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ASPECTS OF THE THEORY OF NEGATION

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A thesis submitted to the Faculty of Arts of the University of Cape Town in fulfillment of the requirements for the Degree of Master of Arts.

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Cape Town, 1982.

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PREFACE

In this thesis I deal with a series of problems which involve the notion of negation. In Chapter 2 I discuss the issues raised by the question whether we should admit negative facts into our ontology or not. In Chapter 3 I discuss the so-called paradox of non-being and the problem of giving an account of both singular and general negative existentials (i.e. negative existentials containing singular and general subjects respectively) that avoids this paradox. In Chapter 4 I deal with three related logical and linguistic problems involving negation. Chapter 1 contains a discussion of some treatments of negation in the history of philosophy. The choice as to which philosophers to include in this chapter was determined by the topics discussed in later chapters. That is to say, I have chosen to discuss the views of philosophers who were concerned in one way or another with the problems discussed in a more methodical manner in Chapters 2 to 4.

There are many areas in which the notion of negation seems to play a role, and clearly a discussion of all of these could not be included within the compass of this thesis. I have thus had to be selective in deciding which areas to include for discussion. Therefore this thesis deals only with some aspects of the subject of negation, and much interesting material has been omitted. For instance, much more than I have said could be said on the subject of negationless logics and on negation in intuitionistic and many-valued logics. Another subject that I have neglected, which is perhaps worthy of investigation, is the question of what role negation plays in the philosophies of Hegel and Marx and of the British Idealist philosophers, such as F H Bradley and B Bosanquet. Yet other areas which warrant investigation concern various findings and problems in the fields of psychology and artificial intelligence. For example, there is the question as to why people

are slower at verifying negative sentences than they are at verifying affirmative ones.[1] And there is the problem in artificial intelligence of writing a program which understands natural language and which embodies an adequate concept of negation. Terry Winograd's program SHRDLU, for example, is unable to distinguish between knowing that something is not the case and not knowing that something is the case.[2] I think that there are some issues here which are of concern to the philosopher.

The title of this thesis also mentions a 'theory' of negation. I myself have not tried to devlop such a theory in this thesis. However, I think that if one were to try and develop such a theory, one would have to begin with a thorough study of the various themes that seem to involve the notion of negation. This thesis can therefore be seen as a series of preliminary studies for a prospective theory of negation. I should perhaps say at this point what I think such a theory would <u>not</u> involve. I do not think that there is one <u>general</u> problem of negation, of which the different problems that I have discussed are merely special instances. If this were the case, then one could hope to resolve all these problems by solving the general problem. The task of the theory of negation would then be to identify the general problem of negation, to show how the various specific problems were related to this general problem, and to indicate how these problems were to be resolved. However, I do not think that the several problems I have discussed are related to one another in any straightforward way. Hence if there <u>is</u> a theory of negation it will be considerably more intricate than the one suggested above. It may also be the case that <u>no</u> theory of negation is possible. The most one might be able to hope for is a classification of

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[1] See P C Wason 'In real life negatives are false', <u>Logique et Analyse</u>, 15, 1972, pp 17-37.

[2] See M Boden <u>Artificial Intelligence and Natural Man</u>, 1977, Chapter 6, p 135.

the different problems, in an attempt to put the numerous writings concerned with negation into some kind of order. This thesis could therefore also be seen as an attempt at such a classification.

I should like to acknowledge the encouragement and assistance of my supervisor Professor Zak van Straaten. He made a number of helpful comments on a draft of this thesis, for which I am grateful. Thanks are due also to Vicki Paterson for doing the typing so efficiently.

Parmenides' remark is to see it as rejecting only negative existential judgments. One cannot speak or think about what does not exist, so the objects of thought and speech must exist. Parmenides says: "The same thing is both for thinking of and for being"[2]. If this is so, then it will self-contradictory to say of something that it does not exist. If one can talk about it, then it must exist and one cannot then go on to deny that it exists. This is sometimes known as Parmenides' Paradox. It is in this sense that Parmenides' claim at B2. 7 - 8 is understood in chapter 3, where I discuss negative existentials. However, Plato seems to have understood Parmenides' claim in a different way. And it is with Plato's understanding of Parmenides that I will be concerned in this chapter.

Plato's most sustained attempts to examine the notions of negation and falsity occur in the _Theaetetus_ and the _Sophist_. In the _Theaetetus_ Plato considers an argument which purports to show that false judgment is impossible.[3] The argument goes as follows: in false judgment one judges that one thing is another. But someone who judges that one thing is another must either know both things, know neither or know one but not the other. Also, with respect to any one thing, either one knows it or one doesn't, but one cannot both know it and not know it. Now, if one knows both things, then one cannot judge that the one is the other, because knowing both one could never get into such a muddle or be tempted to make such an identification. Similarly, if one knows neither thing, one cannot judge that one thing is another, because, knowing neither thing, one is not in the position to make any judgments concerning these things. And finally, if one knows the one thing but not the other, then one cannot judge that the one thing is the other. For

suppose that one does judge that some thing one knows is some thing one does not know. Then one takes some thing that one knows to be what it is not. But this is not to know the thing. But then it follows that one both knows the thing and does not know the thing, and this is impossible. So under no circumstances can one judge that one thing is another. So one cannot make false judgements.

This argument seems to make three assumptions. Firstly, it assumes that if one can show that false judgments of identity are impossible then one has shown that no false judgments are possible. Secondly, it assumes that in order to make a judgment about something one has to know that thing. Finally, it seems to assume that all knowledge is what Russell called 'knowledge by acquaintance', and that knowledge is thus an all or nothing affair. Either one knows some thing or one is completely ignorant of it. Moreover, to know a thing is to have complete knowledge of it, in the sense of knowing everything about it.

Now Plato does not believe that the conclusion of the argument, viz. that false judgment is impossible, is true. But he does not challenge the argument by attacking its hidden premises. In fact, it seems that Plato would be quite happy to accept these assumptions. What Plato attempts to do instead is to give an account of false judgment which shows how it is possible to make false judgments. He considers four possible accounts, but rejects each in turn.[4]. In the Theaetetus then, Plato does not arrive at an account of falsity that he finds completely satisfactory.

In the Sophist Plato also has problems with the notion of falsity and the related notion of negation. To make a false judgment, says Plato, is either to judge that what is, is not or to judge that

what is not, is.[5] Falsity thus seems to be a notion which involves a contradiction. Moreover, if false statements involve 'what is not', then if the Parmenidean claim that one cannot say or think what is not is correct, then it is not possible to make false statements. In order to give a satisfactory account of falsity, Plato has to show that both of these contentions are mistaken. He thinks that to resolve these perplexities, one has somehow to "force through the view that that which is not in some sense is."[6]
His attack on the Parmenidean claim, and its attendant claim that false judgment is impossible, requires him to examine the notion of negation.

How then does Plato think one can show that what is not in some sense is ? In the Sophist Plato isolates and discusses what he calls the five Great Kinds.[7] These are Being, Sameness, Difference, Motion and Rest. These five kinds can intermingle and be combined with one another both in the sense of being co-applicable to the same sensible things and in the sense of being affirmable of one another. In particular we can notice certain relations that hold between the kinds mentioned here. For instance, Motion 'partakes' of Being and hence it is something. But Motion is not (is different from) Being. Similarly, Motion is not the same as Rest or Sameness or Difference, although Motion is the same as something, namely itself. Similar sorts of things can be said about the other kinds. Some commentators have maintained that Plato,in his discussion of the intermingling of the kinds,succeeds in making a distinction between the existential use of'is', the attributive use of 'is' and the 'is'of identity. Other commentators are more sceptical as to whether Plato intends to make such distinctions and whether he in fact succeeds[8]. But be this as it may,what does emerge from Plato's discussion is the contention that there is something which both is (because it partakes in Being) and is not (because it is different

from everything else). Clearly though, something which both is and is not in these senses is not something which both has being and is also nothing whatever. What is not is not the contrary of what is, but is merely different from what is. This brings us to Plato's account of negation.

The account of negation in terms of difference is meant to show that the Parmenidean claim,that one cannot think or speak about what is not,is mistaken. The view that Plato is attacking seems to run something like this:

(a) All significant assertions are about something.

(b) 'X is not' says that something is not.

So (c) 'X is not' is not about something which is (From (b))

(d) If one speaks about anything, then one speaks about something that is.

So (e) 'X is not' is not about anything at all i.e. it is about nothing at all (From (c), (d)).

So (f) 'X is not' cannot be said to assert anything i.e. it is merely an insignificant sound (From (a), (e)).

This argument purports to show that negations are insignificant, and so if false judgments involve saying 'what is not' it would seem that false judgments are also insignificant. If Plato wants to maintain that false judgments are possible he has to show that this account of negation is mistaken. The move from (b) to (c) above seems to assume that when one says that something is not , one is saying that it is a non-existent; that is, it is something which is not. And it is precisely this move that Plato challenges. He "castigates the mistake of supposing that something of which 'is not' is true would have to be something of which 'is' is not true."[9] When we say of

something that it is not, we do not mean to ascribe to it the contrary of being (namely non-being) but only to say of it that it is different.

I shall now examine Plato's account of negative statements in more detail.[10] If Plato is to show that false assertions are significant, he has to show that negations are significant. Plato was the first writer to make a distinction between nouns and verbs.
A significant statement must consist of both a noun _and_ a verb, as neither a string of nouns alone (eg.'Theodorus Theaetetus') nor a string of verbs alone (eg.'Runs flies sits'),would be significant. The verb (or predicate) introduces a _genos_ under which the individual picked out by the noun is then subsumed. It is by introducing a _genos_ that a predicate has a determinate sense, and hence that the statement in which it occurs is significant. The negative statements which Plato considers are of the form '_x_ is not - Ø', which seem to be negative predicative statements.
Such statements will be significant if the negative predicates they contain introduce _gēne_ . It is Plato's contention that negative predicates _do_ in fact introduce _gēne_. Consider the negative sentence:

(1) _x_ is not - big.

Plato rejects the view that says that negation has to be explained in terms of contrariety. When we assert (1) we do not mean to say that _x_ is small. 'Not - big' is not determinate in this way.
It no more means 'small' than it means 'middle-sized'. Plato's contention is that (1) should by analysed in terms of otherness or difference. (1) can be written as:

(2) _x_ is other-than-big.

Now 'other-than-big' introduces a _genos_, one which is definable in terms of the _gēne_ Other and Big.

But how are we to understand (2) ? One possible rendering, suggested by David Wiggins, is the following:

(3) *x* falls under some *genos* F and F is different from Big.

However, as Wiggins remarks, the simple difference of two *gēne* does not suffice to make them exclude one another, and the notion of exclusion is surely important here. Suppose for instance, that *x* is red. Then *x* falls under the *genos* Red and Red is different from Big, but this is not sufficient to guarantee that *x* is not big.

J.C.B. Gosling also remarks on the shortcomings of an analysis such as (3).[12] Gosling's solution is to appeal to the notion of a range of incompatible predicates. The range of a predicate 'not-Ø' is to be confined to those properties which exclude Ø. So, for instance, to say that *x* is not red is to say that it is some colour other than red. Similarly, to say that *x* is not big is to say that it has some size other than big. It is not clear whether Gosling wishes to attribute some such view to Plato, or whether he simply thinks that Plato ought to have made such a move in order to avoid the difficulty noted by Wiggins and himself. At any rate, it is not obvious that Plato intended to restrict negative predicates in the way envisaged. And at least one commentator thinks that Plato's language suggests the opposite view, namely that any *genos* which is other than a given *genos* 'Ø' may be said to be 'not-Ø'.[13] But in any case Gosling sees the account of 'not-Ø' which appeals to the notion of an incompatibility range as being too limited. In particular, it cannot satisfactorily account for statements of the form 'The mind is not cubic'. Someone who makes such a statement does not, presumably, wish to say that the mind has some shape other than a cubic one. He or she wishes rather to deny that 'cubic' can be significantly predicated of minds.[14].

Wiggins suggests that in order to avoid the shortcomings of an analysis such as (3), we render (2) instead as:[15]

> (4) For all F, if *x* falls under F, then F is different from Big.

Such an account seems preferable to Gosling's as it does not restrict the range of predicates to those which lie in the same incompatibility range as 'big'. But Wiggins sees other problems for Plato's account of negative predicates. It was noted earlier that Plato thinks that negative predicates have a determinate sense because they introduce *gēne*. It is Wiggins' contention that if they do introduce *gēne* these are certainly not on a par with the gēne introduced by predicates like 'runs', 'walks', 'is red', 'is big' and so on. It is not certain how Plato understood the notion of *genos*, that is, what he took to be the identity conditions for *gēne*. His *gēne* can be interpreted either as properties or as classes. Wiggins undertakes to show that on either interpretation Plato's contention that negative predicated introduce *gēne* is problematic.[16]

Consider first the interpretation which takes *gēne* to be properties. Then (4) says, in effect, that all *x*'s properties are distinct from the property of being big. Now what is the *genos* under which *x* is here subsumed ? In other words, what property is here being ascribed to *x* ? It seems to be the second-order property of having all its first-order properties distinct from the property Big.[17].
Thus negative predicates introduce *gēne* different from those introduced by predicates like 'is red' and so on. On the other hand, if predicating 'big' of *x* is placing *x* in a class, then predicating 'not-big' of *x* must similarly be to place *x* in a class, presumably in the complement of the class of big things. Now, if this account of negative predication is to be sufficiently general, then this must be the *unrestricted* complement. But no set theory free of contradiction

can contain this set. It is wrong to think that a class and its complement are equally well-defined. And, in any case, this explanation of negative predication assumes that saying anything about _x_ is always placing _x_ in some class. But then we can have no use for the notion of withholding _x_ from a class. Wiggins concludes that the _gēne_ supposedly introduced by negative predicates are not anything like the _gēne_ introduced by ordinary predicates. Plato's account of negative predication in terms of otherness depends crucially on the idea that negative predicates introduce _gēne_ with determinate natures into discourse. But if Wiggins is correct, these _gēne_ are indefinite and unrestriced. Thus Plato's account of negation in terms of otherness, if it is meant to show that denial can be reduced to affirmation, must fail.

Not all commentators would agree with Wiggins' interpretation. Edward Lee, for example, agrees that an account of negation in terms of otherness must fail as a _reductive_ analysis, but denies that Plato is attempting in the _Sophist_ to reduce negative statements to affirmative ones.[18] Lee also argues that the _gēne_ introduced by negative predicates do have a determinate nature. As remarked earlier, Plato thinks that a predicate such as 'not-big' introduces a _genos_, on which is definable in terms of the _gēne_ Other and Big. As Lee puts it: "Otherness itself, in conjunction with some _one_ other term, now serves .... to constitute the being of a novel nature, the nature of a "Part of Otherness". Through this consititutive role, each Part of Otherness will be something whose whole nature.... consists in its not-being-something-else".[19] Thus, a Part of Otherness (what has previously been referred to as a _genos_ introduced by a negative predicate) will have a determinate being; not, admittedly, a being 'all its own' but a determinate being nevertheless.

Thus negative predicates will have a determinate sense. This sense will be a logically complex one, namely otherness-than-something. For example, what '_x_ is not brown' says is "that _x_ partakes of that Part of Otherness whose "name" .... is "(the) not - brown" and whose determinate nature consists in Otherness-precisely-than-brown."[20] That is, a negative statement says that a"subject's partaking lies outside of the predicate negated."[21] But it does not say anything else of a positive kind. It does not say what the subject does instead partake in. So negative predications, although they have a determinate sense, have wholly negative sense. A negative predicative statement does "not at all say how-things-are instead, but only how-they-are-not."[22] Such an account of negatives recalls certain remarks made by Wittgenstein in the _Notebooks_ and in the _Tractatus_, and Lee does indeed try to show that Plato's and Wittgenstein's accounts of negation are similar.

This similarity that Lee sees between Plato and Wittgenstein stretches even further than has been suggested above. As is well known, Wittgenstein thought that negation was a truth-functional operation. Lee thinks that a fundamental feature of Plato's theory is that:

> negation is essentially an _operation_: it is the operation of Partitioning Otherness. For that is the operation which constructs the sense of the negating statement from that of the very one negated - and so brings it about that the negating statement does negate precisely _that_. Plato's analysis of negation as the operation of Partitioning Otherness thus serves to elucidate just why the sense of the negating statement does _exclude_ that of the statement it negates, and why a statement and its negation cannot both of them be true.[23]

Lee's account is clearly more sympathetic than Wiggins' but does

perhaps read more into Plato's text than is justified. Two very different views regarding the gēne introduced by negative predicates have emerged. The one sees such gēne as indefinite and unrestricted, the other maintains that such gēne have determinate, though wholly negative natures. It is difficult to decide which interpretation is more faithful to the text, and although this is an interesting question it is not one whose answer is immediately relevant to the present discussion.

Clearly, if Plato is to answer the Parmenidean charge that negatives are insignificant he has to show that all negative statements are significant. But so far only negative predicative statements of the form 'x is not - Ø' have been considered. Does Plato's account of negation in terms of otherness allow him to account also for negative identity statements and negative existentials? Negative identity statements seem to be easily accountable for in terms of otherness or difference. To say that X is different from Y is just to say that X is not the same as Y, which seems to be another way of saying that X is not identical to Y. But what about statements of the form 'No X's' are Y's' or 'There are no X's'. A. E. Taylor suggests that the former be understood to mean something like 'X's and Y's are different things.'[24] However, there seems to be no satisfactory way of accounting for statements of the latter form in terms of otherness.[25]

Thus it would seem that Plato was not entirely successful in rebutting the claim that negative sentences are meaningless. The most that can be claimed is that he showed that some negative statements (namely negative predicate and identity statements) are significant, and hence he can only be thought to have gone part of the way towards showing that false judgment is possible. Further,

Plato cannot be said to have solved Parmenides' paradox. But Plato's discussion of negation also contains some valuable insights. One important element in Plato's analysis of negation is his recognition of, and insistence upon, the distinction between nouns and verbs. As Gilbert Ryle remarks: "It is just because the contribution of the verb to the proposition is entirely different from the contribution of its subject name that we can, for example, say that Theaetetus is not flying, without entrapping ourselves in the Parmenidean idea that we are thereby mentioning an un-thing or a not-person."[26] Further, if Wiggins is correct and Plato's analysis of negative sentences is intended as a reductive one, then this is of interest. Many philosophers who find negative sentences puzzling attempt to offer reductive analyses of such sentences. Some of these attempts are examined in chapter 2.

