
What is the Scope of Aristotle's Defense of the PNC?

Michael J. Degnan

In *Metaphysics* Γ Aristotle offers several arguments in defense of the principle of non-contradiction (PNC).¹ In this paper I want to focus on the stretch of argument from 1006a11 to 1006b34 which Aristotle calls a proof by refutation (*elenktikos apodeixai*), (1006a11).² Contrary to Eliza-

-
- 1 Kirwan finds seven arguments in the defense: (1006a28-31), (1006a31-7a20), (1007a20-b18), (1007b18-8a7), (1008a7-34), (1008a34-b2), (1008b2-31), (1008b31-9a5). Ross finds three: (1006b28-7b18), (1007b18-8a2) and (1008a2-7). See Christopher Kirwan, *Aristotle's Metaphysics Gamma, Delta and Epsilon* (Oxford: Clarendon Press 1971), 90-105. Many of the arguments cited by Kirwan explicitly defend a more limited version of the PNC and some defend a version of the principle of excluded middle rather than the PNC. I take advantage of material from 1006a31-1007a20 to clarify Aristotle's intentions.
 - 2 The argument I am focusing on can be set out in the following way:
 1. The opponent says something (1006a11-12).
 2. It is necessary that if the opponent says something, then he signifies something to himself and to others (1006a22-4).
 3. It is necessary that if the opponent signifies something to himself and to others, then he signifies something definite (1006a25).
 4. It is necessary that if he signifies something definite, then he signifies one thing (1006a31).
 5. It is necessary that if he signifies one thing, then if what he signifies exists (or has at one time existed), then he signifies what it is to be that thing (1006a32-4).
 6. It is necessary that if he signifies what it is to be that thing, then if what is signified exists (or has at one time existed), then he signifies the essence of that thing (from 5).
 7. It is necessary that if the opponent says something, then if what is signified

both Anscombe, Terence Irwin and others I will argue that in this section of the defense Aristotle can defend a version of the principle that extends to nonessential predication, predication of properties, aggregates, trans-categoricals, as well as predications that refer to realities that do not exist.³ In part 1 I will consider four arguments from Anscombe which purport to show that Aristotle's defense of the PNC can extend only to substantial predication that is also essential. In part 2 I will consider Irwin's defense of the view that when Aristotle claims that any opponent must signify one thing, Aristotle means that the opponent must refer to an essence. If Irwin is correct, then the principle cannot apply to terms like phlogiston and goatstag which do not in fact refer to any extra-mental object. I will argue that it is very important for discussion in science and the foundations of science that claims about non-existent objects come under the purview of the PNC.

exists (or has at one time existed), then he signifies the essence of the thing signified (from 2-6).

- 8 So, if what is signified exists, then the opponent signifies the essence of the thing signified (from 1 and 7).
9. The opponent says 'man' and the essence of man is taken to be biped animal (assume).
10. Man exists (assume).
- 11 The opponent signifies the essence of man (from 8, 9, 10).
12. If the opponent signifies the essence of man, then it is necessary that if it is true of anything to say that it is a man, then it is a biped animal (the logic of essence and the meaning of 'signify').
13. It is necessary that if it is true of anything to say that it is a man, then it is a biped animal (1006b28-30) (from 11 and 12).
14. It is not possible that a man should be both biped animal and not biped animal (1006b30-3) (from 13).
15. Hence, it is not possible simultaneously to say that the same thing is both a man and not a man (1006b32-4) (from 14).

Many notions in this version of the defense need explication not given in this paper. However, the unpacking of the meaning of 'signify' will be explained and argued for in a later section of this paper.

- 3 See Anscombe, G.E.M. and Geach, Peter, *Three Philosophers* (Oxford: Blackwell 1961), 40-4, and Irwin, T., *Aristotle's First Principles* (Oxford: Clarendon Press 1988), 179-88. See also Jan Łukasiewicz, 'Aristotle on the Law of Contradiction', in *Articles on Aristotle*, Vol. 3, (London: Duckworth 1979), 56-8. Originally published as 'Ueber den Satz des Widerspruchs bei Aristoteles', in *Bulletin International de l'Academie des Sciences de Cracovie*, 1910.

In this paper I assume that Aristotle intends to support the version of the PNC he announces at 1005b17-18:

For the same thing to hold good and not to hold good simultaneously of the same thing and in the same respect is impossible.⁴

Since there is nothing in this statement that suggests the principle only applies to substantial or essential predication, it seems reasonable to ascribe to Aristotle the intention to defend a version of the PNC with wide scope. However, the defense itself does not explicitly address predications of accidents, properties, transcategoricals, or aggregates. In this paper my aim will be to show how Aristotle's defense can be extended to cover terms that signify such realities. The resources for such an extension must be found in Aristotle's logical or metaphysical writings, for the extensions must be the kind of move Aristotle could make, even if he did not do so in the stretch of argument at issue.

I Anscombe's Arguments

Refutations begin with a concession from the opponent. From that concession the refuter must derive the contradictory of the opponent's thesis.⁵ In this case Aristotle derives an instance of the PNC from the concession that the opponent says something. He argues that a necessary condition of saying something is that the opponent signify something (1006a23). He claims that it is a necessary truth that if the opponent signifies something, then the opponent signifies one thing. His strategy is to spell out what it is to signify one thing: "What I mean by "signifying

4 All translation of Aristotle's Greek from the *Metaphysics* are from Kirwan's translation in *Aristotle's Metaphysics Books Gamma, Delta and Epsilon*.

5 In *de Sophisticis Elenchis* Aristotle defines a refutation as 'a deduction to the contradictory of the given conclusion,' (165a4), where the given conclusion is the concession from the opponent. There is no reference to believings in his notion of refutation. The disputant need not follow the deduction to the contradictory of his concession. He need not follow or believe any inference offered him. That takes nothing away from the success of the refutation. Aristotle recognizes this explicitly, for he notes that the way to confront one's opponents is not always the same, 'if they state it for the sake of stating it, the remedy is to refute the statement which is in their speech and in their words' (1009a16-21).

one thing" is this: if that thing is a man, then if anything is a man, that thing will be to be a man' (1006a32-4). In other words, Aristotle holds that it is a necessary truth that if one signifies one thing, then one includes some feature that is excluded when we deny the one thing of that subject. Aristotle concludes that it is not possible that it should be simultaneously true to say that the same thing is a man and is not a man.

Since the concession is simply that the opponent says something, it looks as if Aristotle's refutation could succeed given any term or proposition that the opponent asserts. But, the way Aristotle spells out what it is to signify has convinced many commentators that this refutation does not yield a principle that applies to all beings.⁶ Elizabeth Anscombe, an important and influential commentator, argues that the PNC derived in the refutation is limited in scope to propositions that link predicate and subject terms that signify realities in the category of substance where the predicate is essentially related to the subject. The narrow reading is based on the fact that the relation of the terms in Aristotle's example of 'biped animal' and 'man' is the relation of an essence to its subject.⁷ Therefore, according to Anscombe, predicate terms like 'pale' in the sentences, 'Socrates is pale', 'Socrates is not pale', fail to be covered by the version of the PNC Aristotle defends.

