

Aristotle on Non-Contradiction

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Aristotle's defence of the principle of non-contradiction has been recently criticized by Graham Priest. I argue that Priest's arguments do not work against the primary version of Aristotle's principle; Priest relies on assumptions Aristotle does not, and need not, accept. However, I argue that Aristotle's denial of the existence of points can be used to criticise his defence of non-contradiction.

Introduction

In the famous or notorious book Gamma of his *Metaphysics*, Aristotle argues for the claim that the principle of non-contradiction is true. His defense has been extraordinarily influential in western logical theory and practice. A formal version of the principle is built into the standard modern version of formal logic which is often called "classical logic" and into the vast majority of computer logics. While most logicians and philosophers think Aristotle is importantly correct, others argue that he has retarded the development of logic for millennia. In particular, Graham Priest has recently presented a number of arguments against defenses of non-contradiction, including Aristotle's (Priest, 2006). Some of his arguments rely on self-referential statements like the statement "this statement is false", and others rely on what would be true of something at a point in an instant. We will see that such arguments are weak against Aristotle. However, I will argue that another, more powerful, argument can be put against Aristotle that relies on aspects of his own position.

Non-Contradiction as a Part of the Science of Being qua Being

Aristotle starts his discussion in Gamma by saying that there is a science which deals with being qua being (to on he on). He makes clear that his account is intended primarily to be part of that science. He states the primary version of the principle of non-contradiction as: "It is impossible that when (ama) a thing exists in something that it also does not exist in that thing in the same respect" (1005b 18–21, my

translation).¹ In Book Kappa the principle is stated as “the same thing cannot at one and the same time be and not be or admit a similar pair of opposites” (1061b 35–1062a, Ross, 1923). (Some argue that Kappa is not by Aristotle, but even they accept that it presents Aristotle’s views.) Later in Gamma, Aristotle presents a psychological form of the law, which is that no one can suppose (*hupolambanein*) the same thing to be and not be at the same time and in the same respect (1005b 30–31), and a logical form which is that opposite assertions are not simultaneously true (1011b 13–14). However, it is clear that he does not regard these as the fundamental version of the law. I will not discuss these versions here.

Parts of Gamma are devoted to explaining the sense in which non-contradiction is true. Aristotle makes clear that he’s not talking primarily about statements but about the world. When he is talking about statements, he wants to say that he’s not talking about “contradictions” that arise from equivocation or vagueness. As Aristotle says in discussing claims that the principle of non-contradiction is false: “[B]ut what is found perplexing is not whether it is possible that the same thing should simultaneously be and not be a man in name but in actual fact” (1006b 21–23, Kirwan, 1971).²

Before I turn to the parts of Gamma I want to discuss, let me note that his *Posterior Analytics* shows that Aristotle is a foundationalist in the epistemology of logic — he thinks that logic is and should be founded on fundamental principles which cannot be questioned. A number of the arguments in the early part of Gamma rely on foundationalism. For instance, Aristotle argues in the following way: for there to be demonstration, there must be some fundamental principle(s) of all reasoning which is not itself demonstrable and which is more obvious than anything else in reasoning. Non-contradiction seems more obvious than anything else. It is a sign of lack of education/understanding to look for reasons for believing non-contradiction. Thus, you should accept it. I have argued against foundationalism in detail elsewhere, so I will here ignore arguments which rely on foundationalism.³ I will focus on the claims which do not rely on foundationalism, which occur from Gamma chapter 5 onwards.

¹ I have followed the normal convention in referring to passages of Aristotle, which is to refer to line numbers in the standard edition of the works of Aristotle, edited by Bekker. *Metaphysics* is notoriously difficult to translate as Aristotle is constantly coining new words and phrases. His Greek is often bizarre. I have used different translations for different passages as, in my view, there is no good translation of the whole text.

² As Ross commented many years ago that “It is to be noticed that the law of non-contradiction is for Aristotle primarily a law of being...” (Ross, 1924, vol 1:264). Politis has recently presented an interpretation that builds on Ross. My interpretation is similar to that of Politis.