III. ARISTOTLE

Those of Aristotle's writings which are relevant to the issue of negation are concerned with logical, rather than metaphysical, matters. For instance, in De Interpretatione, Aristotle is concerned to group statements into pairs such that the second is the negation of the first. Aristotle says that "we mean by negation a statement denying one thing of another."[27] Most modern logicians recognise only one kind of negation, namely sentential negation. Aristotle does not seem to have recognised such a negation. In fact, it appears that it was the Stoics who first maintained that the negation of a sentence is formed by attaching a denial operator to the whole sentence.[28] Besides the negation that is formed by denying a predicate of a subject, Aristotle also recognised that predicate terms themselves can be denied. So, for instance, negating 'white' yields 'non-white'. The two kinds of negation Aristotle recognised yield the following

four-fold classification of subject-predicate statements:

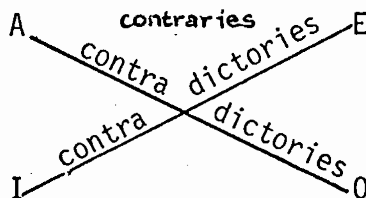
Affirmations	Negations
S is P	S is not P
S is not - P	S is not not - P

In De Interpretatione Aristotle groups statements into the following paris:

(i)	Singular affirmative (Socrates is white)	Singular negative (Socrates is not white)
(ii)	Universal affirmative [A] (Every man is white)	Particular negative [O] (Some man is not white)
(iii)	Particular affirmative [I] (Some man is white)	Universal negative [E] (No man is white)
(iv)	Indefinite affirmative (Man is white)	Indefinite negative (Man is not white)

The right hand members of these four pairs are the negations of the left hand members. Moreover, the first three pairs are contradictory pairs in the sense that if one member of a pair is true the other must be false. The members of the last pair can both be true, so they are not contradictories, although they are denials of one another. In De Interpretatione Aristotle defines a contradictiory pair of statements as a pair of statements in which the same thing is respectively asserted and denied of the same thing.[29] Not every pair of statements which satisfies this definition will be such that if one member of the pair is true and the other is false, and hence this definition of contradictory pairs will not do as it stands. One such pair is the fourth pair listed above, namely the pair of indefinite statements. Another exception noted by Aristotle are statements of future contingency. For example, 'There will be a sea battle tomorrow' and 'There will not be a sea battle tomorrow' are not related such that if one is true the other is false.

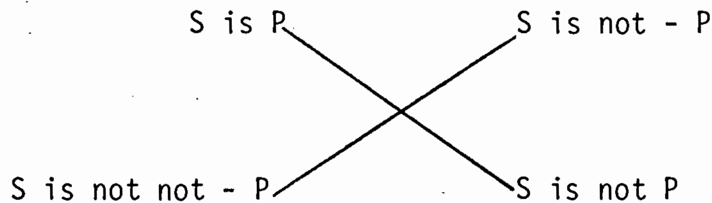
The distinction between universal and particular together with the distinction between affirmative and negative, yields a four-fold classification of general statements into universal affirmative and negative and particular affirmative and negative. Since the middle ages, these four types of statements have been called the A, E, I, and O forms respectively. As the pairs (ii) and (iii) above show, Aristotle thought that A and O statements are opposed as contradictories and similarly that E and I statements are opposed as contradictories. Aristotle also recognised a relation of contrariety.[30] Two statements are related as contraries if they cannot both be true although they may both be false. In particular, Aristotle recognised that A and E statements are contraries. These relations of contradictoriness and contrariety that Aristotle recognised as holding between general statements (both universal and particular) are usually represented on the following diagram, known as the 'Square of Opposition':



This diagram is not to be found in Aristotle's writings, but as William Kneale and Martha Kneale remark, it is useful for summarising the relations of opposition that Aristotle isolated.[31] Later logicians called I and O statements sub contraries (because they cannot both be false) and have said that I is subaltern to A and O to E (that is, A and E imply I and O statements respectively). Although Aristotle does not have names for these relations, he does seem to have recognised and been interested in such relations.[32]

As already noted, Aristotle recognised two modes of negation, and if we follow Aristotle in this, we can distinguish four forms of

singular statement. These four forms of statement can be represented on a square of opposition.



This is a genuine square of opposition, in the sense that all of the following relations of opposition hold:

(a) 'S is P' and 'S is not P' are contradictories

(b) 'S is not - P' and 'S is not not - P' are contradictories.

(c) 'S is P' and 'S is not - P' are contraries

(d) 'S is not not - P' and 'S is not P' are sub-contraries

(e) 'S is P' implies 'S is not not -P'

(f) 'S is not - P' implies that 'S is not P'

George Englebretsen has recently argued that the above square and the traditional square are merely special instances of a completely general square of opposition.[33] Other modern philosophers and logicians have also recently emphasised that if we distinguish two types of negation, we get four forms of singular sentence which can be displayed on a square of opposition.[34] Some of these views are discussed in chapter 4 below.

IV. THE STOICS

Th logical doctrines of the Stoics contain some points of relevance to the subject of negation.[35] The logic of the Stoics is a two-valued logic of propositions. Propositions or axiomata are those things which are true or false. They are either simple and consist of one axioma alone, or are non-simple, in which case they are composed

of several axiomata or of one axioma duplicated. Simple axiomata are divided according to two principles. The first principle yields the three-fold classification (i) categorical (ii)definite and (iii) indefinite. The second principle yields the four-fold classification:

affirmative

negative

denial

privative

The Roman commentator Diogenes Laertius gives as an example of the negative 'It is not day'. The Stoics however, believed that any axioma, no matter how complex,could be negated. The negation or contradictory of an axioma is formed by prefixing the negative particle 'οὐχί' to it. Moreover, this particle is conceived of as truth-functional, in the sense that a negation is said to be true if the negated proposition is false and false if the negated proposition is true. Thus the notion of sentential negation emerged first with the Stoics. Diogenes Laertius also notes that the Stoics recognised the double negative which they said was the same as the original affirmative.

The Stoic denial consists of a denying particle, such as 'no-one' or 'nothing' and a predicate. An example of a denial would be 'No one is walking'. The privative contains a privative or negative predicate, such as 'non-white' or 'unwell'. An example would be 'He is unwell'.

The great majority of logicians today regard negation as a sentential operation. In fact, they no longer treat the Stoic denial and privative as separate forms.[36] The orthodoxy is that there is only one kind of negation, namely sentential negation. In chapter 4 the

claim that there is only one negation and the counter-claim that we should recognise more than one negation are examined in some detail.

In the following three sections I will briefly examine the views of three modern philosophers on the subject of negation. The philosophers I have chosen to discuss are Kant, Peirce and Bradley. I have chosen to discuss these philosophers primarily because what they have to say about negation relates to the topics discussed in later chapters. However, they are by no means the only philosophers I could have chosen, and so to some extent my choice is arbitrary.

V. KANT

Kant classified judgments according to their quantity, quality, relation and modality. In each of these cases in turn, a three fold classification resulted. Judgments classified according to their quality they were divided into (i) affirmative judgments (which have the form 'X is Y'), (ii) negative judgments (which have the form 'X is-not Y') and, (iii) infinite judgments (which have the form 'X is not - y'). It is not clear why Kant thought that only these three forms are worth distinguishing. Why, for instance, should we not also recognise the following forms of judgement:

(iv) not - X is Y

(v) not - X is-not Y

(vi) X is-not not-Y

(vii) not-X is-not not-Y

It seems that Kant can offer no reason for favouring his three-fold classification beyond saying that since quality, relation and modality yield three-fold classifications, quantity must similarly

yield such a classification. But this is clearly no reason at all. Kant's distinctions are interesting because they suggest that there is more than one kind of negation. As has been remarked, modern logicians tend to think that there is only one negation, namely sentence negation. These logicians regard negation as a unitary and unambiguous notion. Various positions on the subject of negation and ambiguity are discussed and criticised in chapter 4 below.

VI. C.S. PEIRCE

In 1885, C.S. Peirce produced a set of axioms for the propositional calculus in which the notion of implication is taken as primitive.[37] Negation is then defined in terms of implication. 'Not - p' is taken to mean 'p implies every proposition'. The consequent in the definiens is necessarily false, as it is not the case that every proposition is true. So when p is true not-p is false and vice versa. In his Principles of Mathematics Russell gave a similar definition of negation: 'Not-p' means 'p materially implies every proposition.'[38] There have been other suggestions for ways of treating negation as non-primitive. For instance, H.M. Sheffer and J. Nicod showed independently that all the truth-functional connectives could be defined in terms of the single connective '/', where 'p/q' is understood as 'not both p and q'.'Not p' is then defined as 'p/p'.It has been claimed that Peirce anticipated Nicod and Sheffer in showing that all the connectives of the propositional calculus can be defined in terms of either 'neither __ nor__' or 'not both __and__'[39] In Chapter 2 I will examine the view that negative propositions are reducible to positive ones. One might be tempted to argue that such a reduction must be in principle possible because negation can always be defined either in terms of implication and universal quantification in the manner of Peirce, or in terms of the Sheffer and Nicod stroke operator.

However, if such definitions are offered as reductive ones, then the <u>definienda</u> must be wholly positive. But, as already noted, '<u>p</u>/<u>p</u>' is understood as 'not both <u>p</u> and <u>p</u>' and '<u>p</u> implies every proposition' can be understood as 'It is not true both that <u>p</u> and that not every proposition is true'. So negation, Sheffer's stroke function and Peirce's implication are inter-definable. It was for this reason that Wittgenstein claimed that none of these could be genuinely primitive logical operations. He says: "The interdefinability of Frege's and Russell's 'primitive signs' of logic is enough to show that they are not primitive signs".[40] Wittgenstein thought that there was only one genuine primitive sign in logic, namely his operation of <u>Negation</u> which expresses what is common to all logical operations.[41] The issue of the eliminability of negative sentences will be discussed more thoroughly in the next chapter.

VII. F.H. BRADLEY

I turn now to the views of F H Bradley.[42] It is Bradley's view that negative and affirmative judgments are of a different order. This for two reasons. Firstly, affirmative judgments refer directly to reality, but negative judgments are only made in response to some affirmative judgment which is rejected. The obvious rejoinder to this is that it conflates negation and denial. But clearly not all negative judgments are denials and neither are all denials negative judgments.
Bradley grants that one does not have to affirm something in order to deny it. One need only entertain its possibility. He is even prepared to say that one does not have to be aware of making such an affirmation or of entertaining such a possibility. But even these weaker versions seem open to the criticism that they conflate denials and negations. The second reason that Bradley

offers for the different status that affirmations and negations have is that negations presuppose affirmations; they have affirmations as their ground. There is always some positive ground for our negative judgments, even when those judgments are privatives such as, for example, 'My bookcase does not walk'. This judgment is not true because of a mere absence or lack of movement in my bookcase. It is true because of some positive character that the bookcase has which excludes the possibility of its walking.

Bradley's notion of negation is connected with the notions of contradiction and contrariety. Bradley's view seems to be that a negative judgment such as '*x* is not red' entails (or perhaps presupposes) a positive one to the effect that *x* has some colour other than red. This positive judgment has the form '*x* is not-red', where 'not-red' is a *general* name for any and every possible contrary of red. Bradley's view has affinities with Gilbert Ryle's account of negatives.[43] There are also obvious connections between this account of Bradley's and Plato's account discussed earlier. Bradley holds that a judgment of the form '*x* is not Ø' is the contradictory of a judgment of the form '*x* is Ø'. Moreover, Bradley maintains that double negation (the negation of a negation) is equivalent to affirmation. In these two respects Bradley's account of negation does not differ form that offered by most modern logicians.

Bradley seems to regard the predicates 'Ø' and 'not - Ø' as contraries, and so the distinction between contrary and contradictory predicates becomes blurred in Bradley. This creates a problem for Bradley, as it becomes difficult to distinguish between contrary predicates

(those that cannot occur together) and merely discrepant predicates (those that do not in fact occur together). Suppose '$\emptyset$' and 'ψ' are two predicates. Then one can determine whether these predicates are contraries or not by ascribing them to the same thing at the same time. If this involves one in contradiction then '$\emptyset$' and 'ψ' are contraries. But if contrary and contradictory predicates are conflated then it seems as though this test for contrariety will not work.[40] So how then can Bradley distinguish contrary predicates from those predicates which are merely discrepent ? Once could try saying that contrary predicates compete for the same area or point in space, whereas discrepant predicates do not. But this clearly would only work for predicates which qualify physical objects, such as colours and shapes. Such a manoeuvre would not work to show that pairs such as finite / infinite, easy / difficult, happy / sad are contraries. A more promising strategy from Bradley's point of view is simply to deny that there is a sharp or clear distinction between contrary and merely discrepant predicates. And Bradley does indeed seem to hold some such view. He says that there are "no native contraries".[45] He seems to believe that the distinction between contrary and discrepant can only be specified relative to some subject. Now if one has a narrow view of the subject, then it is likely that any pair of predicates will be contraries. And the broader one's view of the subject is, the more likely it becomes that any pair of predicates will be compatible. For example, if the subject does not persist through time, then any pair of colour predicates applied to it will be contraries. However, if the subject does persist through time, then different colour predicates which are applicable to it will be compatible. My garden gate is (timelessly) both red and green because it was red at t_1 and at some later time t_2 it was green. What is more, it is in principle

possible to reconcile all contraries. Bradley maintains that " in the end nothing is contrary nor is there any insoluble contradiction".[46] This follows from Bradley's view that all properties are ultimately positive, and so there can be no ultimate conflict between them.

Philosophers have tried to downgrade negative sentences in many ways. One strategy is to claim that such sentences are reducible to positive ones. Another is to claim that they are redundant because they are not needed in order to give a complete description of reality. This is because every negative sentence has some positive ground. A third strategy is to claim that negative sentences are subjective in the sense that they do not express mind-independent facts. This is because reality is wholly positive. Bradley's account of negation seems to combine elements of the redundancy and subjectivity strategies. Some of these strategies will be discussed more fully in Chapter 2.

VIII. CONCLUSION

In this chapter I have merely sketched some problems that arise in connection with negation. On the whole I have not tried to evaluate the positions of the philosophers I have discussed. Instead I have been concerned with the history of ideas and have from time to time pointed towards issues that I think are deserving of discussion. It is now time to engage in a discussion of these topics.

CHAPTER 2

NEGATION, NEGATIVE FACTS AND NEGATIVE PROPOSITIONS

I. INTRODUCTION

In the second section I examine the reasons Russell had for believing that there are negative facts. Russell's commitment to negative facts was an integral part of his version of logical atomism, and so I begin with a brief discussion of his views about facts and propositions. Moreover, for the purposes of this discussion, I will assume that the central theses of logical atomism are tenable. For example, I assume that the correspondence theory of truth is defensible, that there are simples,and that the thesis of truth-functionality (the view that complex propositions are truth functions of their simple components) holds for at least those propositions that do not contain propositional attitude verbs. I argue that Russell is led to believe in negative facts because of certain mistakes he makes. In the third section, I examine Russell's claim that some negative facts are atomic in the light of a discussion of three views on the nature of negative facts. In section four I examine an argument in favour of admitting negative facts derived from Herbert Hochberg. I also discuss a rival view which attempts to avoid commitment to negative facts, namely the incompatibility analysis of negative propositions. In the fifth section I examine the claim that even if negative propositions are not reducible to positive ones, they are nevertheless redundant. This distinction between redundancy and reducibility offers an initially plausible way of resolving some of the issues in the negative facts debate. In section six I conclude this discussion of negative facts with a brief look at Wittgenstein's views on negative facts. I argue that his position is more in harmony with the central doctrines of logical atomism than is Russell's, and I maintain that if we admit negative facts, these should be understood in the sense Wittgenstein intended.

II. RUSSELL ON NEGATIVE FACTS

> You have a feeling that there are only positive facts, and that negative propositions have somehow or other got to be expressions of positive facts. When I was lecturing on this subject at Harvard I argued that there were negative facts, and it nearly produced a riot: the class would not hear of there being negative facts at all. I am still inclined to think there are.[1]

In this section I will discuss Russell's reasons for thinking that there are negative facts.[2] I begin with a brief outline of the notions of fact and proposition with which Russell operated in 'The Philosophy of Logical Atomism' and 'On Propositions'. Russell thought that facts are what make propositions true or false.[3] They are things which belong to the objective world and are not created by our thoughts and beliefs.[4] Facts are the sort of things which are asserted or denied by propositions and although they are not entities in the same sense as their constituents are, they are nevertheless part of the real world.[5] Facts are complex,[6] as are the propositions asserting them.[7] There are different kinds of facts, for instance particular and general facts.[8] But there are not true or false facts.[9] It is propositions which are the bearers of truth and falsity.[10] Russell says that a proposition "is a sentence in the indicative, a sentence asserting something".[11] A little later he says that "a sentence (or a proposition) is the proper symbol for a fact".[12] But he also says that "propositions are not what you might call 'real'. If you were making an inventory of the world, propositions would not come in".[13] There seems to be an inconsistency in Russell's use of the word "proposition". On the one hand Russell equates propositions with sentences, which are surely 'real'.[14] On the other hand he wants to maintain that propositions are <u>not</u> 'real'. The answer seems to be that 'proposition' as Russell uses it is ambiguous. When a proposition is thought of as the 'accusative' or object of a mental act, then it is an incomplete symbol, a logical fiction, and so not

'real'. A proper analysis of sentences expressing mental attitudes would show such propositions to be eliminable[15]. When, however, a proposition is considered on its own account, then it is a series of words and is a fact "just as much as what makes it true or false is a fact"[16]. It would be preferable to use the two words 'sentence' and 'proposition', but as Russell uses only the one word, I shall follow his usage, hoping that the context will make it clear how the word is being used[17].