In another set of arguments, Anscombe contends that predicate terms like 'large', 'good', and 'grammarian' fail to be covered by Aristotle's defense, since such terms do not signify one thing in the sense required by the defense. If what is signified exists, then to signify one thing is to refer to an essence that falls into a single Aristotelian category. But Anscombe argues that predicate terms like 'large', 'good' and 'grammarian' do not signify realities that belong to one category. 'Large' can signify two foot long in one case and 200 pounds in another. Thus, the very same thing can be both large and not large. Good is said in all the categories. It is a transcategorical term. Aristotle teaches that 'good' is not a word that signifies one thing.⁸ Finally, 'grammarian' signifies a *per accidens*

6 See Anscombe's, Irwin's and Łukasiewicz's works cited above.

7 Anscombe, 42.

8 In the *Nicomachean Ethics* Aristotle writes, '... but the term "good" is used both in the category of substance and in that of quality and in that of relation, and that which is *per se*, i.e., substance, is prior in nature to the relative ... so that there could not be a common Idea set over all these goods. ... clearly it cannot be something

existent rather than a *per se* one. Terms that signify *per accidens* existents do not signify essences, so they cannot be covered by Aristotle's defense, which seems to apply only to terms that signify essences, if what is signified exists. According to Anscombe, Aristotle's defense leaves many important kinds of predicate terms out of the PNC's range.

1. Anscombe's First Argument for a Restricted PNC

Anscombe's most convincing argument for restricting the scope of the PNC is based on her reading of 1006b28-34. She maintains that the argument makes no sense except on the assumption that the PNC covers only predicate terms that signify realities in the category of substance. In other words, the PNC Aristotle defends only applies to substantial predications. She interprets Aristotle's argument in the following way:

1. For any x (if this x is a man, then necessarily it is a two-footed animal)(1006b28-30).
2. For any x (if it is a man, then it is not possible that it not be a two-footed animal) (1006b31-2).
- [3. For any x (if it is a man, then it is not possible that it is not a man)(supplied step in the argument)].⁹
4. It is not possible that there is an x that is both a man and not a man (1006b33-34).

Part of the reason that Anscombe believes that only substantial predication is covered is that in any nonsubstantial predication there is ambiguity. Anscombe writes:

That which is to signify one thing is evidently a general term: his example is "man". Let us put "A" as the term used, and suppose that

universally present in all cases and single; for then it could not have been predicated in all the categories, but in one only' (1096a17-22).

9 This premise is not stated explicitly by Aristotle. It is required if the *de re* reading of the argument is selected. See Kirwan, 98. In addition we must assume as a premise, 'Necessarily a thing is a man if and only if it is a two footed animal'. This assumption is warranted because two footed animal is for the sake of argument taken to be the essence of man.

“*” is the definition of this term “A”. Then, Aristotle says, “A” is a term signifying one thing if and only if, given that A is anything, its being A is (being) * (Met. 1006a34a)... Since this paper is white, there is a white (thing) of which various other things are true. But the statement “there is a white (thing)” is ambiguous: does it refer to the *per se* existent, the white of this paper, or to the paper? (1031b23-5). If, then, we say “whatever else the white (thing) is, * will necessarily hold of it,” we find that this is not true; for “the white thing” may mean the paper. It is only when “A” is a predicate in the category of substance that something’s being an A implies that the proposition stating that it is * is a necessary proposition.¹⁰

With non-substantial predication, it is not clear whether the predicate refers to the characteristic as such (whiteness) or the particular characteristic of this specific thing (this whiteness) or the substance to which the property belongs (this paper). It is only with substantial predication that there can be no doubt that the predicate refers to the substance itself.

The roots of this problem can be traced to Aristotle’s insistence that the opponent of the PNC signify something. He then argues that not to signify one thing is to signify nothing (1006b8-9). Thus, the opponent’s word or phrase must signify one thing in order to signify anything at all. Yet Aristotle explicitly states that accidental terms (*to sumbebēkos*) signify ambiguously (*ditton semainein*).¹¹ Anscombe’s argument can be succinctly summarized. Aristotle’s defense of the principle requires that the opponent offer a term that signifies one thing. Aristotle says that things said accidentally do not signify one thing. Therefore, Aristotle’s defense cannot apply to subject or predicate terms that signify accidents.

a. *First Criticism of Anscombe’s First Argument.* Even if Anscombe’s description of Aristotle’s theory is correct, it does not follow that the PNC is limited to substantial predication, for the ambiguity occurs only in nonessential predication. Consider, ‘Della Robbia white is white’. Here ‘Della Robbia white’ is *kath auto* white; i.e., it is exactly the thing that is

10 Anscombe, 40 and 42

11 Aristotle writes, ‘but of an accidental term, e.g., “the musical” or “the white”, since it has two meanings (*ditton*) it is not true to say that it itself is identical with its essence; for both that to which the accidental quality belongs, and the accidental quality, are white, so that in a sense the accident and its essence are the same, and in a sense they are not’ (1031b22-8).

white. In this case, there is no ambiguity in saying that Della Robbia white is white. There is no substance to which the quality white belongs; there is simply that which is white. Thus, if Anscombe's analysis is correct, the PNC applies to predicate terms essentially related to their subjects, not just to predicates that signifies substances. In other words, the PNC Aristotle defends holds for predicates that are essentially related to the subjects about which they are said.

The sentence 'Della Robbia white is white' illustrates another point: An accidental term can signify one thing in a certain context. The term 'white' in the sentence about Della Robbia white cannot signify anything but the attribute white. By contrast, the term 'white' in 'Socrates is white' can refer either to Socrates or to the specific instance of white or to the essence of white. Aristotle admits this himself, for he concedes that '... in a sense the accident and its essence are the same, and in a sense they are not;' (1031a27-8). The accidental term is not always ambiguous, for in certain contexts it signifies one thing. When the accidental term is said in relation to a substance term, the accidental term is ambiguous, for the term can refer either to the accident itself or to the substance of which it is a property. By contrast, when the accidental term is said in relation to that of which it is the essence or part of the essence, the term simply signifies the attribute that the accident is, i.e. the term signifies one thing.¹² In the sentence about Della Robbia white, the predicate simply signifies what is white.

b. *Second Criticism of Anscombe's First Argument.* So far, I have argued that if Anscombe's description of Aristotle's theory is correct, then by Anscombe's own lights Aristotle shows the impossibility of affirming and denying (at the same time and in the same respect) the same thing of a substance term or of an accident term, where those substance and accident terms are taken to signify essences. Not only does the defense show the impossibility of saying that man is both man and not man, it also shows the impossibility of saying that pale is both pale and not pale. I will now indicate how these two impossibilities are good enough to

12 This represents Aquinas' view of 1031b22-8. Commenting on Aristotle he writes: 'White is not the same as a man or even the same as white man as regards the subject, but it is the same as "the attribute", i.e., white, for the essence of white and white itself are the same' (paragraph 1372). White when said of Socrates does not signify Socrates, but that does not show that it signifies more than one thing.

show the impossibility of affirming and denying 'pale' of Socrates at the same time and in the same respect.

If one were to say that 'pale' means color of a certain sort, then one would say that any color that is pale is necessarily color of a certain sort. Now when one goes on to assert 'Socrates is pale', one could not also assert at the same time and in the same respect 'Socrates is not pale', because 'pale' has just been shown to signify one thing, color of a certain sort. This one thing cannot both belong and not belong to Socrates, because Aristotle has shown that pale excludes some things that not being pale includes.

This inference may seem too quick. It may be objected that Socrates at one and the same time could be pale in virtue of a certain feature, pale being present in him, but he could be not pale in virtue of some other trait being present in him that is not pale.

For example, Socrates could be short. We then may argue in the following way: Socrates is pale. Socrates is short. Short is not pale. So Socrates is pale and not pale.

But this objection takes 'not pale' to involve only being different from pale. And in this sense of 'not pale', Socrates can be pale and not pale at the same time. But this is not the sense of 'not pale' involved in a denial of the PNC. Aristotle seems to be aware of these different sense of 'not Y', where 'Y' is any name for a substance or an accident, for he writes,

For "to be a man" and "to be a not-man" signify something different, if even being pale and being a man are different. For the former is much more strongly opposed, so that it signifies something different (1006b34-1007a5).

