

# Quantities and Contraries: Aristotle's Categories 6, 5b11-6a18

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# *Quantities and Contraries: Aristotle's Categories 6, 5b11-6a18*

Pavel Gregoric

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The immediate purpose of this paper is fairly modest. I would like to provide an analysis of Aristotle's three counterexamples to his claim that no quantity has a contrary in *Categories* 6. I will have something to say about Aristotle's discussion of the first two counterexamples, although the bulk of my paper will be devoted to his discussion of the third counterexample at 6a11-18, a passage which has not received due attention by modern commentators. My analysis will then provide a basis for some suggestions of wider significance.

In *Categories* 6, 5b11 Aristotle introduces one salient characteristic of quantities, namely that none of them has a contrary (*enantion*). Immediately following the statement of this characteristic, Aristotle takes on an anticipated objection. The objection consists of two counterexamples: to the many the contrary is the few, to something large the contrary is something small. Each pair of terms is supposed to present a counterexample to Aristotle's characteristic for one type of quantity: the former pair for discrete quantities, the latter for continuous quantities. Aristotle takes each pair of terms in turn, and shows that what they introduce are (a) neither quantities (b) nor contraries.

(a) At 5b14-29, Aristotle argues that these two pairs of terms do not introduce quantities but relatives, because nothing is said to be many or few, or large or small, on its own account, but always with reference to something else. For instance, a mountain is small with reference to other mountains, and a grain is large with reference to other grains. Since

neither the mountain nor the grain is small or large by itself, the terms 'small' and 'large' refer to relatives, not to quantities.<sup>1</sup>

(b) At 5b30-6a8, Aristotle gives three arguments which are supposed to demonstrate that the two pairs are not contraries. (i) According to the first argument (5b30-3), something that cannot be grasped on its own, but with reference to something else, cannot have a contrary. This seems strange at first blush, because it appears to be saying that a relative cannot have a contrary, whereas Aristotle tells us in Chapter 7, at 6b15-19, that some relatives do have contraries, e.g., the contrary of virtue is vice, the contrary of knowledge is ignorance.<sup>2</sup> However, Aristotle can be saved from contradiction if we assume, with a bit of charity, that at 5b30-3 he does not want to say that a relative cannot have a contrary, but only that a relative's *correlative* cannot be its contrary. It is true, for instance, that knowledge is a relative, and that it has a contrary, ignorance. But ignorance is not the correlative of knowledge. Knowledge is not knowledge of ignorance, but of the object of knowledge, and the object of knowledge is not a contrary of knowledge. That a relative's correlative cannot be its contrary is, I presume, fairly uncontroversial. And that is all that Aristotle needs for his argument at 5b30-3 to work. Since the many and the few are correlatives, they cannot be contraries, and likewise with the large and the small.<sup>3</sup>

This argument is followed by two *reductio ad absurdum* arguments. (ii) The first one of these (5b33-6a4) is fairly intelligible and it can be summarised as follows. Suppose that the small and the large are contraries. But the same thing can be small and large at the same time, small in relation to one thing, and large in relation to another. It follows that the same thing can have both contraries at the same time, which is not possible. Hence, small and large are not contraries.

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1 Elsewhere Aristotle seems to allow that there are things which are large or small in themselves; cf. *Cael* III 1, 299b2-4; *Metaph* V 13, 1020a23-5.

2 Ackrill (1963), 96 is happy to leave this passage with the remark that Aristotle 'does not explain the exact kind of "reference to something else" which large and small involve, nor show why that kind of relatedness does exclude contrariety.'

3 A different way of interpreting this argument is proposed by O'Brien (1980), 130-45. He argues that there are two types of relatives, those that do and those that do not permit contrariety, and that the many and the few and the large and the small belong to the latter type.

This argument does not work if one accepts, as Aristotle normally does, the Platonic principle that a thing cannot have two contrary predicates at the same time in the same part and in relation to the same thing.<sup>4</sup> Since one thing is not small and large in relation to the same thing, there is nothing absurd about the same thing being both small and large at the same time. Ackrill has correctly observed that these qualifications to the principle 'annihilate the first of Aristotle's alleged absurdities about large and small.'<sup>5</sup> We shall see that this is not the only place in Chapter 6 where Aristotle eschews the qualifications to the Platonic principle.