³ For a general critique of foundationalism, see Couvalis, 1989. For a critique of foundationalism about mathematics and logic, see Couvalis, 2004.

The Central Claims in Gamma 5 and later sections of Gamma

It has long been recognized that the later parts of Aristotle's argument in Gamma, build on Plato's discussion of two philosophers in *Theaetetus*. First is the relativist philosopher Protagoras, who holds that all truths are observer relative. Second is the Heraclitean philosopher Cratylus, who holds that all things change in every respect all of the time — there is both continual alteration and motion, so that everything is flux (reon). In the passages relevant to this paper, Plato focuses on Cratylus, though it is clear that he means to say something similar about Protagoras.

Plato argues that Cratylus's view means that nothing is anything in itself — nothing has any being in itself. “The upshot of all this is that ... we should exclude ‘be’ from everywhere ... nor ought we admit ‘something,’ ‘someone’s,’ ‘my,’ ‘this,’ ‘that,’ or any word that brings things to a standstill. We ought, rather, to use expressions that conform to the nature of things, and speak of them as coming to be, undergoing production, ceasing to be and altering: because if anyone brings things to a standstill by what he says, he'll be easy to refute in doing that. And we ought to speak that way both about individual cases and about numbers of things taken together in collections, to which people apply the name man, stone or any animal or kind of thing” (157a–b).⁴ Later, Plato draws out that he thinks this position denies the law of non-contradiction: “... if all things do change, then every answer, whatever it's about, is equally correct: both that things are so and that they're not so, or if you like, both that they come to be so, and that they come to be not so, so as not to bring these people to a standstill by what we say ... one oughtn't even to use this word ‘so’ because what's so wouldn't any longer be changing; and again one oughtn't to use ‘not so’ because that isn't a change either” (183a–b). Plato seems to want to say that these consequences are so absurd, that any view which implies them must be mistaken.

Following Plato, Aristotle is concerned about two theses:

1. Protagoras's relativistic denial of the existence of (intrinsic) essential properties (the denial that there is what it is to be something). Aristotle takes the crucial bit of Protagoras's relativism to be that something only has properties in relation to a perceiver. This means that Protagoras would allow non-contradiction to be false as, at the same time, one perceiver could truly perceive X to have property R and another perceiver truly perceive it to have property not-R.
2. Cratylus's claim that everything is changing in every respect all of the time. This too denies (intrinsic) essential properties, for in flux world there is nothing that is what it is to be something. (For Aristotle, there would not even be

⁴ I have followed the normal convention in referring to passages of Plato, which is to refer to line numbers in the standard edition of the works of Plato, edited by Stephanus. I have quoted from McDowell's translation (McDowell, 1977).

intrinsic essential properties at a point in time, for he thinks most points are mathematical fictions.)

For Aristotle as for Plato, the connection between the two theses is that both deny the existence of (intrinsic) essential properties.

Against 2 Aristotle puts various claims, such as: a) If something is being destroyed that thing must be in the process of destruction and still exist, and if something is coming to be it must be coming to be out of something definite, and this cannot go on to infinity (1010a 20). b) Cratylus has failed to distinguish quantitative from qualitative change — change in quantity might be continuous but that doesn't mean that change in quality is — something can continue to be the same *eidos* (kind/form) while constantly changing in quantity. We are acquainted with things through their kind (1010a 23–25). c) That the thesis is incoherent because "... it is necessary that that which *is* alters, since alteration is from something into something" (1012b 27–29, Kirwan, 1971). I take it that the argument is that there cannot be change if everything is changing in every respect all the time as there is no state of definite being to change out of or into.

All of this seems weak as critique of a more modest thesis than that of Cratylus. Why not allow that things are stable in certain respects, but not in others? Then that allows us to identify a thing which is changing. But Aristotle will say that it's only *in that respect* that it's changing, and in that respect it must be something to change into something else — otherwise we have replacement not change. Something new appears from nowhere. If we have replacement, non-contradiction isn't threatened. So no argument from change can undermine the principle of non-contradiction. (Aristotle would then presumably try to rule out replacement by using the principle that nothing comes from nothing which he takes to be obviously true — the replacement thesis denies this principle.)