In this passage, Aristotle claims that being pale and being a man are different, but that being man and being a not man are even more different. The difference between being a man and being a not man is not just the difference between being a man and being pale. This suggests that he is aware that the sense of 'not Y' that is at issue in the denial of the PNC is not simply the sense of 'different from Y'. It is something more strongly opposed to Y than that. From the context the sense of 'not Y' seems to be the following: the sense of 'not Y' required in the denial of the PNC must be the following: different from Y and excluding Y.

If 'not pale' means both different from pale and excluding pale, then Socrates cannot be both pale and not pale, for the very feature that is necessarily included in being pale is the feature that is excluded in what 'not pale' signifies. Since the accidental term 'pale' does refer to some

feature that is essential to pale, it is necessarily the case that the correct use of the term pale requires the inclusion of this essential feature. Thus, I have shown that the impossibility of the same thing being what is pale and what is not pale (at the same time and in the same respect), entails the impossibility of the same thing having the property pale and not having the property pale (at the same time and in the same respect). If we generalize this result, I have shown that the defense of the impossibility of affirming and denying at the same time and in the same respect the same thing of any substance or accident term is also a defense of the impossibility of affirming and denying nonessential predicates of the same subject at the same time and in the same respect. Hence, Aristotle's defense of the PNC defends a PNC that governs both essential and nonessential predication. In other words, the principle's scope ranges over predicates that are essentially and non-essentially related to their subjects.

2. Anscombe's Second Argument

Although I have argued that Aristotle's defense of the principle applies to predicate terms that are not essentially related to the subject terms about which they are said, Anscombe offers a special argument to show that predicate terms that signify relations that are not essentially said of their subjects cannot be covered by Aristotle's defense. Anscombe writes:

Being two foot long might be being large, and might also be not being large. So "being large" can signify something that "not being large" can signify. It follows that if a large thing is two foot long, its being large would not be being two foot long. This would show that "being large" does not "signify one thing" — i.e., that the expression "being large" is not itself the sign of a *per se* existent.¹³

Anscombe's argument can be set out in the following way:

1. Being two foot long might be being large and might be not being large.

13 Anscombe, 41

2. So 'being large' can signify something that 'not being large' can signify.
3. So if a large thing is two foot long its being large is not being two foot long.
4. If 'being x' can signify something that 'not being x' can signify, then 'being x' does not signify one thing.
5. So 'being large' does not signify one thing.

This argument can be generalized for any expression that signifies an accident in the category of relation.

a. *Criticism of Anscombe's Second Argument.* I believe Anscombe erred in arguing that 'being large' fails to signify one thing. I will set out my objections by considering the truth of the premises of her argument set out above. Premise 1 is true because a two foot long mouse may be considered large for a mouse but small compared to a human being. Therefore, we could say, 'This mouse is large', and 'This mouse is not large'. However, to conclude from this that 'being large' can signify what 'not being large' can signify is mistaken. The inference from premise 1 to 2 is invalid. 'Being large' is a predicate that is truthfully applied given certain context specific standards. What it refers to in any given instance may not be the same given the standard that one is using in the particular application of the phrase 'being large'.

Anscombe seems to have confused the conditions for the application of the word with the signification of the word.¹⁴ In order for Anscombe to conclude that 'being large' signifies something that not being large signifies, she must hold that 'being large' signifies two foot long and that

14 R.M. Dancy makes this point in *Sense and Contradiction: A Study in Aristotle* (Boston: Reidel 1975), 108. Some readers may object to the phrase 'signification of a word,' for J.L. Ackrill has argued in *Aristotle's Categories and De Interpretatione* that Aristotle takes 'homonymous' and 'synonymous' as applying to things that a name signifies rather than applying to words. Not all scholars agree with Ackrill. H. Apostle argues that it is strange to say that things are equivocal for things are just what they are and do not equivocate. Apostle translates the phrase *homōnōmos legetai* as equivocally named. He finds other cases where this phrase is used and makes sense when translated this way: 110b16, 148a23, 1035b1, 1046a6 and 1129a29. See Ackrill, *Aristotle's Categories and De Interpretatione* (Oxford: Clarendon Press 1963), 71, and Apostle, *Aristotle's Categories and Propositions* (Grinnell, Iowa: Peripatetic Press 1980), 51-2.

'being large' also signifies not two foot long. But this assumption is false, for 'being large' does not signify two foot long.

There is evidence that Aristotle would criticize Anscombe's argument in a similar way. In the *de Sophisticis Elenchis*, he warns against the fallacious reasoning that uses terms in different respects.¹⁵ The example he uses resembles Anscombe's. An argument is presented which claims that the same thing is both double and not double (167a29-30). Two is double one, but it is not double three. So the same thing is double and not double. The fallacy is that two is double with respect to one, but not with respect to three. From this example, it does not follow that double signifies more than one thing. Double signifies one thing, one essence. Similarly, Mighty Mouse may be large with respect to average sized mice but not with respect to average sized humans. Hence, two foot long may explicate the notion 'a large mouse'. But, the phrase 'two foot long' cannot explicate the phrase 'being large'.¹⁶

In the *Topics*, Aristotle suggests how to define such relational terms.¹⁷ 'Being large' may be taken as referring to the condition of being above the standard height, area, or length of a standard or average individual of a kind. This is the one thing that 'being large' signifies in the propositions: 'Mighty Mouse is large', and 'Mighty Mouse is not large'. Both statements can be true, because the conditions of application of the term differ. In one case, we may be using mice as the standard individual of a kind and in another case we may be using humans as the standard. For these reasons, it does not follow that 'being large' can signify what 'not being large' signifies. Rather, the conditions for satisfying 'being large' with respect to one standard can be the conditions for satisfying 'not being large' with respect to a different standard. While it may appear that 'being large' can signify 'not being large', it is more accurate to describe the case as one in which 'being a large x ' can refer to the same reality as 'not being a large q ' does. For example, the two sentences about Mighty Mouse might express the following: 'Mighty Mouse is a large

15 Dancy notes this connection, 113.

16 Confirmation of my point here is that we may find ourselves saying that this mouse is large relative to a mosquito and not large relative to an elephant. But we never find ourselves saying that this mouse is a large mouse and not a large mouse.

17 See 119a30 and 153a39-b1 and 107b28-31 where pale is defined as color penetrative of sight.

mouse and not a large animal'. So premise 2 in the above argument is false.

Premise 3 claims that if a large thing is two foot long, its being large is not being two foot long, i.e., what it is to be large is not to be two foot long. While 3 seems true and while Aristotle would agree with it, it does not support the claim that 'being large' does not signify one thing. It simply follows that 'being large' does not signify two foot long.

Anscombe may respond that I am confusing 'signify' with 'mean', for she may agree that 'being large' has a single meaning, but she will deny that it has a single signification. She might insist that 'being large' is just like 'being good'. Just as 'good' has a single meaning but different significations, so 'being large' signifies a different kind of thing in terms of the kind of subjects that 'large' is said of. For example, when 'large' is said of elephants, it signifies something different than when it is said of mice, just as 'good' signifies something different when said of men than when said of dogs.

Anscombe is correct that 'signify' does not mean the same as 'mean'.¹⁸ There is an important difference between good and being large, however. Being large is a relation, and as such, its essence is a relation, a *pros ti*. About the category of relation Aristotle writes,

Those things are relatives (*pros ti de ta toiauta legetai*) whose very being it is to stand in reference to something else in some way. (8a32-4)

The relative has no being but in this very relation to something else; it is exclusively a *pros ti*. Since being large is a relation, the phrase being large signifies the relation between the standard or average individual of a kind and the one to which the predicate is being applied. Thus, we might say that the relationship of being above the standard height, weight, etc, is a single essence. The fact that one term of the relation differs for each

18 T. Irwin argues that for Aristotle 'meaning the same' is neither sufficient nor necessary for 'signifying the same.' See T.H. Irwin's 'Aristotle's Concept of Signification' in M. Schofield and M.C. Nussbaum, eds., *Language and Logos: Studies in Ancient Greek Philosophy*, (Cambridge: Cambridge University Press 1982), 241-66; H.W. Noonan, 'An Argument of Aristotle on Non-Contradiction,' *Analysis* 37 (1977), 163-9; and J. Lear, *Aristotle: The Desire to Understand* (Cambridge: Cambridge University Press 1988), 257-9. For contrast see Dancy *Sense and Contradiction*, 46. Dancy takes what a word signifies to be its sense.

individual to which the predicate applies may affect the condition for applying the term, but it does not multiply the significations of the term.