(iii) The second *reductio ad absurdum* argument (6a4-8) purports to establish that, if small and large were contraries, the same thing would be contrary to itself. This argument is more problematic, as the leading modern commentators agree.<sup>6</sup> However, Oehler merely states that the conclusion does not follow from the premisses, whereas Ackrill tries to save Aristotle's grace by adding a further premiss to suggest an implausible and poorly supported argument which rests on the absurdity of identification of large and small as two contrary *properties*. I believe, however, that we can make good sense of Aristotle's argument if we link it with the preceding one and keep in mind the style of reasoning characteristic of the second part of Plato's *Parmenides*. The link with the preceding argument is the assumption that the same thing *can* be small and large at the same time. Now supposing that small and large are contraries, even if we disregard the unqualified principle that nothing

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4 Cf. *R* IV 436b8-9, X 602e5-6; *Sph* 230b7-8, *Phd* 102e ff.

5 Ackrill (1963), 97. O'Brien (1980), 145-6 quotes this passage from Ackrill's commentary with disapproval. He maintains that Aristotle does not disregard the qualifications to the Platonic principle, or otherwise appeal to it, because the argument at 5b33-6a4 continues on the preceding argument. In the preceding argument Aristotle established that things which cannot be grasped by themselves but only with reference to something else cannot have a contrary. Now if we suppose that the large and the small are contraries, O'Brien claims, then they are things that *can* be grasped by themselves, without reference to one another. 'D' où il suit qu'une seule et même chose sera grande et petite en même temps, mais dans un sens qui exclut précisément la possibilité de deux rapports différents, suivant que l'on considère le fait qu'elle soit grande, ou bien le fait qu'elle soit petite' (146). I cannot see why that should follow. If the large is taken as something grasped by itself, without reference to the small, why should it follow that the same thing will then be both large and small at the same time?

6 Ackrill (1963), 97; Oehler (1986), 288

can have both contraries at the same time, which did all the work in argument (ii), some absurdities follow. Think of some small thing. Being small, it is contrary to each and every large thing. But itself being also a large thing — since we assume that the same thing can be small and large at the same time — it is contrary to itself. This works the other way too: being a large thing, something is contrary to any small thing. Itself being also one of the small things, it is contrary to itself. However, nothing can be contrary to itself, hence small and large are not contraries.

Having concluded that the two aforementioned pairs of terms are not contraries, Aristotle completes his rejection of the counterexamples to the stated characteristic of quantities. He then adds a passage which has not received sufficient attention in the standard commentaries:<sup>7</sup>

But contrariety of a quantity is thought to exist most of all in connection with place. For some people posit that which is up as contrary to that which is down, claiming that the region towards the centre is down, because the centre is at the greatest distance from the limits of the universe. And they probably derive from these their definition of the other contraries also; for they define as contraries those things in the same genus which are the most distant from one another. (6a11-18)<sup>8</sup>

This passage is puzzling in several ways. (1) What is its main point? Is it intended to allow an exception to Aristotle's main statement that no quantity has a contrary, or to present yet another counterexample? (2) Who are the people who regard the region which is up as contrary to the region which is down, and who derive their definition of other contraries from this particular contrariety? (3) What is the gist of the argument with the central region and the limits of the world, and what is Aristotle's position towards this argument?

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7 I have consulted two standard commentaries, Ackrill's (1963), 96-7, and Oehler's (1986), 288-9. Surprisingly, O'Brien (1980) does not discuss the passage, as if he thinks that it is irrelevant for Aristotle's discussion of contrariety in the category of quantity.

8 Modified Ackrill's translation. I take the substantives *to anō* and *to katō* at 6a12 to refer to the two contrasted regions ('that which is up' and 'that which is down'), rather than to the expressions 'up' and 'down,' as suggested, for instance, by H.P. Cooke's translation in the Loeb edition. It is not insignificant how one interprets the substantives here; see below n. 11.

(1) In his exposition of the *Categories*, Porphyry seems to think that this passage in fact introduces an exception to Aristotle's statement that no quantity has a contrary. 'It follows,' Porphyry concludes, 'that there is contrariety only in place.'<sup>9</sup> However, Porphyry pays no attention to the way this passage is presented. Given that he does not write a proper commentary on the *Categories*, but an accessible elucidation through questions and answers, he can forego the details of presentation. But we should not follow his lead in this.