But what underlies Aristotle's critique of Cratylus that links these arguments to non-contradiction? As I understand Gamma, Aristotle thinks that there are 4 central claims that are true of being, the first three of which are either equivalent to or almost equivalent to the principle of non-contradiction in its primary form. This is why the science of being qua being, which Aristotle indicates at the beginning of Gamma is the central subject of discussion in Gamma, deals with both the fundamental principles of demonstration and the most general and necessary features of being. Both are dependent on metaphysical necessities. The first 3 claims seem to sit behind much of the later part of Gamma, the fourth claim is defended in book Theta and elsewhere. As Aristotle sees it, the first 3 claims are denied by Cratylus. These claims are:

- A. For there to be being (there to be any thing that is), there must (almost synchronically) be a what it is to be of any thing that is.
- B. For there to be being (there to be anything that is) there must (diachronically) be a what it was to be of any thing that is.

- C. The what it is to be and what it was to be of a thing is an essence, or is composed out of things that have essences. An essence is a feature that a thing must have to be that thing. The continuing presence of the essence(s) explains the continuity of diachronic continuants. In the case of non-essential necessary properties (idia), they arise out of essences. The same is true of accidental properties. For example, it might be said that my cat Val has a catty essence which is what it is to be her. This catty essence explains why the embryo Val and the adult Val is the same thing. Finally, this catty essence explains what Val characteristically does — it is what most explains her characteristic causal powers/capacities. (Perhaps today her DNA might be thought to be her essence although Aristotle wants to deny that essences are simple material things — for him, something like DNA would be at best necessary for there to be a catty essence. But that is not relevant here.)⁵
- D. Truth is (focally) correspondence to a truth maker. A truth maker is things existing entirely independently of the perceiver in a relation that corresponds to a descriptive sentence (e.g. “the cat is on the mat” is true if and only if the cat in the world is on the mat in the world, whether anyone perceives this fact or not).

Priest’s Criticisms of Aristotle

Graham Priest has criticized defences of non-contradiction, including those of Aristotle, by using various arguments (Priest, 2006). His primary argument uses various paradoxes which involve statements which undermine themselves. To understand such paradoxes, take the statement “This statement is false”. The statement is apparently both true and false since if it is true it is false and if it is false it is true. Priest argues that such statements show that non-contradiction is false as they are both true and false — it is not universally true that only one of a statement or its negation is true. However, since Aristotle is primarily talking about contradictions in being as such, it is not obvious that paradoxes such as the liar paradox undermine the primary version of non-contradiction, which is about contradictions in being. The reason is that it might be plausibly argued that they are not contradictions in being, but at best contradictions in thought about being or in the relation between thought about being and being.

Priest’s other arguments are too complicated to state here. However, some of them rely on what he claims must be true and false about points in space at an instant. Since Bertrand Russell used the work of some nineteenth century mathematicians to argue for the possible reality of points and instants, modern theorists of space and time have

⁵ A problem with Aristotle’s account is that Val’s essence does not seem to be sufficient to determine what it is to be Val as she shares that essence with other cats. Leibniz thought that this means that Aristotle’s account needs to be supplemented by the notion that there are individual essences as well as kind essences.

typically treated space as consisting of zero sized points and time as consisting of zero sized instants.⁶ If their view of space and time is correct, it seems to be coherent to say that non-contradiction is true at an instant. Nevertheless, they might be thought to run into the problems raised by Priest. However, it is well known that Aristotle is a fictionalist about most points and other geometric objects. He thinks that they do not exist unless we designate them for some purpose, thereby dividing reality at certain points. On his view, the only points which exist without being designated are ones at the ends of material objects. While his view is now a minority one, it can be defended. This means that arguments which rely on the existence of points cannot legitimately be used against Aristotle. Aristotle clearly thinks that non-contradiction is true about being whether we are thinking about it or not. So he thinks non-contradiction applies irrespective of the existence of points.