Anscombe's argument that such a predicate could not signify one thing confused the conditions for application of the term 'large' with the signification of the term. I have shown that there is no reason for excluding predicates that signify relations from the scope of Aristotle's defense of the PNC.

3. Anscombe's Third Argument

If the defense can be extended to cover subject and predicate terms that signify accidents and substances, the defense has not been shown to cover subject and predicate terms that signify something other than substances and accidents. Transcategorical terms like 'good' and 'one' do not signify substances and accidents. Anscombe claims that they do not signify one thing in the sense demanded by the premises of Aristotle's defense. Therefore, the defense does not seem to justify the PNC with respect to such terms.

Anscombe is right to say that there are certain words that Aristotle believes signify more than one thing (more literally Aristotle claims that these words are *pollachos legomena*, said in many ways, 1003a33). In the *Nicomachean Ethics* Aristotle makes this aspect of the term 'good' very clear:

Things are called good both in [the category of] substance and in [that of] quality and in that of relation and that which is *per se*, i.e. substance, is prior in nature to the relative (for the latter is like an offshoot and accident of being); so that there could not be a common Idea set over all these goods. Further, since "good" has as many senses as "being", ... clearly it cannot be something universally present in all cases and single; for then it could not have been predicated in all the categories but in one only. (1096a18-26)

Since a different definition of good must be offered for items in different categories, 'good' is said in many ways. The property that makes a horse good depends on what a horse is and will not be the same properties that make a man good. Different properties will make different kinds of things good. Furthermore, the term 'being' is also said in more than one way. Aristotle writes, 'The senses of being are just as many as the categories' (1017a25). Thus, Anscombe is correct. Aristotle recognizes that there are words that do not signify in any one category. And

it would seem that Aristotle's defense of the principle cannot extend to such terms that fail to signify one thing.

a. *Response to Anscombe's Third Argument.* The fact that transcategorical terms do not signify one thing does not free them from the scope of Aristotle's defense of the PNC. As in her first argument my quarrel is not with Anscombe's description of Aristotle's theory. The problem is with what follows from her account of Aristotle's theory. First, there is textual evidence that Aristotle meant the PNC to apply to terms like 'good'. Consider the following passage:

Why does he not proceed one morning straight into a well or over a precipice, if there is one about: instead of evidently taking care to avoid doing so, as one who does not consider that falling in is equally a good thing and not a good thing? It is consequently plain that he believes that one thing is better, another not better. And if so, he must also believe that one thing is a man and another not a man, one thing sweet and another not sweet. (1008b16-20)

Indeed, this is a reassuring consequence, for it would be strange if Aristotle would allow one to say that deliberately acting to bring about the death of an innocent person is both good and not good, because the PNC does not apply to transcategorical predicate terms like good. This consequence flies in the face of claims Aristotle makes in his ethical writings.¹⁹ Therefore, we have good grounds for holding that Aristotle intended to cover transcategorical predicate terms. We now must find evidence that his defense does extend to such terms.

Aristotle's defense does not require that terms be univocal in order to fall under the scope of the PNC. He explicitly considers how to handle terms that signify more than one thing:

But it makes no difference even if someone were to assert that it signified more than one thing, provided that these were definite; for a different name could be assigned to each formula (I mean, for instance, if someone

¹⁹ Aristotle writes: 'But not every action nor every passion admits of a mean; for some have names that already imply badness, e.g., spite, shamelessness, envy, and in the case of actions adultery, theft, murder; for all of these and such like things imply by their names that they are themselves bad, and not the excesses or deficiencies of them. It is not possible, then, ever to be right with regard to them, one must always be wrong'. (1107a9-17)

were to assert that "man" signified not one but several things, of one of which the formula was "two-footed animal" but there was more than one other as well, but a definite number; for a distinct name could be assigned in respect of each of the formulae). (1006a33-b6)

If we assert that 'good' signifies more than one thing, then Aristotle's defense will apply to such terms, provided that, for each signification we can provide a formula and provided that there are a definite number of these significations such that each of these signifies some one thing. But given that the senses of 'being' and 'good' are at least as various as the categories, we have a finite set of definite significations. Aristotle could, therefore, construct a long disjunctive statement that lists the different formulae or definitions of the terms 'good' or 'being'. When a person says that such an act is good for a human being, the context would indicate which of these senses of good was intended by the speaker. That sense could be a definite one and could be a certain essence. If someone claims to be using good in a general way not attached to any category of being at all, Aristotle can insist that in such a context a person would not be signifying anything with his use of the word 'good'.

Since the way I have described Aristotle handling the term 'good' can be generalized for any transcategorical term, I have shown that Aristotle's defense has the resources for defending the PNC for subject and predicate terms that signify transcategorials.

4. Anscombe's Fourth Argument

Anscombe points to another set of terms which signify realities that are in more than one category, for example, 'grammarian' or 'Caucasian'. These terms signify a substance with a certain property or feature. Aristotle calls such terms 'expressions that signify *per accidens* existents, (*ta legomena kata sumbebēkos*)'. These terms clearly do not signify one thing in the sense required for the dispute with the opponent, for they signify in two different categories. 'Grammarian' and 'Caucasian' signify in the category of substance and of quality.²⁰ Anscombe goes on to conclude

20 It might be argued that 'man' also signifies in two categories: substance and quality inasmuch as it signifies biped animal. However, Aristotle insists that 'man' signifies one thing in a way that 'pale man' or 'Caucasian' does not. In *Metaphysics* VII 12 Aristotle attempts to explain this difference. '... wherein can consist the unity of

that since such terms do not signify one thing in the sense required by premises in the defense, the defense does not justify applying the principle to such terms.

a. *Response to Anscombe's Fourth Argument.* I will argue that Aristotle can show that a consequence of defending the PNC for terms that signify *per se* existents is that the PNC can be seen to apply to subject and predicate terms that signify *per accidens* existents as well. I admit that the defense itself does not show that such terms are covered by the PNC. However, since the PNC is about being which has various senses, it is not possible for a single defense to apply to all the senses of being. Nevertheless, just as the various senses of being refer to substance, the primary sense of being, so too the defense of the principle for terms other than substances and accidents refers back to the defense of the principle for the substance term 'man'. Since man is an example of substance in the primary sense, it makes sense for Aristotle to express his defense with an example of a term that signifies being in the primary sense. That defense then becomes the basis for showing how other beings fall under the scope of the PNC. Just as beings in the secondary sense all relate back to being in the primary sense in some way, so the extension of the PNC to beings other than substances and accidents refers back to the defense of the principle for being in the primary sense.

I will show that because Aristotle has defended the PNC for any term that signifies a substance or an accident, he can support the application of the principle to expressions that signify *per accidens* existents by translating expressions that signify *per accidens* existents to a conjunction of expressions signifying a substance and an accident. Consider a proposition that predicates an expression that signifies an existent of an individual, for example, 'Socrates is a grammarian.' This *per accidens* proposition could be translated as an expression signifying man and ability to do grammar. The proposition could be recast as

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. Why, then is this one, and not many, viz. "animal" and "two footed"? For in the case of "man" and "pale" there is a plurality when one term does not belong to the other, but a unity when it does belong and the subject, man has a certain attribute; for then a unity is produced and we have "the pale man" (1037b10-17). Aristotle goes on to suggest that biped is a differentia of the genus in a way that pale is not. Only true differentiae along with a genus signify a unity in the sense of unity at issue.