I find three reasons to think that Aristotle does not want to introduce an exception to his main statement. First, he mentions the characteristic that no quantity has a contrary as early as at 3b24-9, and, as we have seen, he gives it a lengthy defence at 5b14-6a8. Second, Aristotle does not say that in connection with place there *is* contrariety, but only that people believe so. The verb *dokein* here is naturally taken as indicating what is thought to be the case. Third, the grammatical form of the passage, with most verbs in the third person plural (*titheasi, legontes, eoikasi, horizontai*), suggests that Aristotle does not share the views attributed to the unnamed group of people.

I have given three good reasons for the view that the quoted passage is not meant to introduce an exception to Aristotle's main statement that no quantity has a contrary. Unless one is prepared to say that Aristotle is here making a comment of no consequence for his main statement, we should assume that the quoted passage is meant to secure Aristotle's main statement, if only implicitly, against another counterexample to his main statement. This assumption, however, creates a problem. If the quoted passage secures Aristotle's main statement, it means either that he does not regard up and down as contraries at all, or that he does regard them as contraries but such that they are not applicable to quantities, notably place. In other works, however, he clearly does regard up and down as contraries, and he does apply them to place. I will return to this problem once question (3) is answered. Let us assume, then, that in the quoted passage Aristotle introduces a counterexample to his statement that no quantity has a contrary. To see where the counterexample is coming from, question (2) requires discussion.

(2) There are some people who (a) think that the region up is contrary to the region down. They think so because (b) they claim that the region

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9 Porphyry, in *Aristotelis Categoriae* 107.23-4; cf. 107.32-3.

towards the centre is down and (c) the centre is at the greatest distance (*pleistē diastasis*) from the limits of the universe. Based on this particular pair of contraries, these people (d) define contraries in general as things in the same genus which are most distant from one another.

We would like to know who these people are. The first and most natural assumption is that Aristotle has in mind Plato and his followers. After all, Plato's words and ideas are in the background of a number of issues discussed in the *Categories*, and this may well be one of them. Some support for this assumption can perhaps be found in the Platonic *Definitions* 416a24-5. There 'contrariety' (*enantiotēs*) is defined as 'the greatest distance (*pleistē diastasis*) between things under the same genus which fall under some difference.'<sup>10</sup> So there may be some evidence that (d) was held in Plato's Academy.

There is direct evidence that Plato held (c). In the *Timaeus* 62c8-d4, he says that 'since the whole heaven is spherical in shape, the extremes are equally removed from the centre, and they must be by their nature extremes in the same manner, and the centre, being removed in the same measure from the extremes, is opposite to all the extremes.' However, Plato explicitly argues against (b): 'There is no justification for describing the central region in it <sc. the universe> either as being naturally up or down, but only in the centre' (62d6-8). Why does Plato argue against the view that the central region of the universe is down and the peripheral region up? Because the universe is structured in such a way that contrary predicates — presumably, contrary *spatial* predicates — do not apply to its distinct regions. The context makes it perfectly clear that up and down count as contrary predicates for Plato, but he insists that they are inapplicable to distinct regions of a universe which is uniform in all directions. So he does not hold (a), either.<sup>11</sup>

Plato proves that contrary predicates do not apply to distinct regions of a universe which is uniform in all directions by two arguments which can be formulated as follows. (i) If the universe were not uniform in all directions, then something solid and evenly balanced (*stereon kai isopales*)

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10 Slightly modified Hutchinson's translation in Cooper (1997), 1686.

11 If the substantives *to anō* and *to katō* at 6a12 are taken as expressions or predicates 'up' and 'down', we would have to reformulate (a) accordingly: there are people who argue that 'up' is contrary to 'down'. In that case, we would have to say that Plato subscribes to (a). See above n. 8.

at the centre of the universe would not stay fixed, but would fall down toward some point at the periphery (62d12-63a2). However, since the earth stays fixed in the centre of the universe, there is no 'down' for it to fall towards.