Propositions are not names for facts, because there are two propositions, one true and one false, which correspond to every fact[18]. For instance, suppose that it is a fact that my pen is red. Then both 'My pen is red' and 'My pen is not red' correspond to this one fact, which makes the former proposition true and the latter false. There are furthermore, two ways in which a proposition may correspond to the facts. It may correspond either in the true way or in the false way[19]. To use the above example: 'My pen is red' corresponds in the true way to the fact that my pen is red, and 'My pen is not red' corresponds in the false way to this same fact.

The simplest sort of fact is an atomic fact, and such a fact is expressed by an atomic proposition. There is, Russell says, a "whole infinite hierarchy of facts - facts in which you have a thing and a quality, two things and a relation, three things and a relation, and so on. That whole hierarchy constitutes what I call atomic facts"[20]. Facts, as already remarked, are complex and so have constituents[21]. In an atomic fact the constituents are the relation and the term(s) related by that relation[22]. A fact containing a dyadic relation and two terms, for instance, is a fact containing three constituents. Facts have forms and two facts have the same form if the one can be derived from the other by substitution. The fact, if it is a fact, that Socrates loves Plato has the same form as the fact, if it is one,

that Napoleon hates Wellington because the latter is derivable from the former by substitution of 'Napoleon' for 'Socrates', 'hates' for 'loves' and 'Wellington' for 'Plato'. The form of the fact that Socrates loves Plato can be represented by '_x R y_', which is obtained by replacing the constituents with the appropriate kinds of variables[23]. Now facts containing three constituents do not all have the same form. Russell says:

> There are two forms that they may have, which are each other's opposites. 'Socrates loves Plato' and 'Napoleon does not love Wellington' are facts which have opposite forms. We will call the form of 'Socrates loves Plato' positive, and the form of 'Napoleon does not love Wellington' negative. So long as we confine ourselves to atomic facts, i.e. to such as contain only one verb and neither generality not its denial, the distinction between positive and negative facts is easily made.[24]

The form of the fact that Napoleon does not love Wellington might be represented as 'not - _x R y_'. But it is important to bear in mind that a negative fact does not contain a constituent corresponding to the word 'not'. The negative fact contains the same number of constituents as the correlative positive fact. "The difference between the two forms is ultimate and irreducible"[25]. Perhaps a more perspicuous way of representing these two forms of fact would be to represent the positive form as '_R x y_' and the negative form as '_x y R_'. Such a representation would emphasise the point that negative facts do not contain a constituent corresponding to the 'not'[26].

The long passage quoted above suggests that the distinction between positive and negative facts is one which can be made within the class of atomic facts. So, since some negative facts are atomic, and since atomic facts are expressed by atomic propositions, it follows that there are negative atomic propositions. Now, atomic propositions can correspond either truly or falsely to negative, as well as to positive, facts. We can

now account for the truth and falsehood of atomic propositions as follows: An atomic proposition can be true in one of two ways. If it is positive, then it is true by virtue of corresponding in the true way to a positive atomic fact. If it is negative, it is true by virtue of its correspondence in the true way to a negative atomic fact. Similarly, an atomic proposition can be false in two ways. If it is positive, it is false by virtue of its correspondence in the false way way to a negative atomic fact, and if it is negative it is false by virtue of its correspondence in the false way to a positive atomic fact[27]. The following diagram may make this somewhat clearer:

Propositions \ Facts		Positive My - pen's being - red	Negative Not (my - pen's being - red)
Positive (My pen is red)	T	Corresponds truly	
	F		Corresponds falsely
Negative (My pen is not red)	T		Corresponds truly
	F	Corresponds falsely	

The above is a rough characterisation of Russell's views on the nature and role of negative facts. One of the first things that strikes one about this account is Russell's claim that there are two kinds of

correspondence relation that hold between propositions and facts. The notion of 'correspondence in the false way' is, as Jay Rosenberg points out, not a very clear one[28]. Rosenberg notes that in ordinary discourse we have a use for the notion of correspondence. For instance, we talk about a map corresponding to a territory. A map corresponds to a territory if "features of the map can be matched up one to one with features of the territory in such a way that truths about relationships between map features can be translated into truths about the relationships between the corresponding territorial features <u>according to a uniform set of translation rules</u>"[29]. We also know what it means commonsensically for something to fail to correspond to something else. Given the above definition, it is obvious how one would explicate the notion of failure to correspond to a territory. Now correspondence in the false way is not failure to correspond to the facts. Failure to correspond is the <u>absence</u> of a relation between a proposition and the facts, while correspondence in the false way <u>is</u> a relation between these two. But what does this relation consist in? Ordinary usage, at any rate, provides no clues as to the nature of this relation. More importantly, what Russell says about correspondence in the false way seems to be at odds with one of the central logical atomist doctrines. Russell believed that language mirrors the structure of the world, or at any rate, that the structure of the ideal logical language would be isomorphic to the structure of the world. He says that "in a logically correct symbolism there will always be a certain fundamental identity of structure between a fact and the symbol for it"[30].

In the light of this one can attempt to understand the notion of correspondence in the true way. A proposition is true if it corresponds in the true way to a fact. And it corresponds in the true way to that fact if there is a structural isomorphism between proposition and fact. This suggests that if a proposition corresponds falsely to the facts then there is no structural isomorphism between proposition and fact. So the proposition does not mirror the world. But this suggests that there is _no_ relation between the words and the world. It would thus be more natural and less misleading to talk of a failure to correspond to the facts, as talking of correspondence in the false way suggests that there _is_ a relation that holds between proposition and fact. Russell offers no explanation nor justification for his claim that there are two ways of corresponding to the facts. Indeed, the doctrine of picturing or mirroring suggests that Russell should rather have contrasted correspondence with the facts with failure to so correspond. Moreover, the idea that true propositions correspond in the true way to the facts and that false propositions correspond in the false way to the facts cannot be taken as a definition of truth and falsehood [31]. This is because the notions of correspondence in the true and false ways seem to _presuppose_ the notions of truth and falsehood.

Although Russell believed that there were negative facts he did not think that there were molecular facts, such as, for instance, disjunctive facts. The logical atomists regarded conjunctions, disjunctions, conditionals and so on as truth-functions. The truth or falsity of such truth-functional propositions is wholly determined

by the truth or falsity of their atomic components. Consider, for example, the disjunctive proposition $p \vee q$, where p and q are atomic propositions. Such a disjunction is false if both p and q are false and it is true otherwise[32]. One of the central doctrines of logical atomism is the thesis of extensionality, namely the thesis that all propositions are either atomic or else are truth-functions of atomic propositions. This, at any rate, is a view which is espoused by Wittgenstein in the Tractatus. In 'The Philosohpy of Logical Atomism' Russell has reservations about this thesis. He regards propositions containing mental attitude verbs (such as 'believes', 'judges', and so on) as constituting an exception. Another, closely related, thesis of logical atomism, held by both Russell and Wittgenstein, is that the logical constants do not have representatives. Russell says:

> In a logically perfect language the words in a proposition would correspond one by one with the components of the corresponding fact, with the exception of such words as 'or', 'not', 'if', 'then', which have a different function.[33]

It is because 'or' does not correspond to anything in reality that a disjunctive proposition such as $p \vee q$ must be treated as a truth-function. As Russell includes 'not' on the list of words which do not have representatives, it might seem to follow that he should treat negations such as $\sim p$ as truth-functions as well. In other words $\sim p$ would have to be regarded as molecular. But Russell clearly does not think that negations of atomic propositions are molecular. He says that by molecular propositions he means "propositions having such words as 'or', 'if', 'and', and so forth".[34] Here 'not'

is conspicuously missing from the list. Moreover, as already remarked, Russell is committed to the view that at least some negations are atomic. This provides one explanation for why Russell felt the need to posit negative facts. If Russell had regarded negations as molecular, then he would not have thought that there were negative facts, as negative facts would then have been molecular facts and Russell thought there was no need to posit such facts. But because Russell mistakenly treated negations as atomic, he found it necessary to posit negative as well as positive facts.[35]

Why did Russell make such a mistake? Jay Rosenberg has suggested that there are two reasons for this.[36] The first is that Russell offers a definition of atomic facts such that it is indeed true that negative facts are atomic. Russell says that atomic facts are "such as contain only one verb and neither generality nor its denial".[37] It sounds odd to talk of facts as containing verbs, but only a minor alteration is needed to remedy this. We can say instead that an atomic fact is such that the proposition which expresses it contains only one verb and neither generality nor its denial.[38] Since 'not' is a unary connective it adds no verbs to the proposition on which it operates. Hence facts expressed by basic negations (negations of atomic propositions) turn out to be atomic. The second reason for Russell's mistake can be appreciated by considering what the consequences would be of treating basic negations as molecular. Firstly, all atomic propositions would be positive (making the label 'positive' redundant). Secondly, basic negations would be truth-functions.

Their truth-conditions would no longer be specified directly in terms of their correspondence to the facts, but indirectly in terms of the truth and falsity of their atomic components. A basic negation ~p is true if and only if p is false and is false if and only if p is true. Now this requires that the concepts of truth and falsehood be logically prior to the concept of negation. And, as Rosenberg notes, this requires that the notions of negation and falsehood be kept separated.[39] But Russell seems to have conflated them. He says: "you can take 'p/p' as meaning 'p is false', i.e., p/p = not p".[40] But if one conflates negation and falsehood, then it will seem mistaken to account for the truth and falsity of basic negations in terms of the truth and falsity of atomic propositions. This, as Rosenberg notes, will "appear to be the self-vitiating proposal that we analyze a concept in terms of itself".[41] Basic negations for Russell are on a par with positive atomic propositions. They cannot be treated as truth-functions and so Russell feels compelled to introduce a special class of facts (negative facts), along with a second type of correspondence relation (correspondence in the false way) in order to account for the truth and falsity of basic negations. It seems, then, that Russell believed that basic negations are as fundamental and unanalysable as are positive atomic propositions. When Russell was asked how he defined a negative fact, he replied: "You could not give a general definition if it is right that negativeness is an ultimate."[42] And in 'On Propositions' Russell says that the difference between negative and positive facts is utlimate and irreducible.[43]

I have already noted that Russell's notion of correspondence in the false way is a rather peculiar one and that Russell should perhaps have contrasted correspondence with the facts with failure to so correspond. This conclusion is reinforced when one recognises that Russell was motivated by a confusion to introduce this second correspondence relation. If negations are treated as truth-functions, then there is no problem in accounting for their truth and falsity. The only problem is to give an account of the truth and falsity of atomic propositions. One possibility is to say that an atomic proposition is true if it corresponds to the facts and false if it fails to so correspond. Russell seems to think that this will not do. He says:

> A thing cannot be false except because of a fact, so that you find it extremely difficult to say what exactly happens when you make a positive assertion that is false, unless you are going to admit negative facts.[44]

Russell thinks that a positive proposition is false if it corresponds falsely to a negative fact. One might respond that it is simpler to talk of a failure to correspond to the facts. If Russell is to maintain this position he has to produce an argument which shows that such talk is unacceptable. Russell does seem to have such an argument. The argument is that to replace talk about negative facts by talk of failure to correspond to the facts is not to eliminate negative facts. The "absence of a fact is itself a negative fact; it is fact that there is not such a fact ... Thus, we cannot escape from negative facts in this way".[45]

What Russell may have had in mind is this. Suppose that *p* is a false atomic proposition, then

(1) *p* is false

is to be explicated as

(2) *p* does not correspond to the facts .

Now (2) is a negative proposition and so it will be true if the proposition it negates is false. That is, (2) will be true if

(3) *p* corresponds to the facts

is false. But a proposition is false if it fails to correspond to the facts. Thus,

(4) '*p* corresponds to the facts' is false

is to be explicated as

(5) '*p* corresponds to the facts' does not correspond to the facts.

This explication of falsity in terms of failure to correspond to the facts must continue *ad infinitum*. Hence to break this infinite regress one must at some stage admit negative facts. So one might just as well admit them right from the start. However, this infinite regress can be avoided. One could claim that the account of falsity in terms of failure to correspond to the facts is meant to apply only to any atomic proposition *p* belonging to the object language, and not to a proposition such as (3), which belongs to the meta-language. There is no reason to suppose that one's account of object-language falsity can be extended to the meta-language. As Rosenberg says:

> there is every reason to conclude that an analysis of the truth or falsity of object - language propositions which makes reference to the notions of facts and correspondence will not - indeed, cannot - apply to the philosophical propositions employed in propounding the analysis.[46]

III. RUSSELL'S MISTAKE AND THE NATURE OF NEGATIVE FACTS

I have up to now accepted that Russell was mistaken in thinking that basic negations were atomic and that the distinction between negative and positive facts could be made within the class of atomic facts. I want now to explore the possibility that Russell was correct in thinking that negative facts are atomic. Herbert Hochberg has recently distinguished three views on the nature of negative facts[47]. If one supposes that a positive atomic fact is a complex in which a particular is related to a property by a relation of exemplification, then there are at least three possible ways of characterising a negative fact[48]. A negative fact can be either:

(a) a complex in which a particular, a property, and a negative element are united by a tie of exemplification (the negative element view); or

(b) a complex in which a particular and a property are related by a tie of negative exemplification (the negative exemplification view); or

(c) a complex in which a particular and a negative property are related by a tie of exemplification (the negative property view).

Russell and Raphael Demos have both presented arguments which can be construed as arguments against view (c) above.[49] If one holds view (c) then one must believe that the negative propositions which express negative facts are of the form '<u>x</u> is not -p'. Demos has two objections to this. Firstly, not all negative propositions can be interpreted as predicate negations. As Demos says: "I may assent that God will not provide because I believe that there is no God, as well as because I believe that He is non-provident."[50] Russell provides another example. If one thinks of negative propositions as predicate negations, then 'The present King of France is bald' and 'The present King of France is not bald' both turn out to be false (because there is presently no King of France) and so are not contradictories but rather contraries of one another. Russell and Demos both conclude that 'not' must be understood to apply to the whole proposition. Negative propositions are of the form 'not (<u>x</u> is P)'. Negation should be understood as propositional or sentential negation, and not as predicate negation. If one believes that the proper form of a negative proposition is 'not (<u>x</u> is P)' it should be obvious that one would reject the negative property view of negative facts. The cogency of this objection to view (c) depends on how plausible it is to maintain that there is only one form of negation, namely propositional negation. This will be examined in a later chapter, and so I will say no more about it here. Demos' second objection to view (c) is more easily disposed of. Demos argues that negative propositions cannot be interpreted as predicate negations because a large class of negative propositions do not contain predicates. Demos has

relational propositions in mind. There is no reason, however, to regard view (c) as restricted to facts containing only one particular and a property. View (c) can be generalised to cover relational facts as well.[51] An advocate of view (c) would then say that the general form of a negative proposition expressing a negative fact is 'not -R($\underline{x}_1$, $\underline{x}_2$, ..., $\underline{x}_n$)'. Demos and Russell would presumably, for reasons similar to those given above, maintain that the proper form of such negative propositions is 'not (R($\underline{x}_1$, $\underline{x}_2$, ..., $\underline{x}_n$))'.[52]

There are also several arguments against view (a). Hochberg finds (a) unacceptable because "we either have a tie playing a double role or we are forced to acknowledge an additional tie besides exemplification".[53] If one accepts (a) as it stands then one is committed to saying that exemplification is a tie which combines a particular and a property in a positive fact, as well as a tie which combines a particular, a property and a negative element in a negative fact. Exemplification is then a tie which plays a double role. If one finds this unsatisfactory, as Hochberg apparently does, then one can instead regard the exemplification relation in (a) as different from the tie of exemplification involved in positive facts. There then seem to be two possible ways of understanding (a). A negative fact is either:

(a_1) a complex in which this new tie of exemplification combines a negative element with a complex consisting of a particular and a property related by the (ordinary) tie of exemplification; or

(a_2) a complex in which this new tie of exemplification combines a particular, a property and a negative element.

But it is clear that whether one understands (a) as (a_1) or as (a_2) one is committed to recognising both a negative element and a new tie of exemplification. Hochberg concludes that the "simple, though awkward sounding, expedient of negative exemplification, without a negative element, seems more economical".[54] Hochberg's reason for rejecting (a) is thus that it is more complicated than view (b). Both (a) and (b) require that one recognise a tie of negative exemplification, but (a) requires in addition that one recognise a negative element. This objection to (a) depends on rejecting the understanding of (a) which requires that exemplification play a double role. It is not clear to me that the fact that exemplification is required to play a double role is a decisive objection against (a). Allowing the tie of exemplification to play a double role would seem to be more economical than admitting two kinds of exemplification. This ought to impress Hochberg, whose ostensible ground for preferring view (b) is that it is more economical than view (a).