Socrates is a man and Socrates possesses the ability to do grammar.

If Aristotle's argument succeeds for terms that signify substances and accidents, then it is impossible to say that Socrates is a man and not a man and impossible to say that Socrates possesses the ability to do grammar and Socrates does not possess the ability to do grammar. But if these things are impossible, then it is impossible to say that Socrates is a grammarian and Socrates is not a grammarian. I will set out the steps of the argument. The denial of 'Socrates is a grammarian' can be written as the denial of a conjunction.

It is not the case that (Socrates is a man and Socrates possesses the ability to do grammar).

This is equivalent to

(Socrates is not a man or Socrates does not possess the ability to do grammar).

Thus if one affirms and denies the predicate 'grammarian' of Socrates, one gets the following result:

[(Socrates is a man and Socrates possesses the ability to do grammar) and ((Socrates is not a man) or Socrates does not possess the ability to do grammar)].

And using a distribution equivalence we can reexpress this statement to read

{[(Socrates is a man and Socrates possesses the ability to do grammar) and (Socrates is not a man)] or [(Socrates is a man and Socrates possesses the ability to do grammar and (Socrates does not possess the ability to do grammar))]}.

This last claim is impossible, for both of the disjuncts contain contradictions. The first disjunct states that Socrates is a man and not a man. The second disjunct states that Socrates possesses the ability to do grammar and Socrates does not possess such ability. These are both contradictions that are precluded by applying the PNC to substance or accident terms. Thus, even if Anscombe's argument validly supports the claim that what 'being A' signifies cannot be a *per accidens* existent, it does not follow that the defense Aristotle gives of the PNC cannot apply to expressions that signify *per accidens* existents.

This technique of extending the application of the PNC beyond what the defense explicitly defends can be used to show that the PNC applies

to terms that signify artifacts and mixtures. Artifacts are typically composed of several substances that have certain modifications or accidents. For example, a table is shaped wood. Just as we proved that something could not both be and not be a grammarian by explicating grammarian as a conjunction of terms that signified essences, so we could do with table. In principle the technique could be reduplicated for any artifact, for the artifacts will be composed of parts that have essences. Mixtures are a bit more complicated, for some mixtures bring about a new set of physical properties and some do not. In the case where there is no new set of physical properties, we simply have the conjunction of the elements mixed. But where we have a new set of physical properties, we have a new substance. For example, when zinc and sulfur are joined under great heat, we have a substantial change which yields zinc sulfide. Such mixtures as these would presumably have their own single essence, for they are not just the sum of the elements that make them up.

I have shown that even though the defense itself does not explicitly generate a PNC that applies to terms that signify *per accidens* existents, reliance upon such a defense can show that the principle applies to such terms.²¹

5. Summary of Part I

At this point I have set out and responded to four arguments from Elizabeth Anscombe that purported to show that Aristotle succeeded at defending the PNC only for predications of an essence of a substance,

21 Phrases like 'not man' fail to signify one thing, for such phrases do not refer to any single kind. They are like 'good' and 'one' in that they signify across the categories. However, it is not possible to give a long disjunction of kinds that the phrase can refer to. Thus, it may seem that Aristotle's defense has not succeeded at showing that such phrases and what such phrases refer to must obey the PNC.

However, if the defense succeeds at showing that a term like 'man' must obey the PNC, then it is a relatively easy step to see that 'not man' must obey the PNC as well. If the opponent tries to say that 'not man' and 'man' can be said of the same thing at the same time and in the same respect, Aristotle can reply that he has already shown that it is impossible for 'man' and 'not man' to belong and not belong to the same subject at the same time and in the same respect. Even if 'not man' does not signify, its meaning excludes the very features that 'man' includes, so contradictions involving 'not man' and 'man' are precluded as a result of the successful defense of the PNC for terms that do signify. A similar story can be told to handle the denials of other substance and accident terms.

since nonessential predications are always ambiguous as to whether the predicate refers to a characteristic as such or to the subject that has the characteristic. I argued that on Anscombe's own reading Aristotle is able to defend predications of an essence of an accident.

More importantly, I argued that phrases like 'not pale' signify what is different from pale and what excludes pale, therefore nonessential predications of accidents are covered by Aristotle's defense, for Aristotle has shown that what 'pale' signifies necessarily includes some things that 'not pale' necessarily excludes in its signification. Consequently, Aristotle's defense defends a PNC whose scope ranges over predicates that signify what is not essentially related to the subject as well as over predicates that signify what is essentially related to the subject.

Anscombe argued that words that signify relations like 'large' and words that signified transcategorical realities like 'good' and words that signify *per accidens* fail to be covered by the defense of the PNC since such words clearly fail to signify one thing. I argued that words that signify relations assume a standard from the linguistic context. In this way these relation terms signify one thing in the requisite way. The transcategorical words can be understood to signify a disjunction of possible states of affairs. These terms exclude what is not in the disjunction. Words that signify a *per accidens* reality signify a conjunction of a substance reality and some property or feature. Since the defense works for accidental and substantial predication, it can apply to predications of words that signify *per accidens* realities as well. Aristotle's defense is more robust than Anscombe recognized.

II The Concept of Signification

My criticism of Anscombe and defense of Aristotle has not challenged the view that for Aristotle to signify one thing is to refer to an essence. I have shown that just because individual words or phrases must refer to an essence it does not follow that the PNC can only be defended for predicates essentially related to their subjects. However, there are three important difficulties that the essence concept of signification faces. First, Aristotle clearly states that non-referring terms like 'goatstag' signify even though there is no essence for such non-existents. Aristotle writes,

He who knows what human — or any other — nature is, must know also that man exists; for no one knows the nature of what does not exist — one can know the meaning (*sēmainei*) of the phrase or name "goatstag" but not what the essential nature of a goat-stag is (92b4-6).

Second, in another passage in the *Posterior Analytics* Aristotle seems to say that not all names signify essences, for if they did, all names would become definitions and there would be no room for nominal definitions or any terms that did not signify essences.²² Third, Aristotle's defense of the PNC seems to use a notion of signification which does not require a reference to essence, for Aristotle claims that signifying something is necessary for speaking and thinking.²³ Yet signifying essences is not necessary for speaking and thinking.

1. Irwin's Defense of Signification as Reference to an Essence

Terrence Irwin, a defender of the essence view of Aristotelian signification, attempts to resolve these difficulties for his thesis by distinguishing between what is known relative to us and what is known by nature. Irwin writes:

Aristotle often distinguishes different stages of inquiry by contrasting what is "known to us" (*gnōrima hēmin*) with what is "known by nature" (*gnōrima phusei*), (*Posterior Analytics* 71b23-2a5). What is known to us is

22 Aristotle writes: 'For, first, there would be definitions even of non-substances and of things that are not for one can signify even things that are not. Again, all accounts would be definitions; for one could posit a name for any account whatever, so that we would all talk definitions and the *Iliad* would be a definition' (92b29-32).

Irwin observes that Aristotle allows several sorts of definitions, one of which is an account of what a name signifies, while the other says what something is and so reveals the essence (93b29-30). This suggests that the significate of 'F' and the essence of F are not the same. This seems to be held earlier in the *Posterior Analytics* as well for Aristotle claims that learning must begin with some grasp of what for example, triangle signifies. But this precedes the full knowledge of something's essence.