This is one of the traditional explanations of the earth's immobility, favoured by Plato's Socrates in the *Phaedo* (108e4-109a7). The core of this argument may precede Aristotle for over two centuries, since we find it attributed to Anaximander (Aristotle, *de Caelo* II 13, 295b10-16 = DK 12 A 26; cf. Simplicius, *in Aristotelis de Caelo* 532.13-14).<sup>12</sup> Although there is little doubt that Plato in the *Timaeus* located the earth at the centre of the universe, the phrase 'solid and evenly balanced body' is deliberately general: the argument works whatever satisfies the description.<sup>13</sup>

Furthermore, (ii) suppose that we walk round such a body. The region of that body on which we happen to find ourselves at any point we call 'up', and the region on the opposite side we call 'down'. However, when we get to the opposite side, the region that we previously called 'down' we now call 'up', and vice versa (63a2-4).<sup>14</sup> Having walked all round the central body, every one of its regions has been called both 'up' and 'down'. This argument can easily be extended to the whole universe in order to show that 'up' and 'down' are inappropriate predicates for distinct regions of the universe which is uniform in all directions. 'The whole universe being spherical, as we have just said, it is not sensible to say that it has one region up and another down' (63a4-6).

Observe that, for Plato, 'up' and 'down' are not inappropriate predicates for distinct regions in a spherical universe because it is logically impossible to say that the same region is both up and down; assuming

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12 Aristotle's attribution of this view to Anaximander was called into question by Robinson (1971) and Furley (1989), 14-26. Robinson's arguments are discussed by O'Brien (1984), 325-6, and Furley's by Bodnár (1992).

13 Taylor (1928), 226-39 and 437-8, is an exception in thinking that, according to Plato's *Timaeus*, the earth does not really occupy a central position. He argues, not very plausibly, that Plato follows the Pythagorean doctrine of central fire. Correct accounts of Plato's theory can be found in Heath (1913), 174-9 and Dicks (1970), 132-7.

14 This argument seems to be of Pythagorean origin (cf. DK 44 B 17, DK 58 B 1a). It is found in the Hippocratic *de Hebdomadibus* 2 14-44 (Roscher), and dismissed by Lucretius in *RN* I, 1061-7. Kahn (1960), 84-5 attempts to trace its origin to Anaximander. O'Brien (1984), 19-23 provides a useful discussion of the argument as it is formulated in Plato.



that he has no reason to disregard the qualifications to his principle of contraries, he must be aware that the same region is up from one point of view and down from another. Rather, 'up' and 'down' are inappropriate predicates for distinct regions in a spherical universe because every region is equally entitled to both predicates, so that none of them can be properly designated either as 'up' or as 'down'.

Given that Plato subscribes neither to the view (a) that the region up is contrary to the region down, nor to the view (b) that the region towards the centre is down, we can conclude that Aristotle cannot be aiming at Plato in the quoted passage. This does not mean, however, that it was misguided to bring up Plato's *Timaeus* in our discussion. I will argue that Aristotle in *Categories* 6, 6a11-18 has in mind the same people that Plato is criticising in the *Timaeus*. So let us first try to determine the target of Plato's criticism.

At 62c3 Plato proposes to explain the nature of heavy and light with reference to the regions called 'up' and 'down': 'It is entirely wrong to hold that there are by nature two contrary places (*topous duo ... enantious*) dividing the whole into two, the region down, towards which everything that has physical mass tends, and the region up, towards which everything is reluctant to go.' Modern commentators agree that here Plato rejects a popular view.<sup>15</sup> Seeing that all material objects fall on the ground when dropped, whereas they require some force to be raised from the ground, one is naturally inclined to think that the ground is down, whereas the air and the sky are up. Thus people came to think that there are two opposite regions in the universe, the region around the ground towards which all material objects naturally tend ('down'), and the region of the heaven towards which all material objects are moved against their nature ('up').

