise on humans, and that his remarks on humans are scattered throughout the Aristotelian corpus! For systematic reasons, there can be no Aristotelian science of humanity that takes into view humans as a whole. We, therefore, find nowhere in the Aristotelian corpus a unified definition of what it is to be human.[41]

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