Another possible objection to view (a) can be derived from something Wittgenstein says; "And if there were an object called '~', it would follow that '~~p' said something different from what 'p' said, just because the one proposition would then be about ~ and the other would not".[55] Now Wittgenstein believed that p is the same as ~~p and so he

had to reject the negative element view of negative facts.[56] Both Russell and Wittgenstein believed that the logical constants are not representatives and so the negative element view of negative facts would not have seemed tenable to either of them. Russell explicitly says: "It must not be supposed that the negative fact contains a constituent corresponding to the word 'not'".[57] And Wittgenstein says: "But it is important that the signs 'p' and '~ p' can say the same thing. For it shows that nothing in reality corresponds to the sign '~'".[58]

One is left with view (b), the negative exemplification view of negative facts. It has been claimed that Russell held such a view of negative facts.[59] Such a view of negative facts would certainly harmonise with Russell's claim that 'not' is not a representative. As Hochberg remarks, the negative exemplification view "puts negation on a par with exemplification as a matter of "form" rather than taking '~' as some sort of label of an "object"".[60] I noted earlier that Russell thought that positive and negative facts contain the same number of constituents and that the difference between these two forms of facts is ultimate and irreducible. I suggested that one represent the two different forms of fact containing three constituents, for instance, as 'R x y' and 'x y R'. As Brownstein notes, if Russell did hold such a view of negative facts, then this explains how he could consistently hold that negative facts are atomic.[61] (Earlier I assumed that Russell must be mistaken in thinking that there are negative atomic facts and propositions). But there is a price to pay for

treating basic negations and the facts they express as atomic. Negation cannot be regarded as a truth-functional operation on (positive) atomic propositions, and $p \,\&\, \sim p$ ceases to be a contradiction. What is more, all molecular propositions containing negations can be rewritten so that the negation signs occur only in front of atomic propositions; for instance $\sim(p \vee q)$ and yield a tautology $\sim(p \supset p)$ become $\sim p \,\&\, \sim q$ and $p \,\&\, \sim p$ respectively. So no proposition can be regarded as contradicting any other. Wittgenstein would not have agreed with this. He says: "the fact that the propositions 'p' and '$\sim p$' in the combination '$\sim(p \cdot \sim p)$' shows that they contradict one another".[62] And later he says: "It is clear that the logical product of two elementary propositions can neither be a tautology nor a contradiction."[63] It follows that since $p \,\&\, \sim p$ is a contradiction p and $\sim p$ cannot both be atomic propositions. It is not clear to me that Russell would have been prepared to accept the abovementioned consequences of treating basic negations as atomic. He nowhere indicated that he envisaged the alteration to classical logic that this would have required. In the end I think that Russell cannot be said to have seriously held the negative exemplification view of negative facts. What *is* true is that Russell mistakenly thought that there were negative atomic facts. He was led to make this error in the way documented by Rosenberg and indicated above. And his error was reinforced by his having in mind some such view of negative facts as the negative exemplification view.

IV. HOCHBERG'S DEFENCE OF NEGATIVE FACTS AND THE INCOMPATIBILITY ANALYSIS.

Russell thought that there were negative facts corresponding to true basic negations but he refused to admit that there were facts corresponding to any other true molecular compounds. Herbert Hochberg has recently argued in favour of this view.[64] He imagines a miniature universe in which there are two squares, a white one and a black one. If '*a*' is the white square and '*b*' the black one, and 'W', 'B' and 'S' stand for 'white', 'black' and 'square' respectively, then the following is a list of true atomic propositions about this universe:

(A) W*a*, B*b*, S*a*, S*b*

Consider the propostion 'W*a* & B*b*'. We can tell that this is true simply by consulting the list (A) and seeing that both 'W*a*' and 'B*b*' appear on it and by knowing the truth-table for ' & '. Similarly, the truth of 'W*a* v W*b*' is grounded by the atomic facts expressed by the propositions on (A). So there is no need to admit conjunctive and disjunctive facts to our ontology. But the true proposition '~ W*b*' cannot be grounded by one of the atomic facts expressed by the members of (A). Hochberg says: "In a way we have a reflection of the simple point that 'p, q ⊢ p & q' and 'p ⊢ p v q' are valid argument forms but that no corresponding simple form exists for negation."[65] What a knowledge of the truth-table for negation would perhaps allow us to conclude is that '~W*a*' is false; we do in other words recognise 'p ⊢ '~ p' is false' as a valid argument form. But this does not help us to ground the truth of '~W*b*' (nor, we might add, to account for the falsity of 'W*b*'). However, if we consider the following expanded list:

(B) Wa, Bb, Sa, Sb, ~Wb, ~Ba

it should be obvious that we can now account for the truth of '~Wb' and the falsity of 'Wb' simply by consulting (B) and knowing the truth-table for '~'. It seems then that we have to admit negative facts to our ontology.

One could counter this by saying that we can account for the truth of '~Wb' by observing that 'Wb' is absent from the list (A). Alternatively, one could say that '~Wb' is true because 'Wb' indicates a possible, but not actual, fact. Hochberg regards these as mere verbal alternatives. Whether one talks about absence from and presence on a list or negative and positive facts or possible and actual facts, it is the same distinction that one is marking.

Is there no way to avoid commitment to negative facts? One attempt to avoid negative facts was made by Raphael Demos. According to Demos a "particular and simple negative proposition is of the form "not -p is true", where p is any positive proposition, and "not" means "an opposite or a contrary of". As such, a negative proposition constitutes a description of some true positive proposition in terms of the relation of opposition which the latter sustains to some other proposition".[66] For instance, if one says "Borg was not born in America", one is really saying 'an opposite of "Borg was born in America" is true'. So "Borg was not born in America" is true if some opposite of "Borg was born in America", for example, "Borg was born in Sweden", is true. "Borg was born in America" and "Borg was born in Sweden" are opposites or incompatible because they both cannot be true. Demos talks about

a negative propostion being negative in content but positive in reference. A negative proposition refers to a positive proposiion, which is made true by the existence of some positive fact. But a negative proposition has a negative content, in the sense that one only uses a negative propostion if one cannot directly specify the true proposition which is opposed to it. For example, I say "Borg was not born in America" because I do not know which country he was born in. What I am referring to is the proposition "Borg was born in Sweden", but I do not have any knowledge <u>of</u> this proposition. I only have knowledge <u>about</u> it. I know only that some proposition incompatible with "Borg was born in America" is true. Negative propositions refer to reality only indirectly. They refer to positive propositions which in their turn assert positive facts. Demos tries to get rid of the need for negative facts by treating negation as a feature of our apprehension of reality rather than a feature of the reality apprehended.

Russell thought that Demos' argument would not work. One problem is to make sense of the notion of incompatibility or opposition without reintroducing the notion of negation or negative fact. To say that <u>p</u> and <u>q</u> are opposites is to say that <u>p</u> and <u>q</u> cannot both be true. Now we either have to admit straight off that the negation is ineliminable, or else we have to say that when we assert the proposition '<u>p</u> and <u>q</u> are not both true', we are really asserting 'some opposite of "<u>p</u> and <u>q</u> are both true" is true". Let 'Ø' be the proposition '<u>p</u> and <u>q</u> are both true' and let 'Ψ' be some opposite of 'Ø' which is true.

Then since '$\emptyset$' and 'ψ' are opposites, they cannot both be true. But now we have to make sense of the fact that not both '$\emptyset$' and 'ψ' are true, and this process of explicating 'not' in terms of the notion of opposition continues ad infinitum. So either one is forced to admit that negation cannot be eliminated, or one is involved in an infinite regress.[67] Russell, in 'Philosophy of Logical Atomism', mentions two other objections to the incompatibility analysis of negation. The first is that one would have to take incompatibility to be a fundamental and objective fact, and this would not be much simpler than admitting negative facts. The second is that one would have to take as a fundamental fact something involving propositions, because incompatibility is a relation that holds between propositions. But Russell thought this was unacceptable, because he thought that propositions are not 'real'.[68] This second objection is easily disposed of. It has already been noted that Russell's use of the word 'proposition' is muddled. Later, in 'On Propositions', Russell says that a proposition is an actual fact. Russell's complaint is that "if you are going to take incompatibility as a fundamental fact, you have got, in explaining negatives, to take as your fundamental fact something involving propositions as opposed to facts".[69] But if propositions <u>are</u> facts, then this complaint falls away. Russell's first objection is basically that if we admit incompatibility as a fundamental fact "all that this succeeds in doing is to substitute molecular facts for negative facts".[70] One response might be that since Russell was mistaken in thinking that negative facts are atomic, it is not clear that it is simpler to admit negative facts rather than a new category of fact to ground the incompatibility between propositions.[71]

The negative facts view and the incompatibility view both have favourable and unfavourable aspects. Is there a way of deciding between these two views? Herbert Hochberg, I noted, thinks that if one knows that a proposition such as 'Bb' (where 'b' is the name of a particular black square and 'B' stands for the predicate 'black') is true, then one has grounds for saying that '~Bb' is false, but no grounds for saying that '~Wb' (where 'W' stands for 'white') is true. Hochberg concludes that one needs negative facts to ground true negations of atomic propositions. What Hochberg seems to be saying is that 'Bb' is true because it corresponds to a fact and that '~Bb' is false because of this same fact. (Russell would say that '~Bb' corresponds in the false way to the fact that b is black.) On the other hand, this fact cannot ground the truth of '~Wb'. One needs to posit the negative fact that b is not white in order to ground this truth. Presumably it will be this same truth that accounts for the falsity of 'Wb' (Russell would say that 'Wb' is false because it corresponds falsely to the negative fact that b is not white). Hochberg's reason for saying that it is the same fact that grounds the truth of 'Bb' and the falsity of '~Bb' is that the following is an admissable argument: "'Bb' ⊢ '~Bb' is false". One can argue similarly that "'~Wb' ⊢ 'Wb' is false" is an admissable argument and so argue that it is the same fact that grounds the truth of '~Wb' and the falsity of 'Wb'. Since it is the same fact that grounds the falsity of the atomic proposition 'Wb' and its true negation '~Wb', it will be easier to confine the discussion to the atomic proposition 'Wb' and to ask whether such a proposition does indeed require a negative fact to act as its falsifier. If it does not require a negative

fact, then there will be reason to suppose that the fact which verifies '$\sim$W<u>b</u>' is not negative either.[72]

At one point Russell says: "If I say 'Socrates is dead', my statement will be true owing to a certain physiological occurrence which happened in Athens long ago".[73] He goes on to say that it is this same fact which shows that 'Socrates is alive' is false. Of course, knowing that Socrates is dead is not sufficient to allow one to conclude that 'Socrates is alive' is false. One must know also that being dead is incompatible with being alive.[74] One might then say that an atomic proposition is false if it stands in a primitive opposition relation to some true atomic proposition. I noted that Russell objected to such a view on the grounds that it requires one to take something involving propositions as a fundamental fact. Russell preferred to introduce negative facts to act as falsifiers for atomic propositions. Jay Rosenberg has attempted to defend the incompatibility account against this charge of Russell's.[75] Russell's complaint seems to be that one cannot ground the falsity of atomic propositions in a relation of incompatibility because this relation stands as much in need of a ground as the propositions it is meant to ground. Rosenberg's solution is to posit a relation of <u>exclusion</u> which is to be viewed as "a relation <u>in re</u> of real relations, as epistemologically a given as <u>loving</u> or <u>being to the left of</u>".[76] He also assumes that relations come in families such that (a) every particular which can exemplify some relation from some family of relations does exemplify one of the family, and (b) each relation within some family of relations stands in this primitive, higher-order relation

of exclusion to every other member of the family. For example, suppose that 'R_1a' is a false atomic proposition. Then 'R_1a' is false just in case there is some other relation R_2 belonging to the same family as R_1 such that a exemplifies R_2 and such that R_1 and R_2 stand in the relation of exclusion to one another. One might object that to say that R_1 excludes R_2 is just to say that R_1 and R_2 can not be simultaneously exemplified by the same particular. But if the incompatibility account is to succeed as an alternative to the negative fact account it must not re-introduce the notion of negation, as one is then forced either to admit that there are negative facts or one is led into an infinite regress.[77] Rosenberg's response is that although it might be true to say that if R_1 excludes R_2 then R_1 and R_2 cannot be simultaneously exemplified, this is not because the statement 'R_1 excludes R_2' stands to the statement 'R_1 and R_2 cannot be simultaneously exemplified' as analysandum to analysans. For Rosenberg "the fact that R_1 excludes R_2 is itself a fully analyzed fact. Exclusion is posited as a relation both ontologically and epistemologically basic".[78] Rosenberg thinks that it is a point in favour of his analysis that properties and relations do come in families of the sort he requires. There are in fact such families of pairwise exclusive relations. Rosenberg concludes: "What I have been suggesting is this: that the structuring of predicates thus into families of pairwise exclusive determinates under common determinables may be more than a local and adventitious feature of our language. It may, in fact, be a necessary pre-condition of the possession of a language in which negation is possible".[79]

There are a number of objections to Rosenberg's proposals. Firstly, although it is true that some relations are structured in the way Rosenberg envisages, it is by no means clear that all relations come in such families. Colours are a good example of a family of pairwise exclusive determinates under a common determinable. But not all relations are determinates of some determinable. And some determinates of a common determinable will not be pairwise exclusive. For example, the determinable 'belonging to a fraternal lodge' is determined by 'being a member of the Elks' and 'being a member of the Moose', but these are not pairwise exclusive, as it is possible to belong to more than one fraternal lodge.[80] A more serious difficulty is that there is a class of propositions for which the incompatibility analysis will not work. Consider the false sentence 'The moon is made of blue cheese'. According to the above analysis, this is false because there is some other property belonging to the same family as the property of being made of blue cheese and excluded by it, such that the moon exemplifies this property. But then one is committed to saying that the moon is made of some kind of cheese. One way out of this problem is to restrict the incompatibility analysis to propositions that do not involve category mistakes. Another alternative is to claim that there <u>is</u> some property which the moon has that excludes the property of being made of blue cheese. This could, for instance, be the property of being composed of rock. Moreover, one might claim, this property and the property of being made of blue cheese <u>do</u> belong to the same family, though this is a much more all-embracing family than the family of different sorts

of cheeses. The common determinable of which both these properties are determinates is something like 'being composed of some sort of matter'. However, countenancing such broad families does lead to difficulties. What properties, for instance, are to be allowed as determinates of the determinable 'being composed of matter'? Both 'being made of metal' and 'being made of gold' seem to be determinates of this determinable, but these do not exclude one another, as some metal things are gold. 'Being made of metal' is, of course, in its turn, a determinable of which 'being made of gold' is a determinate. So one could ensure exclusivity by requiring that a property be a member of a family only if it is not a determinate of some other property which is also a member of that family. This restriction, though, would rule out the property of being made of blue cheese from belonging to the family of pairwise exclusive determinates of the common determinable 'being composed of matter'. This is because 'being made of blue cheese' is a determinate of the determinable 'being made of cheese', which is itself a determinate of the determinable 'being composed of matter'. But then is there any family of pairwise exclusive determinates to which both 'being made of blue cheese' and 'being composed of rock' belong? Could Rosenberg's requirement that properties and relations be structured into such families be dropped? Such a modification amounts to saying that a proposition such as '$\underline{R_1 a}$' is false if there is some other relation $\underline{R_2}$ which excludes $\underline{R_1}$ and such that $\underline{a}$ exemplifies $\underline{R_2}$, even though $\underline{R_1}$ and $\underline{R_2}$ do not belong to a family of pairwise exclusive determinates of some common determinable. I think that Rosenberg has

to weaken his account in this way. But this makes his account less plausible. He can no longer appeal to the notion of a family of relations to explain the exclusivity of such relations, and it might seem that some explanation is needed. Why does $\underline{R_1}$ exclude $\underline{R_2}$? One could say that they exclude one another because the generalisation '$(\forall \underline{x})(\underline{R_1}x \supset \cdot \sim \underline{R_2})$' is true. This would not be satisfactory because the generalisation contains a negation, and the incompatibility account is meant to show how an appeal to negation can be avoided. Another possible strategy is to say that $\underline{R_1}$ excludes $\underline{R_2}$ in virtue of the meanings of terms '$\underline{R_1}$' and '$\underline{R_2}$'. But this appeal to meanings is uninformative. It serves only to show that some explanation is needed, rather than itself being explanatory.[81]

V REDUNDANCY AND REDUCIBILITY

It seems as though there are equally telling arguments against the views of both the supporters and the detractors of negative facts. An initially plausible strategy to avoid this stalemate is to distinguish between two possible theses about negative facts. Richard Gale in his paper 'Negation and non-being' calls these the reducibility and redundancy theses.[82] The reducibility thesis states that negative facts can be reduced to positive ones because negative propositions can be analysed into wholly positive propositions, and positive propositions require only positive facts to act as their verifiers.[82a] The redundancy thesis says that although negative facts may not be reducible to positive ones, nevertheless they are redundant in the sense that every negative proposition is entailed by some positive proposition, so that in a complete description of the world we need not appeal to any negative facts.[83] Gale thinks that the reducibility thesis is wrong because negative propositions cannot be analysed into wholly positive ones. All attempts to offer such analyses fail, as they re-import (covertly) the negative elements that they purport to analyse away.[84]

However, he thinks that a version of the redundancy thesis is defensible.[85]

The point I wish to make, however, is that making a distinction between the redundancy and reducibility views of negative facts may seem to offer us a way out of the impasse we were in. Philosophers such as Demos and Rosenberg, who wish to avoid a commitment to negative facts, appeal to the notion of incompatibility. This is in effect to offer a reductive analysis of negative facts. However, if Gale is right, then the notion of incompatibility is irreducibly negative.[86] Hence one cannot avoid commitment to negative facts in this way.[87] It seems to follow that one must admit negative facts. One could argue that philosophers such as Demos and Rosenberg should concede this point. But even though they have to admit that reductive analyses fail and hence that there are negative facts, they could still argue that the status of such facts is different from that of positive facts, in the sense that negative facts are redundant. Moreover, once one accepts that the reducibility account fails, one might be more inclined to accept Hochberg's argument for the existence of negative facts. Hochberg argues that we are bound to admit negative facts if we want to explain why the facts expressed by the propositions on list (A) in section IV above are sufficient to account for the truth of 'W*a* & B*b*', but insufficient to account for the truth of '~W*b*' and the falsity of 'W*b*'. One might accept Hochberg's argument but then try to argue that negative facts are redundant. In other words, distinguishing between the reducibility and redundancy views of negative facts seems to enable us to account for the intuitions of both the supporters of negative facts (such as Russell and Hochberg) and their detractors (such as Demos and Rosenberg). The supporters are correct in saying that there are negative facts, and the detractors are correct inasmuch as there is a difference between positive and negative facts. Only the former are required for a complete description of the world.