Given the actual shape of the universe, which does not admit contrary predicates, Plato needs to explain why people nevertheless tend to divide the universe into two contrary regions, 'up' and 'down'. His explanation runs from 63b2 to e8, and it can be summarised as follows. Regions of the universe are differentiated by elements, each region being occupied predominantly by one element. A chunk of matter made preponderantly of one element naturally gravitates toward the region occupied by that element. If we apply some external force to a smaller

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15 Taylor (1928), 436; Cornford (1957), 265; O'Brien (1984), 4-5, 38, 68-9, 391-403

chunk, we would succeed at removing it from the region of its preponderant element; this chunk is said to be light and the region into which it would be thus moved is called up. If we apply equal external force to a larger chunk, we would fail to remove it from the region of its preponderant element; this chunk is said to be heavy and the region in which it would stay is called down. 'The path towards its own kind is what makes each thing moving along it heavy and the region into which it moves down, whereas the other terms <viz. "light" and "up"> are for things behaving the other way' (63e4-7).<sup>16</sup> So, for a ball of fire, motion away from the fiery region and towards the earthy region would be up, and motion towards the fiery region and away from the earthy region would be down. Not so for us who are made predominantly of earthy stuff and inhabit the region of the earthy element. For us and our likes, motion away from the earthy region and towards the regions of air and fire is up, and motion toward the earthy region and away from the regions of air and fire is down. That is why *we* are accustomed (*eithismetha*, 63a7) to call the earthy region at the centre of the universe down, and the peripheral region up. I suppose it is not 'we' philosophers, nor 'we' educated ones that are so accustomed, but 'we' ordinary human beings living on earth. This suggests that the view at hand is so intuitive and deeply entrenched that only a considered theory — such as the theory of the spherical universe with the earth in the middle — can overthrow it.

According to Plato, the popular view is incompatible with the notion of the spherical universe with the earth in the middle. If one adopts this notion, as one should, Plato believes that one has to abandon the popular view; as we have seen, Plato claims that it is inappropriate to describe different regions of a spherical universe with contrary spatial predicates. However, Plato's belief that the popular view is incompatible with the notion of the spherical universe should not be taken to imply that the popular view is necessarily tied to any particular notion of the shape of the earth and the universe, as some scholars seem to think. For instance, Taylor claims that the popular view was 'based on the unconscious assumption that the earth is a flat disc.'<sup>17</sup> I cannot see why the popular

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16 Slightly modified Zeyl's translation in Cooper (1997), 1265-6.

17 Taylor (1928), 436

view should be based on that assumption any more than on the assumption that the earth is trapezoid or drum-shaped.

Moreover, the popular view is not factually incompatible with the notion of the spherical universe. One could very well subscribe to the view that there are two contrary regions in the universe, one up and the other down, as well as to the view that the universe is spherical with the earth in the middle, provided that one ignores or rejects those implications of the latter view on which Plato insists. As is well known, this is precisely Aristotle's position in the *de Caelo*. So it seems that the popular view could have been held independently of any particular notion of the shape of the earth and the universe, or in conjunction with virtually any such notion.

Having said that, there is a passage in Aristotle's *de Caelo* which clearly suggests that the popular view, as a matter of fact, has not been tied to the notion of a spherical universe with the earth in the middle:

Since the universe has an extremity and a centre, it is clear that it has an up and down, just as the majority of people (*hoi polloi*) say, though not adequately, because they do not think that the universe is uniform in all directions, but rather that there is only one hemisphere, the one above us. But if they went on to think that it was like that all round, and that the centre was equally related to the extremity, they would call the extremity up and the centre down. (*de Caelo* IV 1, 308a22-9)

Assuming that popular beliefs have not changed much between the time of writing the *Timaeus* and the *de Caelo*, the quoted passage tells us that the popular view has not been combined with the notion of the spherical universe with the earth in the middle. More importantly, it tells us that the majority of people at the time held the view that there were two contrary regions of the universe, one up and the other down. As we have seen, this is precisely the view that Plato criticises in *Timaeus* 62c8-d6.

Now I would like to show that Aristotle is evoking the very same view in *Categories* 6, 6a12-18. There is one initial difficulty with this suggestion: the people Aristotle has in mind seem more prone to philosophical theory than the majority of people normally are. This difficulty is manifest in three distinct points. (i) The people intended by Aristotle seem to speak about the centre (*to meson*) and the limits (*ta perata*) of the universe. (ii) They think that the distance between the centre and the limits is the greatest distance there is. And (iii), they seem to be interested in definitions, since they are said to define other contraries on the basis of the

contrariety between the region in the centre, which they are said to call 'down', and the region of the limits, which they presumably call 'up'.