The Crucial problem

While Aristotle could escape from the problems raised by Priest, his fictionalism about points undermines his own claims. If change is continuous, even qualitative change, and there are no undesignated points, surely some contradictions are true. To understand why, remember that he states the primary version of non-contradiction as “It is impossible that when (ama) a thing exists in something that it also does not exist in that thing in the same respect” (1005b 18–21, my translation). In this statement, the “ama” should be taken to mean “same rough time slice” as, on his account, reality does not come divided into points.⁷ We could, of course, designate some more precise point, but to do that is not to designate something which is in being prior to (or even perhaps independently of) our thought. This means that no matter how thin the rough slices, within a time slice things will sometimes be a little qualitatively fuzzy. (Arguably, they will also be fuzzy at the edges of the time slices as their edges cannot be point like.) When a change in qualities occurs or a change in kind/substance occurs, it cannot occur instantaneously since, if he were consistent with his objection to points, he should hold that there are no instants.

It might be said that at the limit of the zero sized instant, non-contradiction is true. However, since on the Aristotelian view, limits must be fictions, they are not relevant. Consider, for instance, the time when Socrates ceases to be middle aged and becomes old. There will be a fuzzy area in time in which he is both old and not old. Consider Socrates dying and ceasing to be human. There will be fuzzy area in time in which he is both human and not human.

⁶ For an informal exposition, see Russell, 1922.

⁷ Note, however, that Aristotle sometimes talks as if the present is point-like. I take it here that he cannot really mean this given his aversion to points elsewhere. Whether he means it or not, he cannot consistently object to the existence of undesignated points and hold that there are undesignated instants. For a discussion of Aristotle’s puzzling and arguably confused views about time, see Hussey’s commentary on book IV of Aristotle’s *Physics* (Hussey, 1983).

Some of the things Aristotle says suggest he is well aware of some such problem. At times, he seems to concede that non-contradiction may not really be right. He spends some time talking about how things move from one contrary to another and not just randomly. He also argues that changing things are more one thing than another. The thought seems to be that a thing can change in a way that violates non-contradiction provided its substance remains the same and the change is fairly continuous in a “quality space”. Black can change to white through shades of gray. Cold can change to hot through tepid. That would be change but not replacement. These changes would be explainable through essences of an underlying thing. A bowl of water taken out of the fridge standing in the sun will go through various phases including one which is both hot and not hot. However, its heating up will be due to its watery essence and the essence of the sun. However, these “quality space” arguments undermine his initial claim for, if continuous change within a quality space is coherent then what is retained is the quality space, not the initial thing — contrary to some of his arguments against Cratylus. In any case, why not apply this to what Aristotle calls substance (*ousia*) change? Provided substance change operates within a “space” and is not random, why can’t it be continuous? On Aristotle’s account, when Socrates dies, he changes into a different kind of thing. He ceases to be a man and becomes something that is not Socrates — a dead body. Does Socrates’s dying not take some small time? Why is it not true in this time that Socrates is both living and dead?

No doubt some Aristotelians will argue that I am mistaken in my interpretation of *Metaphysics*. Nevertheless, as far as I can tell he holds two positions which are in serious tension. They are that non-contradiction is true of being as such and that there are no points before we designate them. I think Aristotle is right to reject talk of undesignated points. Indeed, I think he should also be suspicious of designated points, for how can designating a point in thought bring it into being? To be consistent, he also ought to reject talk of undesignated instants. I also think he should reject talk of designated instants as thought could not bring instants into being. He should say that instants and points are convenient fictions, but do not exist. Non-contradiction is not necessarily true.⁸ Indeed, the examples I have given above suggest that it is false.

⁸ Following some suggestions of Von Wright, Chris Mortensen has put a related argument. However, he only argues for the possibility of true contradictions, not that they actually exist (Mortensen, 2006:9–10).

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I would like to thank Chris Mortensen and the members of the Adelaide logic group for helpful comments on an earlier draft of this paper.