There is an interesting controversy over the question of what nominal definitions signify. Sorabji and Ackrill do not think that they signify essences, while Bolton claims that they do. See Ackrill, 'Aristotle's Theory of Definition', in E. Berti, ed., *Aristotle on Science: The Posterior Analytics* (Editrice Antenore 1981); Sorabji, 'Definition, Why Necessary and in What Way?' in Berti, *Aristotle on Science*; and Bolton 'Essentialism and Semantic Theory', *The Philosophical Review* 85 (1976) 514-544.

23 Aristotle writes: 'In response to every case of that kind the original step is not to ask him to state something either to be or not to be (for that might well be thought to be what was originally at issue), but at least to signify something both to himself and to someone else; for that is necessary if he is to say anything' (1006a18-24).

the starting point for inquiry, our common beliefs; what is known by nature is the true theory resulting from inquiry.²⁴

This distinction informs Aristotle's theory of definition. While there is only one correct definition that reveals the essence, sometimes scientific or philosophic inquiry must begin with definitions which reveal only what is known relative to us, not what is known by nature. In this way nominal definitions can be seen to be accounts of what is known relative to us, while accounts which reveal essences that are definable properties of things in the world are known by nature. Irwin goes on to suggest that Aristotle would allow talk about signification relative to us and signification by nature. A word that signifies relative to us would be one that signifies what is known relative to us, while a word that signifies by nature would be one that signifies what is known by nature.

Irwin applies this distinction to solve the three problems facing his interpretation. Although non-referring terms correspond to no real properties, they signify the thoughts and beliefs associated with them. They signify something relative to us but they signify nothing by nature. In this way Irwin explains that non-referring terms like 'goatstag' signify thoughts but no reality. In short they signify relative to us, but not by nature. Whatever signifies by nature signifies an essence.

This distinction allows Irwin to make sense of the signification of nominal definitions. These definitions refer to what is known relative to us. That is why they do not always reveal the essence but just the signification of a word. By contrast, definitions that reveal the essence of something signify by nature.

The defense of PNC seems to display the two senses of signification Irwin has distinguished. On the one hand, when Aristotle speaks about signifying something as a necessary condition for speaking or thinking, he seems to be using the notion of signify relative to us. When he writes 'What I mean by "signifying one thing" is this: if that thing is a man, then if anything is a man that thing will be to be a man' (1006a30-32), it seems as if he is using the notion of signification by nature. Although Irwin considers the possibility that Aristotle is simply confused between these two different senses of signification, he opts for an interpretation which sees Aristotle using the sense of 'signification by nature' in the defense.

24 Irwin, 250

Irwin takes the opponent of PNC as claiming that for any property of a subject, it is possible for the subject to have the contradictory property as well.²⁵ The defense can refute such a claim if it can show that the opponent must signify a single subject with a single essence (signification by nature). If this can be done, then the opponent must signify a subject that is the same subject as long as it has the property that constitutes its essence. And if the opponent both affirms and denies this essential property of the subject, he both affirms and denies that he is speaking of a single subject; and so he must both affirm and deny that he ascribes contradictory properties to a single subject.²⁶

2. Problems for Irwin's Notion of Signification

If Irwin's account of Aristotle's concept of signification is used in the defense discussed above, then Aristotle is not even attempting to defend the version of the principle he announces at 1005b17-18:

For the same thing to hold good and not to hold good simultaneously of the same thing and in the same respect is impossible.

The denial of this claim is

$\diamond[(\exists x) (EP) (Px \ \& \ -Px)].$ ²⁷

Irwin takes the opponent as saying that for any property of a subject it is possible for the subject to have the contradictory property as well.²⁸ Put formally the opponent holds:

25 Irwin, 263

26 Irwin, 264

27 This reads, 'It is possible that there exists an x and there exists a predicate such that x is both that predicate and not that predicate'. Understand the qualifications of at the same time and in the same respect.

28 It is interesting that this foreshadows Irwin's analysis of the defense in his more recent work, *Aristotle's First Principles* [Oxford: Oxford University Press 1988], 181) where he argues that the defense shows that PNC must be true for essential properties of the subject of the discipline. His analysis there depends on taking the notion of *semainei* put forth here. If the concept of *semainei* is used, then the defense can achieve more than Irwin allows.

◇ [(x) (P) (Px & -Px)].²⁹

If Irwin's reading of the defense uses the notion of 'signification by nature' it means that the defense falls seriously short of what Aristotle hoped for. While Aristotle's defense may fail to deliver its conclusion, it seems to violate the principle of charity to adopt an interpretation of the text that from the outset means the defense cannot attain its stated goal.

A more serious worry is that Aristotle's distinction between knowledge relative to us and by nature is misinterpreted by Irwin.³⁰ He claims that what is known by nature is the true theory resulting from inquiry. When Irwin says that relative to us common beliefs are known, he seems to mean the content expressed in some psychological state. This content is the expression of some feature or some concatenation of features which need not be constitutive of any extra-mental items, for Irwin writes that 'to us' need not mean 'as we believe', but it can mean 'as we imagine it'.³¹

But, this is not Aristotle's view of what is known relative to us. That which is better known to us is an essence just like that which is known by nature. It is just that we have a vague or partial grasp of the essence when we know something relative to us. Evidence of this view appears in Aristotle's introduction to the *Physics*:

Now what is to us plain and clear at first is rather confused masses, the elements and principles of which become known to us later by analysis. Thus, we must advance from generalities to particulars; for it is a whole that is more knowable to sense perception, and a universal is a kind of whole, comprehending, many things within it, like parts. Much the same thing happens in the relation of the name to the formula. A name, e.g. "circle" means vaguely a sort of whole: its definition analyses this into particular senses. Similarly a child begins by calling all men

29 This reads, 'It is possible that for any x and any predicate that there is something that is both P and not P at the same time and in the same respect'.

30 I am not denying that Aristotle starts with common beliefs and reconstructs them in accord with real essences that are correlated to such beliefs. My quarrel with Irwin is whether this distinction accurately captures the distinction between knowledge relative to us and knowledge by nature.

31 'Aristotle's Concept of Signification', 257

“father” and all women “mother” but later on distinguishes each of them. (184a16-184b13)

Aristotle insists that we start from the things which are more knowable and clear to us and proceed towards those which are clearer and more knowable by nature. He is not describing a movement from beliefs to correct theory, but a movement from an essence grasped in a generic or confused way to an essence grasped fully as in a definition that gives both a genus and a difference term.

This same emphasis on the essence of things is again noted in the passage from the *Posterior Analytics* to which Irwin refers.

Things are prior and more familiar in two ways; for it is not the same to be prior by nature and prior in relation to us, nor to be more familiar and more familiar to us. I call prior and more familiar in relation to us what is nearer to perception, prior and more familiar *simpliciter* what is further away. What is most universal is furthest away, and the particulars are nearest; and these are opposites to each other. (71b34-2a5)

Again, what is better known relative to us is some description of an extra-mental object, a qualification not part of Irwin’s account of belief. But, the passage from the *Posterior Analytics* is at odds with the passage from the *Physics* concerning the kind of object better known to us. In the *Physics* Aristotle holds that the universal or the more general is better known, while the *Posterior Analytics* passage claims that the particular is better known than the universal.