(i) The fact that one speaks about the centre and the limits of the universe does not commit one to any particular theory as to the shape of the earth and the universe, although it does commit one to the idea that the earth is located in the middle of the universe. However, it is not necessary to assume that the people Aristotle mentions actually spoke of the centre of the universe. Aristotle reports their view using his own terms. The region they call 'down' is the region that Aristotle describes as 'the region towards the centre', in line with the astronomical knowledge that he has and that he may expect his audience to have. So it is not necessary to ascribe that knowledge to the people Aristotle evokes.

(ii) The idea that the distance between the region up and the region down is the greatest distance is intuitive and very popular in various cultures. When Homer wants to say that Tartarus is very far below Hades, he says that it is as far from Hades 'as heaven is from earth'.<sup>18</sup> Other ancient authors also take the distance between heaven and earth as the epitome of a great distance.<sup>19</sup> The same idea can be found in the Old Testament.<sup>20</sup> Finally, echoes of this idea can be found in modern expressions such as 'the sky is the limit.' All of this shows that it does not take much reflection or philosophical theory to support the view that the distance between the region up and the region down is the greatest distance of all.

(iii) Although Aristotle's sentences at 6a15-18 do suggest that the people he has in mind are interested in definitions, it is not necessary to take them in that way. The definition of contrariety supplied at 6a17-18 can be a concise formulation of the popular view as to what contrariety is. Because of our natural inclination to represent relations among non-spatial things in spatial terms, it is to be expected that people will ordinarily talk about contraries as things at the greatest remove from one another. I suppose that the ancients would be no less prone than ourselves to say that white is farther away from black than any other colour, or that justice is farthest away from injustice. If people in antiquity have

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18 Homer, *Iliad* VIII 16

19 Hesiod, *Theogony* 720; Parmenides DK 28 A 44

20 See, for instance, *Isaiah* 13.5, 55.9, *Psalms* 120.11, *Sirah* 1.3.

indeed talked like that, and it is reasonable to suppose that they have, it would be legitimate to say that they define contraries as things of the same kind which are most distant from one another. And this definition in spatial terms, Aristotle suggests, originates from the contrariety between the two regions in the universe, one called 'up' and the other called 'down', which the majority of people consider to be the greatest and most obvious kind of contrariety.<sup>21</sup>

One might object to my suggestion that the definition of contrariety at 6a17-18 presents a concise formulation of the popular view by pointing out that it is found in the Platonic *Definitions* 416a24-5. However, since this definition cannot be found elsewhere in the Platonic corpus, it can hardly be considered as an independent testimonial of Plato's view. It is more likely that the definition was used in the Academy for dialectical purposes and thus made its way into the collection of definitions transmitted with Plato's works. If so, it is only convenient to suppose that it formulates a popular view. Whether Aristotle borrowed the definition from the Academy or introduced it himself is a matter of speculation which makes no difference to my argument.

The preceding discussion shows that the initial difficulty for my suggestion is only apparent. It is not necessary to suppose that the people Aristotle mentions at 6a12-18 in fact operate with philosophical theories. Hence, there is no obstacle to my claim that the people who, according to Aristotle regard the region up as contrary to the region down, are ordinary people. I conclude, therefore, that it is the popular view that is evoked in *Categories* 6, 6a12-18.

Let us now proceed to question (3). I have argued that the quoted passage presents a counterexample to Aristotle's main statement that no quantity has a contrary: place is a quantity, and the region of the universe which is called 'up' is contrary to the region which is called 'down'. The way Aristotle presents the counterexample, without any comment or hint of readiness to qualify his main statement, does not mean that he does not take a stand on it. I will argue that he thinks that the counter-

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21 Although Aristotle himself sometimes defines non-spatial contraries in spatial terms (e.g., *Metē* II 6, 363a30-2, *EN* II 8, 1108b33-5), I suppose that his preferred definition would be the one which does not make use of spatial terms: 'contraries are those things in the same genus which differ most (*pleiston diapheronta*)' (*Metaph* V 10, 1018a27-8). This definition is wide enough to cover spatial as well as non-spatial contraries.

example is off the mark for reasons which are exactly parallel to those on the basis of which he refuted the first two counterexamples. That is to say, the third counterexample is invalid both (a) because up and down do not belong to the category of quantity, and (b) because they are not contraries.