Can one make a plausible case for the redundancy view of negative facts? On the redundancy view one admits that it is, for example, the negative fact that *b* is not white that makes '$\sim Wb$' true and 'Wb' false. However, the claim is that this negative fact is redundant. It is redundant because the negative proposition '$\sim Wb$' is entailed by some positive proposition, in this case 'Bb'. But to say that 'Bb' entails '$\sim Wb$' is to say that '$(Bb \supset \sim Wb)$' is a logical truth. However, it is not clear that '$(Bb \supset \sim Wb)$' *is* a logical truth.[88] And if it is not a logical truth then it seems that the entailment does not hold. We need to appeal to some further fact to explain why one can conclude '$\sim Wb$' from 'Bb'. One possibility is to say that 'Bb' and 'Wb' are incompatible. But we have already granted that incompatibility is a negative notion, so this move would defeat the claim that negative facts are redundant. A negative proposition could no longer be said to be entailed by a positive alone, but only by a positive one together with a negative proposition to the effect that a relation of incompatibility holds between the two propositions. Richard Gale argues that one does not need to appeal to some additional premise in order to support the entailment of a negative proposition from its positive ground. He says: "There is nothing enthymemic about the argument "My pen is blue, therefore it is not red" ... the conclusion follows from the single premise in virtue of the meaning of the terms which compose it".[89] But as remarked at the end of the last section, an appeal to meanings is unhelpful. Hochberg has this to say about Gale's argument: "the appeal to the "meaning" merely reveals that one cannot carry the analysis further. In this case, it merely amounts to a way of acknowledging the reason for the introduction of negative facts without accepting such entities ... In short, what Professor Gale does is to restate the problem as a purported solution to it".[90] If one claims that 'Bb' entails '$\sim Wb$' in virtue of the meanings of the terms 'B' and 'W', then one seems committed to the view that '$(Bb \supset \sim Wb)$' is an analytic truth. Now 'black' doesn't mean 'not white' in the same way that 'bachelor' means 'unmarried man'. So in order to explain why '$(Bb \supset \sim Wb)$' is an analytic truth one would have to appeal to the fact that being black

excludes being white. But by introducing the notion of exclusion one would re-import the notion of negation, and one would thus not have succeeded in showing negative facts to be redundant. I conclude that the detractors of negative facts cannot after all appeal to the redundancy thesis to support their view.

I might just add at this point that there are some philosophers who think that one cannot consistently deny the existence of negative facts. Eric Toms, for instance, argues that if we assert that there are no negative facts, then we must recognise at least one negative fact, namely the fact that there are no negative facts.[91] However, there is a way to avoid this conclusion. The inconsistency that results when one denies that there are negative facts arises only if 'There are no negative facts' is taken to be a negative sentence capable of expressing one of the negative facts which it is about. In other words, the inconsistency results if 'There are no negative facts' is reflexive. But Russell has shown how to avoid such reflexive paradoxes. 'There are no negative facts' is meaningless if taken to be about the fact that it itself expresses. So, this argument for the existence of negative facts does not work. Nevertheless, I think that both the attempt to show that negative facts are reducible to positive ones, and the attempt to show that negative facts are redundant, fail. I think one has to admit that there are negative facts, but not understood in the sense that Russell understood them. In the following section I briefly discuss Wittgenstein's views on negative facts. It is my contention that Wittgenstein's views are more in harmony with the doctrines of logical atomism than are Russell's, and I conclude that if we admit negative facts, they should be conceived of in a manner similar to the one in which Wittgenstein conceived of them in the *Notebooks* and the *Tractatus*.

VI WITTGENSTEIN ON NEGATIVE FACTS

I have argued that Russell was mistaken in thinking that there are negative facts corresponding to basic negations.[92] Since Russell and Wittgenstein were agreed that 'not' does not go proxy for an object, it seems that it was an error on Russell's part to attempt to give a non-truth-functional account of basic negations.[93] On Wittgenstein's view it is not true to say that a basic negation is made true by a negative fact, as the following quotations indicate:

> In my theory p has the same meaning as not-p but opposite sense. The meaning is the fact.[94]

> But it is important that the signs '<u>p</u>' and '∼<u>p</u>' <u>can</u> say the same thing. For it shows that nothing in reality corresponds to the sign '∼' ...
> The propositions '<u>p</u>' and '∼<u>p</u>' have opposite sense, but there corresponds to them one and the same reality.[95]

In these passages I take Wittgenstein to be saying that there is no negative element which corresponds to the '∼' in '∼<u>p</u>'. Negation is a truth-function, the truth-function which reverses the sense of the proposition to which it is applied.[96] The negation does not refer to a different, negative state-of-affairs. It "refers to the very logical place which is determined by the negated proposition".[97] H O Mounce puts Wittgenstein's point in this way: "The purpose of the negation is to cancel a particular representation of the facts not to assert them in its own rights".[98] This way of putting the point is suggestive, although it does seem to insinuate that negative propositions cannot be used to make assertions, which is surely incorrect. I think that Wittgenstein's point is that the negation of a proposition says that the state-of-affairs represented by the negated proposition should be taken in the reverse or opposite sense. Wittgenstein says:

> Negation refers to the finished sense of the negated proposition and not to its way of presenting.
>
> If a picture presents what-is not-the-case in the forementioned way, this only happens through its presenting <u>that</u> which <u>is</u> not the case.

> For the picture says, as it were: "This is how it is not", and to the question "How is it not?" just the positive proposition is the answer ...
>
> The negating proposition uses the logical place of the negated proposition to determine its own logical place. By describing the latter as the place that is outside the former.[99]

I think it is clear that for Wittgenstein there are no negative facts corresponding to true basic negations.

How then did Wittgenstein conceive of negative facts? In the Tractatus he says that we "call the existence of states of affairs a positive fact and their non-existence a negative fact".[100] This may suggest that whereas Russell thought of a negative fact as the existence of a negative state of affairs, Wittgenstein thought of a negative fact as the non-existence of a state of affairs. I have already noted that Russell objects to the view that a negative fact is the mere absence or non-existence of a (positive) fact. He thinks that one cannot avoid commitment to negative facts in his sense by appealing to the notion of an absence or a lack. However, I think that Wittgenstein's position is a little more complex than this and should not be dismissed without further discussion.

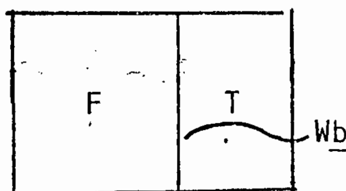
Wittgenstein stressed that we must be able to understand a proposition without knowing whether it is true or false. A proposition must have a sense, but it is a contingent matter whether it is true or whether it is false. This is linked with Wittgenstein's notion of the bi-polarity of propositions. In the Notebooks he says: "Every proposition is essentially true-false: to understand it, we must know both what must be the case if it is true, and what must be the case if it is false. Thus a proposition has two poles, corresponding to the case of its truth and the case of its falsehood. We call this the sense of a proposition".[101] So the sense of a proposition is determined by its true and false poles. Consider again the proposition 'Wb'.

Wittgenstein would say that we determine the sense of this proposition by saying that when the facts are such that b is W, then the facts are of like sense with the proposition 'Wb' and otherwise they are of opposite sense.[102] So facts are divided into those of like sense and those of opposite sense with regard to some proposition. Wittgenstein says:

> A proposition is a standard to which facts behave, ... it is thus bi-polarity and sense comes in; just as one arrow behaves to another arrow by being in the same sense or the opposite, so a fact behaves to a proposition.[103]

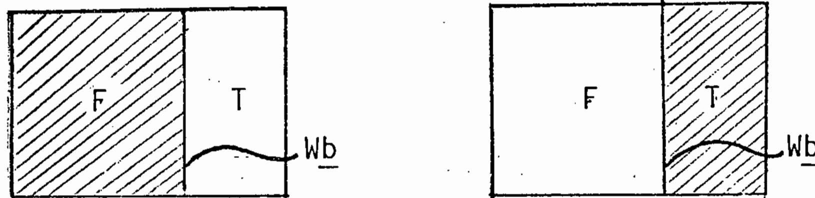
I have already said that Wittgenstein would not have said that we need negative facts to act as verifiers for basic negations, as did Russell. However, Russell also thought that negative facts were needed to act as falsifiers for atomic propositions. This is perhaps something that Wittgenstein would agree to. But whereas Russell would say that if 'Wb', for example, is false, then it corresponds falsely to the negative fact that b is not white, Wittgenstein would say that if 'Wb' is false then the facts are of opposite sense with the proposition 'Wb'. Another way of putting this is to say that the non-existence of the state of affairs of b's being white is what makes 'Wb' false.

Wittgenstein says that the "form of a proposition is like a straight line which divides all points of a plane into right and left".[104] This suggests that we might represent the form of 'Wb' by means of the following diagram:



Here the area to the right of the line is meant to represent the true pole of 'Wb' and the area to the left of the line represents the false pole. Now the state of affairs correlated with the true pole might exist or not

exist, and similarly for the state of affairs correlated with the false pole. However, the non-existence of a state of affairs always goes together with the existence of the opposite state of affairs. So if we represent the non-existence of the correlated state of affairs by shading the appropriate area of the above diagram we have the following two possibilities:



Here the left-hand diagram is the case in which 'W*b*' is true and the right-hand diagram is the case in which 'W*b*' is false.[105]

It should be noted at this point that if one wants to give a truth-functional account of basic negations, then the notions of truth and falsity have to be prior to the notion of negation. Furthermore, the truth and falsehood of atomic propositions cannot in their turn be explicated in terms of the notion of negation, as this would involve one in a vicious circle. Does Wittgenstein's account satisfy these requirements? Clearly, the first requirement *is* met. According to Wittgenstein, *p* is true (false) if and only if *p* is false (true).[106] In other words, the truth conditions of basic negations are specified in terms of the truth and falsity of atomic propositions. So the notions of truth and falsehood are prior to and more fundamental than the notion of negation. Russell's view differs in this respect, as he regarded negation as something fundamental and irreducible.[107] It is less clear whether Wittgenstein's account satisfies the second requirement. As already noted above, the falsity of a proposition such as 'W*b*' is to be explained by saying that the facts are of opposite sense with the proposition 'W*b*', or, to put the same thing in another way, by appealing to the non-existence of the state of affairs of *b*'s being white. But, one

might say, to say that a fact and a proposition are of opposite sense is simply to say that they are not of the same sense. But then we have re-introduced the notion of negation. Similarly, to talk of the non-existence of a state of affairs is to say that that state of affairs does not exist. Once again, we have failed to explain falsity without appealing to the notion of negation. However, there is, I think, a sense in which falsity is prior to negation. Propositions are essentially true-false. Every proposition has two truth possibilities, which are possibilities of existence and non-existence of states of affairs.[108] This true-false dichotomy or bi-polarity cannot be explicated in terms of negation because it is a precondition of our being able to form truth-functions at all. When we understand a proposition we understand that it has these truth possibilities. We understand what is the case if it is true and what is the case if it is false. But this is something that we cannot initially say. It is only once negation appears that we can talk about what does not exist or what is not the same. What is not does not have a separate sense until we have a negation operator. Propositions and reality have a dual nature, but we cannot explicate this until we have negation, even though the possibility of negation depends on the very duality which it later explicates.

I conclude then that Wittgenstein's account of negation and negative facts meets the requirements mentioned at the beginning of the previous paragraph. Moreover, Wittgenstein's account is to be preferred to Russell's account, because Wittgenstein treats negation as a truth-function. This seems to square with some of the other logical atomist views, such as the view that 'not' does not go proxy for an object. If we are to accept negative facts, then these should be understood in the sense described above.

VII CONCLUSION

In this chapter I have examined various views on the nature and status of negative facts. I have claimed that Russell's arguments do not support the view that there are negative facts. Nevertheless, an argument advanced by Herbert Hochberg suggests that we do need to posit negative facts. Various strategies which attempt to avoid this conclusion are unsuccessful. The attempt to offer a reductive analysis of negative facts by appealing to the notion of incompatibility fails because it re-introduces the notion of negation. The attempt to show that negative facts are redundant is similarly unsuccessful. These failures, together with Hochberg's argument in favour of negative facts, suggest that we have to admit negative facts. However, there is still the question of how we are to conceive of these negative facts, and what role they are to play. It is my contention that Wittgenstein's account of negative facts is the most acceptable one, and that this should be the account that we favour. One final point is worth stressing. As I remarked at the beginning of this chapter, the question whether there are negative facts or not arises within the framework of the logical atomism espoused by Russell and Wittgenstein.[110] Hence it is possible to challenge the conclusion that there are negative facts by challenging some of the atomist presuppositions. For instance, one could deny that facts are the sorts of things that can correspond to propositions. One might make such a claim if one thought that facts are simply true propositions. However, I have not explored such possible criticisms of the view that there are negative facts. I think that even within the framework of logical atomism the conclusion that there are negative facts is an interesting one. It does not lose its interest simply because logical atomism is no longer considered to be a viable philosophy.

CHAPTER 3

NEGATION, NEGATIVE EXISTENTIALS AND THE PARADOX OF NON-BEING

I. INTRODUCTION

The subject of negative existentials is related to many issues of interest to contemporary philosophers. It is, for instance, related to issues in the theory of reference, such as the question of non-denoting terms. It is also related to the subject of fictional reference. And it also touches upon issues in the philosophy of logic, such as that of the importance of 'free' logics. There is an extensive literature on all of these subjects, and obviously I cannot hope to adequately treat all of them. I will, however, mention some of these in the course of this chapter. The main theme of this chapter concerns the paradox of non-being. My conclusion will be that as regards singular denials of existence, not including those cases involving fictional characters, Russell's theory of descriptions still seems to offer the best solution to this paradox.

II. THE PARADOX AND MEINONG'S AND RUSSELL'S SOLUTIONS

Parmenides once said: "You could not distinguish, nor could you express, what is not".[1] Parmenides seems to have identified 'what is not' with 'nothing'. The reason that one cannot say what is not is that this is to say nothing, and thus not to speak at all. As was mentioned in Chapter 1, there is speculation as to whether Parmenides meant to reject all negative judgements or only negative existential judgements. In other words, did Paemenides wish to reject all judgements of the form 'X is not', whether understood in any of the following ways:

(i) X does not exist (or X's do not exist)

(ii) X is not identical to Y

(iii) X is (predicatively) not Y (or X is not Y to Z or ...)

or only those of the form of (i)? Whatever the answer, it certainly seems to be the negative existentials which are the most puzzling. How can one talk about what is not? It seems clear that one cannot talk about what is not determined in any way at all. There cannot be a subject of discourse which for every predicate 'Ø' is not a Ø. One cannot talk about no thing or a non-thing in this sense. On the other hand, it seems clear that one can talk about what does not exist. Most philosophers would agree that Santa Claus does not exist but that nevertheless one can talk about him (I have just done so). But if I talk about Santa Claus, don't I suppose that he must, in some sense, have being? But if so, how can I meaningfully deny his existence? Denials of existence seem to give rise to paradox. This paradox is known as the paradox of non-existence or non-being, and it is with this paradox and attempts to overcome it that I will chiefly be concerned in this chapter.

It is worth noting that some philosophers have felt that it is not only negative existentials which give rise to paradox. Eric Toms, for instance, in his book <u>Being, Negation and Logic</u>,[2] seems to think that the paradoxical nature of negation is more pervasive. According to Toms, all true negative sentences require negative facts to act as their verifiers. But "every negative fact is self-contradictory".[3] Toms seems to think this because he conceives of a negative fact as the non-existence of "an existence, a particular given thing or fact".[4] Elsewhere, Toms says: "any theory of negation has to satisfy the cited test for negation, viz.that a negative fact must, by the law of non-contradiction, exclude from existence the opposite positive fact. Thus instead of shaking off the paradox of

non-existence, the standard theories of negation have the effect of showing that the paradox extends to the whole field of negation".[5] Consider, for example, the sentence, 'Theaetetus is not sitting'. This, if true, is made true by a negative fact. What this amounts to is that there is no fact making 'Theaetetus is sitting' true. In other words, a negative fact involves the non-existence of a fact (an existence). Such a denial of existence is exactly like an ordinary negative existential, such as one denying the existence of a person.[6] It is paradoxical in the same way. So, Toms' claim that all negatives are paradoxical, rests in the end on the supposedly paradoxical nature of negative existentials. Thus it is to these that I will restrict my attention in the sequel.[7]

There are many ways in which the paradox of non-being can be formulated. Here are two:

> The paradox of non-existence is most simply stated by saying that insofar as a negative existential proposition seems to be about the very object or objects denied existence, it presupposes their existence.[8]

> The paradox of non-being may be briefly stated as follows: "I can never consistently deny the existence of a thing. For in using a term as subject of an assertion, I am implying that the term has something to stand for; but at the same time, by attaching to this subject a predicate that denies existence, I am implying that it has nothing to stand for ... but in that case my assertion is empty; for there is nothing for me to make it about. So anything that I might want to say does not exist <u>does</u> somehow exist, in some realm of being; I imply this <u>in</u> the very attempt to deny it."[9]

Consider the following examples of negative existential sentences:

(1) Dragons do not exist

(2) Carnivorous cows do not exist

(3) The round square cupola on Berkley College does not exist

(4) Pegasus does not exist

It might seem that if we suppose that (1) - (4) are about dragons, carnivorous cows, the round square and Pegasus respectively, then dragons, carnivorous cows, Pegasus and the round square must exist. One could attempt to avoid the paradox by distinguishing between 'being' and 'existence'. One could maintain, in other words, that not everything that has being exists. The terms 'existence' would be restricted to a "mere species of what there is".[10] Beings such as abstract objects, which do not exist, subsist. Now, one might say, it is true that if a sentence is about something that thing must have being, but it need not exist, and so it is possible to coherently deny the existence of some things. However, this solution to the paradox requires that we admit to the realm of being not only fictional objects, such as dragons and Pegasus, and contingently non-existing but possible objects, such as carnivorous cows, but also impossible objects, such as the round square. But the round square surely does not have any kind of being. So this purported solution will not work.