In his *Commentary on the Physics* Aquinas suggests that in the *Physics* Aristotle notes that knowledge of genera is better known to us than knowledge of species.³² For example, ‘circle’ is used to pick out a vague kind of class: a figure of some sort. Further study will refine this class into its species. By contrast, according to Aquinas, in the *Posterior Analytics* passage Aristotle considers the object with which we first come into contact in our experience. After this initial encounter with the object we may come to know or understand the object. The object that begins our knowledge must be a singular object as the *Posterior Analytics* passage

32 St. Thomas Aquinas, *Commentary on Aristotle’s Physics*, trans. by Richard J. Blackwell, Richard J. Spath, W. Edmund Thurlkel (New Haven: Yale University Press 1963), 6-8.

attests. But, our understanding of that singular object requires us to assign some description to the object. Initially, the description will be at the generic level. For example, 'Father' is used to designate a whole class of beings although its initial reference is but a singular man. The idea is that the reference to the singular is somehow used to make a reference to the kind or type even though the kind or type in which this figure belongs is only vaguely understood.³³

I have shown that Aristotle's sense of knowledge relative to us and knowledge by nature both relate to the essence of what is known. Knowledge relative to us grasps the essence in a partial or confused manner while knowledge by nature grasps the essence more fully. Therefore, if Irwin uses these notions to inform his conception of 'signify relative to us' and 'signify by nature' he must say that both kinds of signification relate to essences. But if he does this, then his account of 'signification relative to us' cannot explain how a term like 'goatstag' can signify, for as noted above 'goatstag' does not relate to any essence.³⁴

3. The Importance of Non-referring Terms

In response to my criticism, Irwin might say that in the *Metaphysics* Aristotle is justifying the presuppositions of the special sciences, i.e. physics, biology, mathematics, and ethics. In fact, he makes this very point in his book, *Aristotle's First Principles*.³⁵ He notes that in *Metaphysics* B Aristotle asks whether and why the science that studies the common axioms will also study substances. Aristotle also asks which of these studies come first. According to Irwin, the answer is that in metaphysics, the universal science, one considers the sort of thing that the special

33 Robert Bolton expresses this point succinctly: 'When Aristotle characterizes nominal definitions as accounts from the point of view of what is better known to us and what is best known to sense he means that they focus on actual familiar perceptible instances of a kind and define the kind partly by means of a reference to those instances. They focus on particulars, according to the *Physics* in the way in which the knowledge of the universal man which is possessed by the infant who calls all men father focuses on particulars.' See Robert Bolton, 'Essentialism and Semantic Theory', 531

34 Irwin might respond that 'goatstag' refers to that which explains the phenomena which suggest that there are goatstags. But since there are no such phenomena this response is ineffective.

35 Irwin, *Aristotle's First Principles* (Oxford: Clarendon Press 1988), 181-3.

sciences take for granted: a subject with essential properties whose intrinsic features are studied by the special sciences. Universal science explains why any special science must presuppose the sort of subject that they do. In short, the universal science justifies the presuppositions about the subjects of the special sciences and says what the subjects must be like by detailing these presuppositions. The first step is to show that any subject of the sciences must satisfy the axioms. The first axiom to consider is the PNC. Thus, the issue in *Metaphysics* Γ is this: Does scientific study presuppose a subject satisfying PNC? The opponent claims that it does not. Aristotle defends this presupposition against attack.

This context is important for it establishes that the opponent agrees with Aristotle that scientific study presupposes a subject. Since the subject is one about which scientists would study, presumably words like 'goatstag' and 'unicorn' would not even be offered by the opponent. Since no science investigates goatstags or satyrs, Aristotle's concept of signification in this particular argument need not apply to such terms. Consequently, my criticism is irrelevant to the task Aristotle has set himself. There is no need to defend the PNC for non-referring terms or non-existent objects.

On the contrary, scientific investigation needs to have the PNC apply to non-existent objects, for throughout the history of science many scientists have performed experiments on and theorized about what turns out to have been non-existent things. The theoretical traditions of phlogiston, the ether and caloric exemplify this truth. Many experiments were designed using these theories.³⁶ Certainly, the foundational questions about science must be able to treat of non-existent subjects, for Aristotle devotes four chapters of *Physics* IV to arguing that there is no reality to which the concept of the void corresponds (213a11-17b28). He also takes four chapters of *Physics* III to argue against the reality of

36 Michelson and Morley, for example, designed apparatus to measure the speed of the earth through the ether. See Charles C. Gillispie, ed., *Dictionary of Scientific Biography* (New York: Charles Scribner's Sons 1980), Vol. 9, 371-4. Lavoissier devised experiments to measure the phlogiston removed from mercury after burning (see *Dictionary of Scientific Biography*, Vol. 8, 66-91). Benjamin Thompson showed that the heat generated in the process of boring cannon with a dull drill seemed limitless. From this he reasoned that a fluid caloric did not exist. He also studied the anomalous expansion of water between 4 degrees Celsius and zero degrees Celsius to show that the concept that thermal expansion is caused by fluid caloric taking up space was false (see *Dictionary of Scientific Biography*, Vol. 13, 350-2).

infinity. Since the study of the foundational concepts of science must take up the question of the reality of the void and the infinite and since Aristotle thought that there were no realities to which these terms corresponded, he must believe that non-referring terms are important to the foundational study of science if not to science itself. Therefore, my criticism of Irwin is relevant. If Aristotle does not defend the PNC's application to predicates or subjects that are non-referring, then either discourse about foundational questions in science or discourse in science itself will not be fully covered by the PNC.

If signification is limited to relating a word to the essence of which it refers, and if signification is the key notion in Aristotle's defense of the PNC, then the defense will succeed only for terms that have this certain kind of signification. But that is too limited for scientific discourse. So this account of signification must be wrong. Any correct account of signification must reckon with the signification of non-referring terms.

There is a second reason that non-referring terms are important to consider in an account of signification. Aristotle argues that if names do not signify, then discussion is eliminated (1006b9-10). If we take words to signify essences and substitute that into Aristotle's claim we get a false statement. If words do not signify essences, discussion is not eliminated. People can talk about minotaurs and goatstags and the void and the infinite. Since none of these exist, they have no essence. But, Aristotle certainly did talk about the void and the infinite (see *Physics* 3.5-3.8 and 4.6-4.8). Therefore, it is important to revise Irwin's understanding of Aristotle's concept of signification.

4. An Alternative Account of Signification

Because of the difficulties encountered with terms that signify non-existent subjects, I suggest that while many words signify essences of the individuals to which the words refer, this fails to be a general account of signification. To get clearer about the notion of signification I consider Aristotle's explication of 'signify one thing' that he gives in the defense of PNC. Aristotle writes:

Again, if "man" signifies one thing, let that be two-footed animal. What I mean by "signifying one thing" is this (*touto*): if that thing (*tout'*) is a man, then if anything is a man, that thing (*tout'*) will be to be a man (*to anthrōpō einai*) (1006a31-34).

Aristotle frequently uses the expression 'to ** einai' to refer to the essence of whatever *** designates (when the expression for *** is in the dative

case).³⁷ Thus, Aristotle claims that what 'man' signifies is the essence of man. Irwin's thesis appears to gain additional support.

But, Aristotle has not said that the term 'man' unconditionally signifies the essence of man. The word refers to the essence on the condition that something is a man, (an he ti ho anthropos) i.e. that there are such things as men. Therefore, the claim that a word signifies the essence of the thing to which it refers is correct, *if* the thing to which the word refers is or has existed at some time. This leaves unanswered what a word signifies when that to which the word refers has never existed.

Since we have good evidence that Aristotle believed that goatstag and other terms that refer to non-existents signify, and since we have evidence that such terms cannot signify essences, then it seems that the only thing it could signify is some kind of a universal. For Aristotle, a universal is a something one that is able to be said of many. The universal is not necessarily an essence though it may be. In *de Interpretatione* Aristotle defines universal (*kathalou*). He writes:

By the term "universal" I mean that which is of such a nature as to be predicated of many subjects, Thus "man" is universal. (17a38-40)

Predicates are often universals as so defined. What 'goatstag' signifies is a universal though it is not an essence. A universal is a repeatable feature.³⁸ A universal is a something one that is able to be said of many.