(a) The same sort of argument that Aristotle adduced at 5b14-29 to show that the many and the few and the large and the small do not introduce quantities but relatives can be provided for that which is up and that which is down. Nothing is said to be up or down on its own account, but always with reference to something else. Something is up in relation to something below it, and something is down in relation to something above it. Since neither of these things is up or down independently of the other, the terms 'up' and 'down' seem to introduce relatives, not quantities.

Two early commentators, Andronicus and Herminus, argued that 'up' and 'down' do not signify a place but a 'where', i.e., they do not refer to items in the category of quantity but to items in the category of 'where', or spatial location.<sup>22</sup> Just as 'yesterday' and 'tomorrow' are predicates of temporal location relative to a particular point in time, they say, 'up' and 'down' are predicates of spatial location relative to a particular point in space. The idea is that something is up or down, not insofar as it is a quantity, but insofar it has a spatial location determined with reference to some other location. This line of thought is quite attractive and it has been pursued by later ancient commentators<sup>23</sup> and some modern commentators, e.g., Ackrill: 'Since in any case "up" and "down" would not give the quantity of anything (but rather its "where" or "whither") the view that they are contraries does not seem to justify the suggestion that there is after all contrariety in quantity.'<sup>24</sup>

(b) The same three arguments that Aristotle offered at 5b30-6a8 to show that the many and the few, or the large and the small, are not

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22 Andronicus' view is reported by Simplicius, in *Aristotelis Categoriae* 142.27-143.8, Herminus' by Porphyry, in *Aristotelis Categoriae* 107.25-30. Cf. Plotinus VI.1.14. and VI.3.12.19-25.

23 Simplicius, *ibid.*, 147.23-149.26; Philoponus, in *Aristotelis Categoriae* 99.16-100.15; David, in *Aristotelis Categoriae* 197.6-198.27

24 Ackrill (1963), 97

contraries can be construed for that which is up and that which is down.<sup>25</sup> The reader can easily do that for herself, whereas I would like to suggest that argument (ii), construed for that which is up and that which is down, may be found in Plato's explanation of the customary divide of the universe into the regions which are called 'up' and 'down' (63b2-e8). The upshot of Plato's explanation is that what is up for one thing is down for another. For a ball of fire, the central region of the universe is up, whereas the peripheral fiery region is down; for an earthling, the central region of the universe is down, whereas the peripheral fiery region is up. So one and the same region is both up and down. For Aristotle in *Categories* 6, this implies that up and down are not contraries, for one and the same thing cannot have two contrary predicates at the same time.<sup>26</sup>

One is naturally inclined to object that the central region is not up and down in the same way; rather, it is up in relation to things such as balls of fire, and down in relation to things such as earthlings. However, we have seen earlier that Aristotle is willing, at least for the purpose of *Categories* 6, to eschew the necessary qualifications of the Platonic principle that one and the same thing cannot do or suffer two contrary things at the same time. The counterexample of up and down can thus be dismissed on similar grounds as the preceding two counterexamples — the many and the few, the large and the small. Essentially, they are all rejected in the same deeply unsatisfactory way, namely by forgoing the necessary qualifications to the principle. No doubt this is a serious objection to Aristotle, but not to our interpretation of the quoted passage.

However, there is one objection which can be raised to our interpretation of this passage. In other works Aristotle *does* think that up and down are contraries.<sup>27</sup> Moreover, he thinks that the central region of the universe, occupied by the earth, is down in the absolute sense, and that

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25 See above (b)(i)-(iii).

26 Note that this is different from Plato's position. As we have seen, Plato thinks that up and down *are* contraries, but they cannot designate different regions of a spherical universe because each region is equally entitled to both designations. By contrast, in *Cat* 6 Aristotle thinks that up and down are *not* contraries, because one and the same place can be both up and down.