This suggests that the way out of the paradox is to deny that if a sentence is about something then that thing must have being. In order for a sentence to be about an object, that object need have neither existence nor subsistence. This is essentially Alexius Meinong's solution to the paradox.[11]

Meinong believed that there are Objects of knowledge which neither exist nor subsist.[12] We can talk about and ascribe properties to Objects even if they have no being. Meinong framed this as the principle of the independence of Sosein (character) from Sein (being).[13] All objects have the most general property of given-ness, whether they have being or not.[14] The Object as such stands "beyond being and not-being"; it is by nature indifferent to being (ausserseiend).[15] This is not to deny that an Object may or may not have being. Nor is it to say that whether an Object has being or not is something which is entirely accidental. An impossible Object, such as the round square, cannot by its very nature have being.[16] Although the Objects of knowledge need not have being, all knowledge must have an Objective which has being.[17] An Objective is what is grasped in an act of cognition, such as judging or assuming.[18] "That which has being, the "fact", without which no cognition could count as cognition, is the Objective."[19] An Objective is a complex of some kind, to which an Object belongs as a kind of component.[20] When one grasps either the being or the non-being of an Object, one grasps either a Seinsobjektiv or a Nichtseinsobjectiv. For every Object either its Objective of being or its Objective of non-being must subsist.[21] The important point in all this is that anything can be an Object and hence can be the subject of a true predication. It is our "prejudice in favour of existence" which leads us to suppose that we can only talk about those things that have being.[22] It should be obvoius that for Meinong the paradox of non-being cannot even arise.

Quine's well-known objection to Meinong's position is that it is one which requires an over-populated domain of objects. Not only must Meinong countenance unactualised possibles, but he must also recognise that there are

impossible objects. Quine scruples to admit possible objects on the grounds that we do not have adequate identity criteria for them. And admitting impossible objects would involve us in contradictions.[23] In 'On denoting' Russell has given substantially the same objection. After noting that Meinong's theory takes any grammatically correct denoting phrase to stand for an object, Russell says that "the chief objection" is that such objects, admittedly, are apt to infringe the law of contradiction. It is contended, for example, that the existent present King of France exists and also does not exist; that the round square is round, and also not round, etc. But this is intolerable; and if any theory can be found to avoid this result, it is surely to be preferred."[24] Neither Quine nor Russell spells out this charge against Meinong in any detail. In a recent book Terence Parsons has attempted to reconstruct Russell's reasoning on the basis of his remarks in the passage quoted above.[25] The argument concerning the round square would go as follows:

(a) The round square is round

(b) The round square is square

(c) $(\forall x)(x \text{ is square} \supset \sim(x \text{ is round}))$

(d) (The round square is square) $\supset \sim$ (The round square is round)

(e) $\sim$(The round square is square)

(f) (The round square is round) & $\sim$(The round square is round)

(a) and (b) are supposedly uncontentious. (d) follows from (c), (e) from (b) and (d), and (f) from (a) and (e). The trouble lies with (c). Can Russell maintain (c) without begging the question against Meinong? If the quantifier in (c) ranges only over existent objects, then there may be grounds for holding (c) true. It may well be the case that all existent

objects are such that their being square excludes their being round (for whatever reason). But is such a restriction on the quantifier warranted? Certainly there is no reason for Meinong to accept this restriction. Meinong would read the quantifier in (c) as 'For all objects x,... x ...'. On this reading it is not clear that (c) is true. The round square for one would be an exception. So the desired conclusion, viz. that the round square infringes the law of contradiction, being both round and not round, does not follow. Any object which satisfies some formula of the form '$\underline{x}$ is A & $\sim$($\underline{x}$ is A)' Parsons calls a contradictory object.[26] The round square, though an impossible object, is not a contradictory one.[27]

Russell, in the passage quoted above, also seems to think that it follws from Meinong's theory that the existent present King of France both exists and does not exist. The argument is presumably that because there is no existent present King of France, he does not exist, but on the other hand, because existent, he does exist.[28] Meinong's counter to this is as follows:

> 'to be existent' ('<u>existierend sein</u>') in the sense of the existential determination and 'to exist' ('<u>existieren</u>') in the usual sense of 'existence' ('<u>Dasein</u>') are absolutely different.[29]

Russell's curt reply was: "I must confess that I see no difference between existing and being existent; and beyond this I have no more to say on this head".[30] What exactly <u>does</u> Meinong mean in the passage quoted above? Firstly, 'existential determinations' are those properties, besides existence, that an object has (would have) if it does (were to) exist. When one predicates 'existent' of an object, one is not predicating existence of it, but rather the accompanying existential determinations. 'Existent', then,

functions as an abbreviation, obviating the need for predicating all the existential determinations of an object separately (something which, even if possible, would take a very long time).[31] Suppose we grant that there is a distinction to be made between existing and being existent. Then we can consider a modified version of Russell's objection, mentioned by Parsons.[32] Consider the object denoted by 'The present King of France who exists'. This object seems to have the contradictory properties of both existing and not existing. Meinong's only escape seems to be to claim that there is no object denoted by the expression 'The present King of France who exists'. But part of the attraction of Meinong's theory was that it supplied an object for every grammatically correct denoting phrase. It seems that Russell was right after all; Meinong's theory is committed to contradictory objects (in the sense explained above).

Most philosophers would probably agree with Russell and Quine that Meinong's solution to the paradox of non-being raises more problems than it solves.[33] The problem remains as to how we can truly deny that certain objects exist without committing ourselves to the existence of those objects. Russell outlined a solution in 'On denoting' and this has become the orthodox view. I will say that a sentence 'X is P' is 'about' X or 'mentions' X if 'X' is the logical subject of 'X is P' and 'X' stands for X. In this sense Meinong would say that (3) above is about the round square. Meinong would say that a sentence can be about an object even if it has no being. Russell denies this. Russell would say that if a subject term mentions or stands for an object, then one cannot meaningfully go on to deny that that thing exists.[34] Now since the examples of negative existentials given above are all meaningful, it cannot be the case that their grammatical subjects pick

out or refer to objects. Russell's answer is that the grammatical form of such sentences is misleading and disguises their logical form. Representing these sentences in the notation of quantification theory makes their logical structure plain. Consider, for instance,

(1) Dragons do not exist.

This amounts to saying 'Nothing is a dragon' or 'There are no dragons' and can be paraphrased as

(1*) $\sim(\exists \underline{x})(\underline{x}$ is a dragon$)$

Similarly, (2) can be rendered as

(2*) $\sim(\exists \underline{x})((\underline{x}$ is a cow$)$ & $(\underline{x}$ is carnivorous$))$

(1*) and (2*) seem unobjectioable as paraphrases, as it seems clear that (1) and (2) are really general sentences (universal negatives, to use the traditional terminology). Russell's theory of descriptions extends this treatment to sentences containing descriptive phrases such as 'the round square', 'the present King of France' and 'the author of Waverley'. Such expressions, which seem to be singular terms purporting to stand for objects, turn out to be incomplete symbols.[34a] An incomplete symbol is an expression which has no meaning in isolation, but which gets paraphrased in context in such a way that the sentence as a whole in which the phrase occurred "still gets its full quota of meaning".[35] When a sentence containg a descriptive phrase is analysed in Russell's way, the resulting paraphrase contains no expression which purports to mention the object which the descriptive phrase seemed to stand for.[35a] Consider (3) above, for example, which is paraphrased as

$$(3^*)\ \sim (\exists \underline{y})\left[(\forall \underline{x})((R\underline{x}\ \&\ (S\underline{x}\ \&\ (C\underline{x}\ \&\ O\underline{xb}))) \equiv (\underline{x} = \underline{y}))\right]$$

where 'R' stands for 'is round', 'S' for 'is square', 'C' for 'is a cupola', 'O' for 'is on' and 'b' for Berkeley College. We have yet to account for negative existentials such as

(4) Pegasus does not exist

In 'Philosophy of logical atomism' Russell maintained that what seem to be ordinary proper names, such as 'Romulus', are really disguised descriptions. He says:

> the name 'Romulus' is not really a name but a sort of truncated description. It stands for a person who did such-and-such things, who killed Remus, and founded Rome, and so on. It is short for that description; if you like, it is short for 'the person who was called "Romulus"'. If it were really a name, the question of existence could not arise, because a name has got to name something or it is not a name.[36]

If one accepts this view then the analysis of sentences such as (4) will be similar to that offered for negative existentials containing definite descriptions. Quine's proposal for eliminating names is an extension of Russell's theory. If we are unable to fix upon a description to replace 'Pegasus' we can create a predicate 'is-Pegasus' or 'pegasizes' and identify 'Pegasus' with the description 'the thing which pegasizes'.[37] (4) would then be paraphrased as

$$(4^*)\ \sim (\exists \underline{y})\left[(\forall \underline{x})((\underline{x}\ \text{pegasizes}) \equiv (\underline{x} = \underline{y}))\right]$$

Russell's account of negative existentials such as (1) and (2) was not new, but his treatment of existentials containing descriptions and ordinary proper names was novel. In effect these latter cases were assimilated to the former ones. What appear to be singular sentences turn out to be general quantificational sentences. One could also say that what the paraphrases (1*) - (4*) show is that 'exist(s)' is not to be treated as a predicate of objects in (1)-(4) [38]. It is also a consequence of Russell's treatment that any sentence whose grammatical subject is a singular term (ie a name or description) that fails to refer will be false.

Consider, for example, the following:

(5) The man in the doorway is bald

(6) Pegasus is a winged horse

These can be paraphrased as

(5*) $(\exists \underline{y}) \left[(\forall \underline{x})((M\underline{x} \,\&\, I\underline{x}) \equiv (\underline{x} = \underline{y})) \,\&\, B\underline{y}\right]$

(6*) $(\exists \underline{y}) \left[(\forall \underline{x})((\underline{x} \text{ pegasizes}) \equiv (\underline{x} = \underline{y})) \,\&\, (W\underline{y} \,\&\, H\underline{y})\right]$

These are both false as there are no objects satisfying the open sentences '$M\underline{x}$ & $I\underline{x}$' and '$\underline{x}$ pegasizes'.

There are a number of criticisms that have been brought against Russell's position and against Quine's extension of it. These are of different sorts. There are the criticisms of Meinongians such as Terence Parsons. There are the criticisms of those who advocate a casual or historical explanation theory of reference, such as Saul Kripke and Keith Donellan. There are also those who object to Russell's account on the grounds that it does not do justice to certain kinds of negative existentials, namely those about

fictional, mythical or legendary characters. Such criticisms are usually accompanied by an attempt to offer some alternative to Russell's analysis and so I will call these criticisms 'constructive'. There are also a number of'negative' criticisms of the Russell-Quine position and I will begin with a brief discussion of these.

III. NEGATIVE CRITICISMS OF THE RUSSELL-QUINE SOLUTION

I will discuss the five possible criticisms of the Russell-Quine view. The first solution is suggested by Peter Geach. Geach is particularly critical of Quine's attempt to eliminate names by turning names such as 'Pegasus' into predicates. Geach maintains that although we can turn common nouns or descriptive phrases into predicates, we cannot do the same with proper nouns.[39] If he means to suggest that predicates like 'pegasizes' are not in common use he is surely correct. But then Quine nowhere claims that 'pegasizes' belongs to standard English, and in fact explicitly says that turning names into predicates is an artificial device, to be resorted to only if no suitable descriptive phrase suggests itself as a replacement for 'Pegasus'. But Geach's point seems to be a slightly different one. He says that existential sentences such as (4) don't work in the same way as ones such as (3) do. (4) amounts to saying 'Pegasus is not real' and is used "in order to point out the difference between factual and fictional statements. When I say to a child "Pegasus is not real like Iolo", I am referring to a difference, not between two horses, but between two ways of using proper nouns; "Iolo" is used for naming, and "Pegasus" just for telling a story".[40] But there are, similarly, two ways in which common nouns and descriptive phrases can be used. I can, for instance,

say to a child "Dragons are not real like horses". So the fact that there are two ways of using proper nouns cannot be used as a ground for claiming that they, unlike common nouns and descriptive phrases, can not be turned into predicates. Quine's claim that singular terms (descriptive phrases and names) are theoretically eliminable is the claim that their referential function can be taken over by the bound variables of quantification. Geach objects to this claim on the grounds that names and variables have different functions and that variables cannot be used for naming.[41] This may be so, but does not embarrass Quine's position. Quine's claim is not that variables are names or that they can be used for naming, but that names are "immaterial to the ontoligical issue".[42] For Quine it is the variables of quantification which are the vehicles of reference. In paraphrases like the ones that were offered for (3) and (4) Quine would say that "the burden of objective reference which had been put upon the descriptive phrase is now taken over by words of the kind that logicians call bound variables, variables of quantification, namely, words like 'something', 'nothing', 'everything'. These words ... do not purport to be names at all; they refer to entities generally, with a kind of studied ambiguity peculiar to themselves".[43] Quine's view that names are irrelevant to the ontological issue has been challenged by P.F. Strawson who believes that names are certainly part of the referential apparatus of language. I do not wish to enter this debate here, but it is clear that this issue is of importance in deciding whether paraphrases such as (4*) are to stand.[44]

A second possible criticism of the Russell-Quine position, recently advanced by J.K. Swindler, is that it cannot solve the paradox of non-being. The Russell-Quine position solves the problem regarding sentences containing non-denoting singular terms by relying on general terms for uninstantiated properties. But the notion of an uninstantiated property is a problematic

one, in as much need of justification as the notion of a non-denoting singular term. Swindler says:

> If nothing is Vulcan, then the property of being Vulcan is not possessed by anything. But then what is the ontological status of the property of being Vulcan? If the property of being Vulcan exists, then Vulcan exists; if Vulcan does not exist, then neither does the property of being Vulcan. There can be no such thing as an uninstantiated property, and the very point of denying Vulcan's existence is to deny that anything possesses the property of being Vulcan.[45]

Quine of course, would eschew all talk of properties and would deny that general terms stand for anything. Instead of talking about uninstantiated properties, he would talk about predicates being true of no objects. But in any case, it does not seem obvious that if the property of being Vulcan exists, then Vulcan exists (which is just another way of saying that there cannot be uninstantiated properties). But Swindler produces no arguments for this claim.[46] Moreover, one can concur with Swindler when he says that to deny Vulcan's existence "is to deny that anything possesses the property of being Vulcan" (although one may prefer to speak rather of objects failing to satisfy an open sentence). But it does not follow from this that there is no such property as the property of being Vulcan. Perhaps Swindler's point is that only those predicates which are <u>truly</u> predicable of things are to be countenanced. But Geach has an argument to show that this cannot be so.[47] Consider the sentence 'Einstein is not able to square the circle'. We cannot object to the use of the predicate 'is able to square the circle'

on the grounds that it does not truly apply to anyone. For it is precisely this fact which makes the above sentence true.

A third possible criticism can be abstracted from Eric Tom's book Being, Negation and Logic, where he presents an argument which is meant to show that we cannot escape the paradox of non-existence. And, if this is so, then in particular Russell's solution to the paradox cannot be successful. According to Russell, negative existentials are of the form '$\sim (\exists x)\, \emptyset x$'. But, says Toms, the "meaning of '$\sim (\exists x)\, \emptyset x$' is not made clear until we see that it requires the negation of every proposition of the form $\emptyset x$".[48] In other words, negative existentials of the form '$\sim (\exists x)\, \emptyset x$' require the truth of every negative singular proposition of the form '$\sim \emptyset x$'. Such negative propositions are true in virtue of corresponding to negative facts. And "the defining characteristic of a negative fact is the exclusion of the opposite positive fact i.e. its implication that the opposite positive fact does not exist".[49] But this brings us back to the notion of non-existence. Moreover, when we negate a proposition, what is negated is always an existence; what is negated "is the fact of the proposition's application to the facts".[50] And for Toms a fact is an existence. Toms' position is a difficult one to understand, so it may help to look at an example. Consider the negative existential

(7) Unicorns do not exist

Toms agrees that this means the same as

(8) Everything is not a unicorn

This, in turn, is equivalent to the (possibly infinite) conjunction

(9) *a* is not a unicorn, and *b* is not a unicorn,
and *c* is not a unicorn, and ...

where _a_,_b_,_c_, ... are all the individuals in the universe. Now every conjunct of (9) is a singular negative subject-predicate proposition, and hence each is rendered true by some negative fact. To say, for instance, that '_a_ is not a unicorn' is to say

(10) There is no fact '_a_ is a unicorn'

What we are doing in (10) is negating the fact '_a_ is a unicorn'. This fact must be an existence, since what is negated is always an existence. But then unicorns must exist, since '_a_ is a unicorn','_b_ is a unicorn',and so on, are all existences. Thus in order to deny the existence of unicorns, we must presuppose that they exist. The paradox of non-existence cannot be avoided.

I think that Toms is mistaken, and one way to demonstrate this is to show that he involves himself in an infinite regress (a charge which he is very fond of bringing against those who hold views opposed to his own). Notice that (10) is a negative existential, and so is equivalent to

(11) Every fact is not the fact '_a_ is a unicorn'

And this is equivalent to the (infinite) conjunction

(12) f_1 is not '_a_ is a unicorn', and f_2 is not '_a_ is a unicorn', and f_3 is not '_a_ is a unicorn', and ...

where f_1, f_2, f_3, ... are all the facts that there are. The first conjunct of (12) is then rendered as

(13) There is no fact "f_1 is '_a_ is a unicorn'"

This process would go on _ad infinitum_. We would need to appeal to an

infinite hierarchy of facts in order to explicate (10) and hence we could never fully explicate it. We could never exhibit the structure of the negative fact which is meant to act as verifier for the true negative proposition '_a_ is not a unicorn'. But if we can never exhibit the structure of this negative fact then we cannot say that what is negated is "an existence". We cannot conclude that '_a_ is a unicorn' is an existence. But then neither can we conclude that unicorns exist. Hence we are not forced to admit the existence of unicorns in our attempt to deny the existence of such beasts. I conclude that Toms' account of negative existentials is unsatisfactory, as it involves the infinite regress just outlined. Moreover, Toms cannot avoid this regress, since on his own admission negation is only to be explained in terms of non-existence, which in its turn is only to be explained in terms of negation. Perhaps Toms would not find this result surprising, given that he believes that "every negative proposition and every negative fact is self-contradictory"[51].