37 See Edward Halper, 'Aristotle on the Extension of Non-Contradiction', *History of Philosophy Quarterly* 1 (1984), 379. In the *Topics* and *Metaphysics* Aristotle says that a definition is an 'account signifying an essence,' (*logos ho to ti en einia semainon*). See 101b39, 153a15-16, 154a31-32, and 1031b11-12. Since definitions refer to essences (*Posterior Analytics*, 90b3 and 91a1). I have good evidence that the phrase '*to anthropō einai*' is used to denote essence of man.

38 The notion of universal does not commit Aristotle to Platonic forms. He is at pains to make this point, for he believes universals are necessary for demonstration, but the forms are not. A universal is simply a common feature that holds of several instances. Aristotle writes, 'For there to be forms or some one thing apart from the many is not necessary if there is to be demonstration; however, for it to be true to say that one thing holds of many is necessary. For there will be no universal if this is not the case; and if there is no universal, there will be no middle term and so no demonstration either. There must, therefore, be some one and the same thing, non-homonymous, holding of several cases' (77a5-10).

The reference to something one means that a universal is within a single genus or category.

But, 'goatstag' does not signify just any universal. It cannot signify motion, for example. It must signify a universal that counts as the proper answer to the question what is a goatstag. Motion does not count as a proper answer, for goatstag is conceived to be a substance. Motion is not a substance. The point of signifying something with a term is to make a cut, to designate some determinate feature or thing. If there is no distinction between improper and proper answers, then the utterance of the term has not communicated anything to the hearer or even to the speaker.³⁹

There is textual support for the view that what a term signifies is a universal that gives a proper answer to what a thing is. Aristotle considers the possibility of the opponent answering the question 'Is this a man?' by adding all the things that a man is not. He rejects such an answer for it does not count as an answer to the question asked, i.e., it does not count as a proper answer. Aristotle writes:

But if, asked the question baldly, he appends the denials also, he is not answering the question asked. For nothing prevents the same thing

39 It is important to indicate that this notion of signification can explain Aristotle's claim that 'not man' does not signify one thing, nor 'horseandman' for these are two cases which signal to the commentators that Aristotle's notion of signification differs from our notion of meaning. 'Not man' does not signify any one universal for it indicates sets of universals in different genera. 'Horseandman' also fails to indicate a single universal. Aristotle is clear about this for he claims in *de Interpretatione* (18a13-28) that a single term which signifies the union of two different substantive natures fails to express a single signification.

de Interpretatione 18a13-28 seems inconsistent with *de Interpretatione* 16a17-18 where Aristotle says that the term 'goatstag' signifies even though no goatstags exist. In *Posterior Analytics* 92b4-6 Aristotle recognizes that the term 'goatstag' signifies though there is no essential nature of what a goatstag is. One way to reconcile these last two passages with *de Interpretatione* 18a13-28 is to suggest that 'goatstag', does not signify the union of a goat nature with that of a stag as 'horseandman' signifies the union of two natures, horse and man. Rather, 'goatstag' signifies a thing that is part goat and part stag much as the term 'satyr' signifies that which is part man and part horse. If 'goatstag' signifies the union of the goat nature with the stag nature, it would signify nothing for the one nature would exclude the other. Although Aristotle is not clear on this point, my interpretation seems plausible for it renders the texts cited consistent.

being both a man and pale and a thousand other things; nevertheless, if one is asked whether it is true to say that this thing is a man or not, the answer ought to signify one thing, not append that it is also pale and tall. For it is certainly impossible to go right through the coincidentals of a thing, which are infinite; so let him go through either all or none. So equally, even if the same thing is a thousand times a man and not a man, one ought not to append, to one's answer to the question whether it is a man, that it is simultaneously not a man also; unless one is to append all the other things too which coincide in it, the things that it is or is not. But if one does that, there is no discussion. (1007a9-20)

In this passage Aristotle considers the opponent who in answer to the question, 'Is that a man?' responds by saying yes and it is pale and tall. Since pale and tall are not man, this thing is both a man and not a man. Hence, the PNC is false. Aristotle's answer is that the opponent did not answer the question properly by appending the denials. The answer ought to signify one thing. In other words, there is a proper answer to the question. The answer must indicate what the thing is, not simply list features incidental to the thing. Aristotle argues that if any incidental features are included in this proper answer, then they all should be included, for there is no principle by which one includes just some incidental features. But it is impossible to include all the incidental features. So that kind of an answer is not possible. The only proper answer, then is one that indicates what something is.

The consequences of this alternative reading of signification seem positive. Non-referring terms can signify without any problem as long as there is some one universal to which they refer. For this reason, contradictory objects like square circle and married bachelor do not signify though they are meaningful since there is no one universal that these phrases refer to. Nominal definitions can be understood as signifying whether they refer to essences or not. And the defense of PNC can be seen to refute the person who denies that PNC holds for even one predicate said of one subject.

5. Problem for the Alternative Account of Signify

There is however an important difficulty for my alternative account. If Aristotle does not allow for non-instantiated universals, then it seems my account of signification is not consistent with his theory. Aristotle frequently characterizes a universal as that which holds of several cases (see *Posterior Analytics* 77a5-10). Yet 'goatstag' does not hold of any cases,

therefore it does not seem to count as a universal. If Aristotle does not countenance non-instantiated universals, then when 'goatstag' signifies it cannot refer to a universal.

With that point in mind, I will suggest a way in which 'goatstag' can be understood to have some reference to instantiated universals even though the universal it refers to is non-instantiated. The universal that goatstag signifies is not an aggregate of the universal goat and the universal stag. Goatstag is itself a kind. It is not an aggregate of other kinds. However, since this universal is not realized in any reality, the only way we can access this universal is in virtue of its alleged physical appearance. These features by which we access the universal are features that are instantiated. For example, the satyr is accessed by the feature having the head of a human and the feature having the trunk of a horse. Whatever the universal goatstag is we fix on it by picking out features that are instantiated in other contexts, for example, stag-like or goat-like. In this way there is some limit to the non-instantiated kinds that would be allowed in Aristotle's system.

III Summary

In Part I of the paper I argued that even though Aristotle's defense of the PNC used the notion of the essence of the thing signified, it is wrong to think that the defense only applies to essential predication of substances. First, I noted that Aristotle allows for essential predications of accidents as well as substances. Second, I argued that even non-essential predication of accidents or properties of substances can come under the purview of Aristotle's defense. It is a necessary truth that terms that signify accidental features require the inclusion of some feature which is explicitly prohibited by the denial of that feature. While it is true that terms that refer to aggregates and transcategoricals do not signify one thing in the requisite way, I argued that just as the various senses of being are related to the primary sense of being as substance, so too the defense of terms that represent these beings are related to the primary defense of the PNC. Provided that the term signifying the aggregate can be seen as referring to a conjunction of universals, the PNC can apply to the conjunction which must either belong or not belong to a given subject. The terms signifying transcategoricals can have the PNC applied to them provided that they refer to a definite range of types.

These results hold even if Aristotle believes that words refer to the essences of the realities with which the words are correlated. But if words

must refer to essences in order to have significance, then words that refer to non-existents cannot have significance. I offered reasons to believe that when Aristotle says that a word signifies one thing he means that the word refers to a universal that can count as a proper answer to the question what is the thing or feature with which the word is correlated. If a term refers to an existent, then the term refers to the essence of the thing with which the word is correlated. If the term refers to a non-existent, then the term refers to a universal that gives a proper answer to the question what is the thing or feature with which the word is correlated. In this way Aristotle's defense of the PNC can be seen as extending to non-referring terms provided that such terms refer to a single universal. When we put this conclusion together with that established in Part I of the paper we have good reason for believing that Aristotle can defend a robust version of the PNC.

Department of Philosophy
University of St. Thomas
#AQU300
2115 Summit Avenue
St. Paul, MN 55105-1078
U.S.A.
mjdegan@stthomas.edu