27 Cf. *Cael* I 2, 269a15, I 4, 271a4-5, 26-7, II 2, 285a9-11; *Ph* V 6, 230b11-12, VIII 8, 261b34-6; *de An* II 2, 413a26-9.

the peripheral region is up in the absolute sense.<sup>28</sup> This is what he needs, among other reasons, in order to establish priority of the peripheral region whose denizens are supposed to be eternal and divine. Besides, with this view Aristotle finds himself in agreement with the majority of people and thus he 'saves the phenomenon.'<sup>29</sup>

Not only does Aristotle in other works subscribe to the popular view expounded in *Categories* 6, 6a12-15, but he openly denounces Plato's view in the *Timaeus*: 'It is absurd to deny that in the universe there is one part up and another down, as some claim; they say that there is no one part up and another down because the universe is uniform in every direction, and every person walking <round the earth> will at every point be his own antipous.'<sup>30</sup> This is precisely the view on which, I have claimed, Aristotle relied in *Categories* 6 when he denied that up and down are contraries. Could it be that Aristotle maintained two opposite views, one in the *Categories* and one in the physical treatises?

Why not? It is widely supposed that the *Categories* is one of Aristotle's earliest works, and it is reasonable to suppose that he changed his mind by the time he devoted himself to writing the *de Caelo* and *Physics*. Conversely, one can use the indicated opposition of Aristotle's views on up and down in the *Categories* and in the physical treatises to argue in favour of an early date of the *Categories*.

And even if the early date of the *Categories* is doubted, it can be argued that it is not a treatise on natural philosophy, but an elementary text providing a relatively simple classification of all things. I would suggest that one of the indications that it is indeed an elementary text is Aristotle's otherwise surprising readiness to forfeit the qualifications to the

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28 Cf. *Cael* I 8, III 2, IV 1; *Ph* IV 4 212a24-9. This aspect of Aristotle's cosmological theory might be the target of Epicurus' criticism in *Letter to Herodotus* §60; cf. Konstan (1972).

29 Of course, this agreement is only partial. Aristotle does not think that the hemisphere above our heads is the only one (*Cael* IV 1, 308a23-9), and he seems to think that the greatest distance is not between the earth and the periphery of the universe, but between two diametrically opposite points on the periphery (*Metē* II 6, 363a32-4; cf. *Ph* VIII 8, 264b15-16, *Metaph* XI 12, 1068b30).

30 *Cael* IV 1, 308a17-21. Note that Aristotle's explanation why these people say that there is no one part of the universe up and another down refers, if obscurely, to Plato's two arguments showing that contrary predicates do not apply to distinct regions of a universe which is uniform in all directions.



Platonic principle that one and the same thing cannot do or suffer two contrary things at the same time. Had Aristotle taken these qualifications into account in Chapter 6, he would not be able to defuse the counterexamples to his thesis that no quantity has a contrary, and he would have to restate the thesis in a less clear-cut and straightforward way. In short, taking the qualifications into account would involve complications unbecoming of an elementary treatise. Another indication that it is an elementary text might be the way Aristotle presents the popular view about the contrariety of two regions of the universe. He throws it in without a comment, as if inviting the reader to solve the counterexample for herself in analogy with the way he dealt with the preceding two counterexamples. That is, I am tempted to regard it as a textbook exercise.

Given the nature of the *Categories*, then, we should not put too much weight on Aristotle's implicit denial that up and down are contraries because, following Plato's explanation of the customary divide of the universe in the *Timaeus*, one and the same place can be both up and down. Consequently, we should not make too much of the opposition between this view and the more considered one that we find in the physical treatises.

Finally, if my interpretation of the passage at 6a11-18 is roughly correct, it discloses a reference to Plato's *Timaeus* in the *Categories*. This may be of significance for interpreters of the *Categories* such as Driscoll, who has found references to the *Timaeus* in Aristotle's theory of primary substance in Chapter 5.<sup>31</sup> Following Driscoll's lead, Mendel has found references to the *Timaeus* in Aristotle's theory of place in Chapter 6. Without committing myself to the truth of Driscoll's and Mendel's

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31 In his comments to an earlier version of this paper, Myles Burnyeat noted a parallel between the *Timaeus* and *Categories* 5 which had not been noted by Driscoll. Plato's talk of *thnēta eti genē loipa tria agennēta* in *Tim* 41b7-c2 does not mean that the relevant Forms (the *noēta zōa* of 30c) do not exist, but that no mortal *genos* exists until some individual of that *genos* exists, which is more or less what we find in *Cat* 5.

arguments, it does seem to me that links between the *Timaeus* and the *Categories* are worth exploring.<sup>32</sup>

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