A fourth possible objection to the Russell-Quine position is that it requires that the quantifier '$\exists$' in (1*)-(6*) be read as 'there exists'. Reading the quantifier in this way begs the question against the Meinongian, who wishes to assert that there are objects that do not exist (the golden mountain, for instance). If one symbolises the Meinongian claim in the notation of quantification theory and reads '$\exists$' as 'there exists', the claim becomes the inconsistent one that there exist objects that do not exist. Terence Parsons therefore recommends that '($\exists$ _x_)' be read as 'something is such that ...' or 'there is at least one thing such that ...'[52] This does of course require that we distinguish between existence and being in some broader sense. And Qunie would simply reject this. He says: "This is no distinction of

of mine: I mean 'exists' to cover all there is, and such of course is the force of the quantifier".[53] It seems to me that this issue could very soon become deadlocked, with the Meinongians accusing the Russellians of a "prejudice in favour of existence" and the Russellians retorting that the Meinongians lack their "robust sense of reality". It is certainly true that the Russellian view is the more orthodox and widely held view, and, as Parsons remarks, this tends to throw the burden of proof on those who disagree with this view.[54] There is also the suggestion in Parsons' book Nonexistent Objects that something like a Kuhnian paradigm shift would have to occur in order for the Meinongian view to prevail over the Russellian one. At present, though, defenders of the Russellian view seem well able to cope with any 'anomalies', without needing to make too many ad hoc adjustments to their system. No crisis is yet in sight which might precipitate the overthrow of the Russellian view and result in its replacement by the Meinongian one.[55]

A fifth possible criticism of the Russell-Quine view is that the existence of 'free' logics show it to be untenable. The classical predicate logic accepted by Frege, Russell and Quine requires that every individual constant of the language denotes an object in the universe of discourse over which the quantifiers range. This is because the following are taken to be theorems of classical predicate logic:

(S) $(\forall \underline{x})\emptyset\underline{x} \supset \emptyset\underline{a}$ (Specification)

(P) $\emptyset\underline{a} \supset (\exists \underline{x})\, \emptyset\underline{x}$ (Particularisation)

If the logical truth of (P), for example, is to be preserved, then one has to assume that the singular terms which can replace 'a' in (P) refer only to existing objects. If one did not make this assumption, then the following

would be a substitution instance of (P):

If Sherlock Holmes is a man, then there exists a man

But then (P) would not after all be a logical truth. So classical predicate logic is not free of existence assumptions with respect to its singular terms. So-called 'free' logics (logics which are free of existence assumptions with respect to both their general and singular terms) reject both (S) and (P). In free logic the conclusion '$(\exists x)\ \emptyset x$' does not follow from '$\emptyset a$' alone, but only from '$\emptyset a$' together with 'a exists'. If one supposes that 'non-denoting singular term' means 'singular term which does not refer to an existent', then free logics countenance non-denoting terms.[56] But in order to accommodate such terms, free logic has to give up certain classical theorems, such as (S) and (P). The explanation in free logic as to why one can derive 'There exists a man' from 'John McEnroe is a man' but not from 'Sherlock Holmes is a man' is simply that 'John McEnroe exists' is true, whereas 'Sherlock Holmes exists' is false. Russell, on the other hand, who cannot countenance non-denoting terms, must explain this difference in some other way. His answer is that 'John McEnroe is a man' and 'Sherlock Holmes is a man' do not have the same logical form, as 'Sherlock Holmes' is not a logically proper name (assuming for the moment that John McEnroe *is* logically proper). Both free logic and Russell's theory of descriptions can account for the data, although they do so in different ways, the theory of descriptions by distinguishing between the grammatical and logical forms of certain sentences, free logic by abandoning certain classical theorems. So the existence of free logic does not by itself show that Russell's theory is mistaken. In any case, both free logics which are Russellian in spirit and some which are Meinongian inspired have been developed. As Karl Lambert

remarks: "Free logic ... does not imply, nor should it be saddled with, any particular ontological inclination. So far as ontic proclivities are concerned free logic is truly free".[57]

IV. KRIPKE AND DONNELLAN'S CRITIQUE AND THEIR ALTERNATIVE ACCOUNT

I have been discussing various merely 'negative' criticisms of Russell's view. My conclusion thus far has been that none of these shows Russell's account of negative existentials to be untenable. I turn now to a discussion of the recent and influential critique of Russell's theory of descriptions by philosophers such as Saul Kripke and Keith Donnellan[58]. It is important to give consideration to Kripke and Donnellan's views. Kripke has a number of telling criticisms which seem to indicate that the Russellian description theory is misconceived. If this is so, the Russellian escape from the paradox of non-being as it is applied to singular negative existentials is not available. The question then is how to give an alternative account of singular negative existentials which avoids the paradox. Kripke himself does not offer such an alternative account. However, Donnellan does, and so I briefly consider his alternative. Although Kripke's and Donnellan's accounts of singular sentences differ in some respects (Kripke's view is sometimes called the Causal Theory and Donnellan calls his own view the Historical Explanation Theory), I will for present purposes assume that theirs are accounts of a single view. What Kripke and Donnellan have to say about Russell's theory bears mainly on sentences containing names and descriptions, and so I will, for the present, confine my discussion to singular negative existentials. Moreover, Donnellan explicitly excludes sentences about fictional people, places and things from his discussion, and so will I for the present.[59]

Consider the following sentence:

(14) Homer did not exist

According to Russell 'Homer' is a disguised description, let us say 'the author of the *Iliad* and the *Odyssey*'. So on Russell's view, to assert (14) is to assert that there is no unique object which satisfies the open sentence '*x* is an author of the *Iliad* and the *Odyssey*'. Kripke's objection to this is that it could turn out to be false that Homer wrote the *Iliad* and the *Odyssey*. This discovery would not lead us to conclude that there never was such a person as Homer. After all, we are imagining that it may be true *of Homer* that he did not write the poems commonly attributed to him. Moreover, it could turn out that some other individual wrote the *Iliad* and the *Odyssey*. If Russell's account were correct, then it would follow that whenever we use the name 'Homer' we are really referring to this other individual. Kripke would prefer to say that we are referring to Homer; it is just that we hold certain false beliefs about him. Kripke's point is that the question of Homer's existence does not turn simply on whether or not some unique person wrote the *Iliad* and the *Odyssey*. Kripke's criticisms of course apply with equal force to the modified Russellian position, sometimes called the "cluster theory", held by John Searle.[60] According to Searle, a name does not abbreviate a single description, but rather a whole cluster of descriptions. These descriptions are the ones that the users of a language would (ideally) give in answer to the question 'To whom are you referring?' And the referent of the name would be the object (if any) which is the unique denotation of a sufficient but unspecified number of descriptions in such a cluster of descriptions. The question whether or not Homer existed becomes the question whether or not anyone uniquely fits some of a cluster of descriptions,

and (14) is true if there is not such unique individual. Kripke's objection is that our beliefs about Homer could turn out to be substantially false. It would not follow that Homer did not exist.[60a] These criticisms of the Russellian view certainly seem to be telling. Spelling out these criticisms in a little more detail may help to show exactly how Kripke thinks Russell's theory goes wrong.

Kripke is critical of the description theory of names whether it is understood as the view that (ordinary proper) names are synonymous with descriptions or as the view that the reference of a name is determined by a description or some set of descriptions. Kripke seems to think that Russell thought of names as synonymous with descriptions whereas Searle thinks of descriptions as merely fixing the reference of names. In fact, as Russell thought that descriptions are incomplete symbols with no meaning in isolation, it cannot be strictly correct to say that he thought of names as synonymous with descriptions. What he did think was that sentences containing names could be replaced by sentences containing descriptions and then analysed according to his theory of descriptions. The point of all this is that, according to Kripke, it is only if one regards descriptions as *synonymous* with names that one can claim that sentences such as (14) are to be analysed as suggested by Russell. For example, it is only if 'Homer' *means* 'the author of the *Iliad* and the *Odyssey*' that (14) can be analysed as

> (14*) There is no unique individual *x* such that *x* is an author the *Iliad* and the *Odyssey*.

However, if descriptions are thought of merely as fixing the reference of a name, then one can no longer claim to be giving an analysis of negative existentials such as (14). If we use 'the author of the *Iliad* and the

Odyssey' merely for fixing the reference of 'Homer', then we can go on to imagine a counterfactual situation in which that individual did not write the Iliad or the Odyssey. Moreover, this couterfactual situation would not be one in which Homer did not exist. Kripke says of the description theory: "If you give up the idea that this is a theory of meaning and make it into a theory of reference in the way that I have described it, you give up the advantages of the theory. Singular existential statements ... need some other analysis."[61] If Kripke is correct, then it seems that Russell must after all hold the synonymity version of the description theory. But this version of the description theory runs into all sorts of problems, Kripke thinks.[62] So whichever way we interpret Russell's theory, it is inadequate.

Kripke, as we have seen, is critical of the description theory as a theory of reference. He does not attempt to offer an alternative theory of reference, but merely sketches what he hopes is a'better picture' than that presented by the description theory.[63] Roughly, Kripke's view is that an object acquires a name (perhaps in some sort of baptismal ceremony) and this name is then passed on from link to link in some community of speakers. In order to determine who or what the referent of some name is, one has to trace the use of the name back through these various links in the causal chain until one reaches the object itself. Kripke admits that his picture does not offer a set of necessary and sufficient conditions of reference. Moreover, he admits that he has not succeeded in eliminating the notion of reference, as his view presupposes it. This is because when someone learns to use a name, he or she must intend to use the name with the same reference as the

account for sentences of the form of (14)? Presumably if (14) is true then there is no individual for this use of the name 'Homer' to be related to. We would be led to a version of the paradox of non-being if we said that (14) is true if the individual historically related to this use of the name 'Homer' did not exist. Homer would have to have existed in order for us to say truly that Homer did not exist. Clearly, then, the account that one offers for existential sentences has to be different from that offered for predicative sentences such as (15). Donnellan offers an account which depends on the notion of what he calls a 'block' in the history of the use of a name. He says: "When the historical explanation of the use of a name (with the intention to refer) ends in this way with events that preclude any referent being identified, I will call it a 'block' in the history".[67] Donnellan offers the following as an example: "Suppose the Homeric poems were not written by one person, but were a patchwork of the writings of many people, combined, perhaps, with fragments from an oral tradition. Suppose, further, that at some point in time an ancient scholar for whatever reasons ... attributed the poems to a single person he called 'Homer'. If this were the historical explanation of our saying, e.g., 'Homer wrote the _Iliad_', then the block occurs at the point at which this scholar enters the picture".[68] Having introduced the notion of a block, Donnellan then goes on to suggest a rule which gives the truth-conditions for negative existentials containing names. Donnellan stresses that the rule is not meant to offer an _analysis_ of such existentials. The rule he gives is as follows:

(R) If _N_ is a proper name that has been used in predicative statements with the intention to refer to some individual, then ⌜_N_ does not exist⌝ is true if and only if the history of those uses ends in a

block.[69]

Is Donnellan's account of negative existentials satisfactory, and is to to be preferred to Russell's account? Russell's account purports to offer an analysis of negative existentials, in the sense of revealing their logical form. It also purports to give such an analysis for every sort of negative existential, both singular and general.[70] Russell's account also applies uniformly to existentials containing both fictional and non-fictional grammatical subjects. On all these counts, Donnellan's proposal falls short. His account applies only to negative existentials containing names, it does not apply to discourse about fictional people , places and things, and he does not claim to be offering an analysis of negative existentials. On the other hand Russell's view, and Searle's extension of it, both have the unwanted consequence that we can know a priori that if Homer existed, then he did a good deal of the things that we commonly attribute to him. So both views have their disadvantages.

V. LINSKY'S ATTEMPT TO PRESERVE THE RUSSELLIAN VIEW.

Leonard Linsky attempts to defend the Russellian view, and I will examine his defence below. But first I wish to briefly discuss a case that seems to present difficulties for the Kripke-Donnellan view. Linsky discusses a case, which if it worked would constitute a counter-example to the Kripke-Donnellan claim that if the history of the use of a name can be traced back to some individual, then that individual is the referent of the name. Linsky asks us to suppose that our use of 'Aristotle' can be traced back to some illiterate Athenian. By some mistake or fraud the works of some little known Athenian philosopher have been attributed to Aristotle. According to the

Kripke-Donnellan view when we say "Aristotle said that all men by nature desire to know" we are actually referring to Aristotle, the illiterate Athenian and saying something false about him. Linsky on the other hand, wants to say that we are not referring to Aristotle, even if the history of our use of 'Aristotle' ends with him. We are really referring to whoever it is who wrote the works we attribute to Aristotle, and saying of him (whoever he is) that he said such-and-such. The name 'Aristotle' really functions for us like a description, perhaps 'the author of the work known to us as "Aristotle's Metaphysics", whoever that may be'. The history of the use of the name 'Aristotle' cannot be traced back to this philosopher and yet this is who we refer to when we use the name.[71] It seems to me that one can construe Donnellan's position in such a way as to avoid Linsky's purported counter-example. At some point in history Aristotle's name became wrongly associated, for one or another reason, with works of some philosopher and because of this many things subsequently attributed to him (for instance that he said that all men by nature desire to know) are false of him. However, this mistake can be seen in another light. Instead of seeing it as the wrongful association of a certain corpus of works to Aristotle, one can see it as the wrongful association of a name to the philosopher, call him Z, who in fact authored those works.[72] The name 'Aristotle' could then be seen as a 'corruption' of the name originally given to Z. On this view our belief, that Z was called 'Aristotle' prior to the time of the mistake, will be false. Taking this 'corruption' into account, the chain of uses of the name 'Aristotle' should end with the correct individual, namely Z. I do not think that this way of escaping Linsky's counterexample is entirely satisfactory as this kind of 'corruption' is not at all like cases that we would ordinarily describe as cases of names having been corrupted.[73] However,

I do not at this time wish to defend the Kripke-Donnellan view against counterexamples. I want instead to examine the feasibility of construing the Russellian view in such a way that it no longer has the unwanted consequence mentioned in the previous section (namely, that we can know *a priori* that if Homer existed he did a good deal of the things we commonly attribute to him).

A solution is to look at Russell's view in the way Linsky does. Linsky begins by considering something Wiggenstein said in the *Philosophical Investigations*. What Wiggenstein said was:

> If one says "Moses did not exist", this may mean various things. It may mean: the Israelites did not have a single leader when they withdrew from Egypt - or: their leader was not called Moses - or : there cannot have been anyone who accomplished all that the Bible relates of Moses - or: etc. etc. - We may say, following Russell: the name "Moses" can be defined by means of various descriptions ..... But when I make a statement about Moses, - am I always ready to substitute some *one* of those descriptions for "Moses" ? I shall perhaps say : by "Moses" I understand the man who did what the Bible relates of Moses, or at any rate, a good deal of it. But how much? Have I decided how much must be proved false for me to give up my propositions as false? Has the name "Moses" got a fixed and unequivocal use for me in all possible cases? [74]

On the basis of these remarks of Wiggenstein's, Linsky concludes that names as we ordinarily use them have no fixed meaning and so sentences such as (14) are vague and ambiguous. [75] This is because we have no fixed set of

descriptions that we associate with a name such as 'Homer'. This means that the question of Homer's existence is one to which we have no definite answer in advance. We are prepared to allow that many of our beliefs about Homer could be mistaken, but there would come a point at which we would no longer say that we hold many false beliefs about an actual person, but that there was no person who did such-and-such things.[75a] If it becomes important to decide whether or not Homer existed, we would have to disambiguate the name 'Homer', and we would do this by fixing on some description or cluster of descriptions to abbreviate it. Once our language has been thus regimented, the logical form of a negative existential such as (14) would be what Russell's theory says it is, namely (14*). In this regimented language it would be true that we would know in advance that if Homer existed, then he did such and such things. But this would no longer be an embarassing consequence of the Russellian view, but would be just as we would want it to be.[76] I tend to agree with Linsky on this issue. My conclusion is that Russell's analysis of negative existentials is still the best we have. The objections brought against Russell's position by Kripke and Donnellan seem to show that Russell's view is mistaken. It turns out that the mistake lies not so much with Russell's analysis as it does with our ordinary use of language. Once our language has been regimented Russell's analysis comes into its own.

VI. FICTIONAL DISCOURSE

I want to look now at the claim that Russell's account of negative existentials is inadequate because it cannot adequately deal with sentences about fictional people, places and things. On Russell's view any sentence containing a non-denoting singular term will turn out false. As remarked earlier, the sentence

(6) Pegasus is a winged horse

turns out false because nothing satisfies the open sentence '_x_ pegasizes'. But, we might wish to say, it does seem that (6) is in some sense true. There is surely some sense in which we would be correct to assert (6) and incorrect to say

(6_1) Pegasus is a winged cow.

But on Russell's account both are false.

One solution is to say that 'Pegasus' is indeed a name (and not an incomplete symbol) and that it refers to the fictional character Pegasus. Both (6) and (6_1) are predicative sentences. Moreover, (6) is true and (6_1) is false, just as our intuitions tell us. (6) is true in virtue of the fact that Pegasus features as a character in a certain story (the Pegasus myth) and the story says that Pegasus is a winged horse. The explanation of the falsity of (6_1) will be slightly more complex. If (6_1) is false then 'Pegasus is not a winged cow' is true. Now presumably the story nowhere explicitly says that Pegasus is not a winged cow. But this can be regarded as implicit in the story, because it is true that anything that is a winged horse is not a winged cow.[77] There will also be sentences such as

(6_2) Pegasus has a flea behind his left ear

which will have to be counted as neither true not false, because nothing the story says allows us to conclude either that (6_2) or its negation is true.[77a]

Now if we accept this account how are we to construe negative existentials

such as

(4) Pegasus does not exist?

If we admit that 'Pegasus' is a name which refers to a fictional character, must we not admit that there are objects that do not exist? There are some philosophers, for instance Terence Parsons, who would be willing to accept this conclusion.[77b] Fictional characters are among the objects that Parsons would say have being but do not exist. If this is so then asserting (4) does not involve us in the paradox of non-existence.

One thing which might incline us to accept Parsons' view is to note that we do seem to be prepared to make a distinction between failing to refer to anything and referring to something non-existent. Parsons imagines two conversations which purport to show that our reactions to cases of reference failure are different from our reactions to cases reference to the non-existent. These are such nice examples that I will quote them in full:

<u>Conversation 1</u>:

A. The man in the doorway over there looks pretty silly

C. But there is no man in the doorway over there.

A. (Looks again) Oh! I thought there was; I was wrong.

B. Does he look anything like your department chairman?

A. Who?

B. The man in the doorway over there.

A. There isn't any man there. I was mistaken about that.

B. Well, he doesn't exist, but he's there, isn't he?

A. (Exasperated) Look, I was talking about a guy who exists; that is I thought I was, but I was wrong, I wasn't talking about

anybody. I can't tell you what "he" looks like because there's no "he" to look like anything!

Conversation 2:

A. The unicorn I dreamed about last night looked pretty silly.

C. There are no unicorns.

A. So what?

C. Well, there aren't any unicorns, so there couldn't be any such thing as a unicorn you dreamed about last night. So "it" can't possibly have looked silly.

A. Come on, it's not a real unicorn, it's one I dreamed about.

B. Did it look anything like your department chairman?

A. No, actually it looked a little bit like my hairdresser.[78]

Conversation 1 is meant to be illustrative of how we react to cases of reference failure and conversation 2 of how we react to cases of reference to the non-existent. If this distinction can be maintained, and if fictional characters are admitted to the realm of non-existents, then (4) is not paradoxical. On Parsons' account names behave like descriptions and these in turn are treated in much the same way as descriptions in Russell's theory.[79] However, Parsons reads '$\exists$' as 'there is' and not as 'there exists', so in order to say that something exists one has to use the predicate term '$E!$' So on Parsons' account the logical form of sentences such as (4) will be identical to that of sentences such as

(16) Vulcan does not exist.

Both (4) and (16) will be true, but for different reasons. (4) is true because the object which is Pegasus does not satisfy the predicate '$E!$' and

(16) is true because there is no object which is Vulcan.

Other philosophers have suggested that the logic of (4) differs from that of (16). This seems to be the import of certain things Richard Cartwright says in his paper 'Negative Existentials'.[80] According to Cartwright there are two sorts of negative existential, the sort that is about fictional characters, for example (4) and

(1) Dragons do not exist

and the ordinary sort, such as (16) and

(2) Carnivorous cows do not exist.

Cartwright maintains that sentences such as (1) are really of the form 'Dragons are not real' and this is supposedly a predicative sentence and not a disguised quantificational sentence. 'Dragons are not real' in its turn means something like 'Dragons are mythical (legendary, imaginary) beasts'.[81] I do not think that there is any advantage in holding that negative existentials are of two sorts. Russell's view which regards all negative existentials as having the same logical form, is to be preferred. Moreover on Russell's view, just as on Cartwright's, it is true both that dragons do not exist and that dragons are mythical beasts.

It is useful, I think, to make a distinction between discourse <u>in</u> fiction and discourse <u>about</u> fiction. The account discussed above should be regarded as an account of discourse about fiction. It is because we are talking about fiction that we can say truly that Pegasus is a winged horse and that dragons have scales. Russell's analysis of sentences about fictional characters is

inadequate, and it may be that something like Parsons' account, which is ontologically committed to non-existent objects, is to be preferred. But all of this leaves open how we are to treat discourse in fiction. One possibility is to treat such discourse in the way John Searle does in his paper 'The Logical Status of Fictional Discourse'.[82] According to Searle, an author of a work of fiction pretends to perform certain illocutionary acts. What happens in ordinary discourse is that we have a set of rules correlating our words with the world. Now according to Searle, "the pretended illocutions which constitute a work of fiction are made possibly by the existence of a set of conventions which suspend the normal operation of the rules relating illocutionary acts and the world".[83] When someone tells a story he or she is not committed to the truth of what he or she says. When Conan Doyle writes: 'Sherlock Holmes did such and such' he is only pretending to refer to someone by his use of the name 'Sherlock Holmes' and he not be committed to the truth of what he says. It would not be appropriate to ask Conan Doyle what evidence he has for his claims. On the other hand when we say 'Sherlock Holmes was a detective' this is to be regarded as a stretch of discourse <u>about</u> fiction. We are not pretending to refer to someone when we use the name 'Sherlock Holmes' but are actually referring to a fictional character and we say something true in virtue of certain things Conan Doyle wrote. I do not wish to say that Searle's account of discourse in fiction is correct. I merely wished to point out that one must make a distinction between discourse in and discourse about fiction. Searle's is one possible account that one can give of fictional discourse.[84]

VII. CONCLUSION.

In this chapter I have discussed a number of accounts of negative existentials, with a view to determining whether they can deal with Parmenides' Paradox or not. My conclusion has been that Russell's account is the most satisfactory of the alternatives. An examination of a number of negative criticisms of Russell's view failed to show it to be untenable. Moreover, the rival accounts of negative existentials either do not have as much explanatory power as the Russellian one (as is the case with the Kripke-Donnellan alternative) or raise problems of their own (as is the case with the Meinongian alternative, which raises the difficult problem of commitment to non-existents). However, there is one area in which Russell's account runs into trouble, namely in his account of discourse about fictional objects.

My conclusion is thus that Russell's account of negative existentials is the best available, if one excludes sentences about fictional characters from consideration. Russell's account requires us to regard all sentences containing fictional names or descriptions as uniformly false, and all sentences containing general terms for fictional kinds as uniformly true. The result is counter intuitive and so we require some other account of discourse about fiction. I would favour the account given by Parsons in his Nonexistent Objects, on the grounds that it requires the least modification to the Russellian position. On Parsons' view sentences such as

(4) Pegasus does not exist

and

(6) Pegasus is a winged horse

still turn out to be quantificational sentences. The main difference between

Parsons' view and Russell's view is that Parsons' view is ontologically committed to non-existent objects. Such a departure from the Russellian view is less radical than abandoning this view in favour of the one suggested by Kripke and Donnellan. Moreover, Parsons' account still allows us to avoid the paradox of non-being. A sentence such as (4)(which is, incidentally, neither an example of discourse about fiction nor of discourse in fiction, but rather of discourse about actuality) is not paradoxical. Nor need one be committed on Parsons' view, as on Meinong's view, to the object Vulcan which does not exist but nevertheless has being.[85] Just as on Russell's view, one can without paradox assert that Vulcan does not exist.

CHAPTER 4

SOME LOGICAL AND LINGUISTIC PROBLEMS OF NEGATION

I. INTRODUCTION

In chapters two and three I made various assumptions that I now wish to examine. For instance, I assumed that 'not' (or 'it is not the case that') and its formal counterpart '$\sim$' are sentential operators; that is, that they attach to sentences to form new sentences. Every sentence in which 'not' occurs can be interpreted as an instance of sentential negation, the sentence negated being the sentence that would be yielded by dropping the 'not'.[1] The view that there is only one kind of negation operator has been challenged by various philosophers and logicians, who believe that there is another kind of negation, namely predicate negation.[1a,b] I wish to explore the plausibility and the consequences of maintaining that there is more than one kind of negation.

Also in accepting Russell's analysis of negative existentials, I implicitly assumed that his account of negative sentences such as:

(1) The King of France is not bald

is correct. On Russell's view such a sentence is ambiguous between the case in which the description has primary occurrence and that in which the description has secondary occurrence.[2] To put it another way, (1) is ambiguous between the reading in which the description operator is accorded the widest scope and the reading in which the negation operator is accorded the widest scope. These two readings could be represented as follows:

$$(2) \quad [(\imath \underline{x})K\underline{x}] \sim B(\imath \underline{x})K\underline{x} =_{df} (\exists \underline{z})[(\forall \underline{x})(K\underline{x} \equiv \underline{x} = \underline{z}) \,\&\, \sim B\underline{z}]$$

$$(3) \quad \sim [(\imath \underline{x})K\underline{x}] B(\imath \underline{x})K\underline{x} =_{df} \sim (\exists \underline{z})[(\forall \underline{x})(K\underline{x} \equiv \underline{x} = \underline{z}) \,\&\, B\underline{z}]$$

These are different because although (2) entails (3) the converse entailment does not hold. If (2) is true this is because there is a unique, extant King of France who fails to be bald. If (3) is true this could either be

because there is no King of France, or no unique King of France, or because a unique, extant King of France fails to be bald. Further, (2) entails that there is a unique King of France, whereas (3) does not. There is also a view, different from Russell's, which is couched in terms of the notion of presupposition rather than entailment. On such a view (1) will indeed be ambiguous between the case in which the 'not' has narrow scope (choice negation) and the case in which it has wide scope (exclusion negation). If 'not' is understood as narrow-scope (choice) negation then (1) presupposes that there is a unique King of France, but if 'not' is the wide-scope (exclusion) negation then there is no such presupposition. These two understandings of (1) might be called respectively its presuppositional and its non-presuppositional understanding.[3] Such a view is held by Lauri Karttunen. He thinks we should distinguish between two senses of 'not'. He says:

> As internal negation (choice negation), 'not' is a hole and lets through all of the presuppositions of the sentence it negates. The external 'not' (exclusion negation) is a plug that blocks off all of them.[4]

This view, that certain negative sentences are ambiguous, has recently been challenged by some philosophers and linguists, who believe instead that such negative sentences are semantically general or non-specific. I would also like to examine some of the issues raised by this debate.

II. PREDICATE NEGATION AND SENTENTIAL NEGATION

I will begin, then, with an examination of the view that classical sentence negation is not the only kind of negation there is. The orthodox view is that negation is a sentence operator. The negation operator '∼' is usually defined in elementary logic textbooks by means of the following truth-table:

p	∼p
T	F
F	T

Here '*p*' is a place-holder for any English sentence, and the most natural reading of '∼' is 'it is not the case that'. This understanding of negation as sentential negation is supposed to have originated with the Stoics.[5] As was

mentioned in Chapter 1, Aristotle had a rather different view. According to him there are two ways in which to form the negative of a sentence such as 'This is white'. One can either deny that the predicate 'white' applies to the subject, which yields the negative sentence 'This is not white', or one can negate the predicate 'white' itself and then affirm this negative predicate of the subject, which yields the negative sentence 'This is not-white'. Some philosophers have recently suggested that there are advantages to be had if we recognise two kinds of negation, namely sentential and predicate negation.[6]

G H von Wright, for instance, suggests that we distinguish between strong and weak negation. The strong negation of '_x_ is _P_' is 'It is the case that _x_ is not -_P_' and its weak negation is 'It is not the case that _x_ is _P_'. Strong negation is logically stronger than weak negation in the sense that the strong negation of a sentence entails its weak negation, but not conversely. Strong negation is an affirmation as well as a denial, whereas weak negation is merely a denial[7]. Moreover, the so-called law of excluded middle does not hold for a sentence and its strong negation, although it does hold for a sentence and its weak negation. It is not true that either it is the case that _x_ is _P_ or it is the case that _x_ is not -_P_, although it is true to say that either it is the case that _x_ is _P_ or it is not the case that _x_ is _P_. If it is not true to say that _x_ is _P_ it does not follow that it is true to say that _x_ is not -_P_, for _x_ may be neither _P_ nor not-_P_. This may be so for various reasons. For one, if _x_ does not exist, then there is no subject of which either the predicate or its negation could be truly predicated. Alternatively, the reason that neither the predicate nor its negation is truly predicable of a subject may be that neither is "naturally predicable" of the subject. An example will make this clearer. A stone is neither blind nor not-blind. To say of something that it is not-blind is to say that some predicate contrary to or incompatible with 'blind', for instance 'sighted', is true of that thing. But clearly such a predicate is not truly ascribable to a stone. However, it _will_ be true to say that a stone is not blind, and so it will be true to say

(4) seems to imply 'There is something that is not red') we would be leaving a good deal out of account by assigning such sentences to the realm of the meaningless. But why would we be leaving a good deal out of account? Would this be because once we thought of such sentences as meaningless they could no longer be deemed to have a use or stand in logical relations to meaningful sentences? Sentences which have a use would have to be treated as though they had no use. Perhaps Von Wright's argument should be understood rather as saying that because sentences such as (4) do have a use and do stand in logical relations to meaningful sentences, therefore they must themselves be meaningful. It is a mistake to regard them as meaningless. But this supposes that meaningless sentences cannot have a use or stand in logical relations to meaningful sentences. Is this so? Wittgenstein in the *Tractatus* seems to have believed that there are sentences, tautologies and contradictions for instance, which lack sense and yet are not non-sensical.[11] They have some sort of point, namely they show the formal and logical properties of language.[12] Other kinds of sentence which lack sense may also have some use.[13] H O Mounce in his commentary on the *Tractatus* has the following to say on this point: "Thus both the statement 'Logic can be stated' and the statement 'Logic cannot be stated' lack sense in that they say nothing about the world. But the latter has a point, not in relation to the world but in relation to what *other* people are saying; for example it may serve the function of putting an end to a certain type of confused talk, of which the former statement is an instance. Since in its own right the denial says nothing (i.e. represents nothing in the world) it becomes useless once it has served the function, once the confused talk has been brought to an end. So it may be thrown aside like a ladder."[14] If this is correct and sentences such as 'The number 7 is not red', 'Logic cannot be stated' and 'God cannot see the future directly' do have a use, then it seems as though there are examples of meaningless sentences which have a use. It would then be a mistake to argue that meaningless sentences cannot have a use. But *are*

these examples of meaningless sentences? We can, simply reaffirm the view that they cannot be meaningless if they have a use. The problem is that we need a criterion for deciding whether or not a sentence is meaningless which is independent of whether or not the sentence has a use. Until we have such a criterion we cannot decide whether Von Wright is correct in arguing that the meaningful-meaningless distinction should be abandoned.

III. ARGUMENTS AGAINST PREDICATE NEGATION

Von Wright would like us to give up the trichotomy true-false-meaningless and put in its place the new trichotomy true-false-not true.[14a] So far we have been given no adequate reasons for abandoning the true-false-meaningless trichotomy. Moreover, there are disadvantages in accepting the true-false-not true dichotomy. The first is that it requires us to accept a new kind of negation, namely predicate negation, and there are a number of reasons for not wanting to accept a second kind of negation. Another is that if we accept predicate negation we would be forced to admit that there are exceptions to the law of excluded middle; for example, on Von Wright's view it is neither the case that the number 7 is red nor the case that the number 7 is not-red.[15] I will discuss each of these problems in turn.

One possible objection to predicate negation, one already mentioned in Chapter 1 in connection with Plato's views, is that a predicate and its negation are not equally well defined. This was David Wiggins' point.[16] If we allow that a predicate determines a class, we can put the point by saying that a class and its unrestricted complement are not equally well defined. P T Geach thinks that this is incorrect. His view is that a predicate and its negation are equally definite, equally well defined. He makes this point in the following way: "A predicate may be represented by a closed line on a surface, and predicating it of an object be represented by placing the point representing the object on one or the other side of this line. A predicate and its negation will then clearly be represented by one and the

same line; and there can be no question of logical priority as between the inside and the outside of the line, which inseparably coexist."[17] Geach goes on to remark that if one imagines the line drawn on a plane then there will indeed be a difference between the limited and definite area within the line and the unlimited and indefinite area outside of it. The drawings below illustrate this:

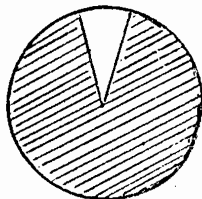
But we should not be misled by this feature of the representation into thinking that therefore a negative predicate, unlike an affirmative one, is somehow indefinite and unlimited. If we imagine the line drawn on the surface of a globe, instead of on a flat surface, then we will be less inclined to think of a negative predicate as unlimited and indefinite. In any case, it is not clear that negative predicates, as Von Wright conceives of them, are unlimited. To predicate 'not-red' of something, for instance, is to say of it that it has some colour other than red. That is, to say

(5) My ball is not-red

is to say, in effect,

(6) My ball is green or blue or yellow or ....

The dots here are dots of laziness. There are only finitely many different colours, and if I had the patience I could complete (6).[18] Colours form what P F Strawson has called an "incompatibility range".[19] When we say that something is not-red we mean to say that some predicate in the same incompatibility range as 'red' but outside the boundaries of 'red' applies to that thing. Strawson's point can be elaborated as follows: let us represent the incompatibility range of colours, or "colour-space", by a disc and the predicate 'red' as a sector of this disc. Then (5) can be represented by the following diagram:



Here the shaded area indicates the region of colour-space to which my ball belongs. (5) is just as affirmative as is 'My ball is red'. In fact, Von Wright calls strong negations "negative affirmations" or "minus-affirmations".[20]

If negative predicates cannot be faulted on the grounds that they are undetermined are there any other objections to the notion of predicate negation? Russell suggests the following argument in 'The philosophy of logical atomism'.[21] If in (1) above we took the 'not' to attach to the predicate, yielding the negative predicate 'not-bald', then (1) would have to be considered false, as there is no present King of France. But 'The present King of France is bald' is false and so its negative should be true. This will not be so if one takes the 'not' to apply to the predicate. It is only true if the 'not' attaches to the whole sentence. Therefore the proper form of the negative is sentential negation. If one requires of a negation operator that it always yield a sentence which has the truth value opposite to that of the sentence upon which it operates, then it would follow that 'not' should not be interpreted as an operator on predicates.[21a] Now Russell's and Von Wright's views differ in one important respect. Whereas Russell would regard a sentence with an empty subject term as false, Von Wright would regard such a sentence as merely not true (because '*x* is *P*' is false if and only if '*x* is not-*P*' is true). For Von Wright, neither the weak nor the strong negation of such a sentence would yield a truth-value opposite to that of the unnegated form. The differences between Russell's and Von Wright's views are summarised in the following table:

	RUSSELL		VON WRIGHT	
The present King of France is bald	Narrow-scope negation	F	Strong negation	~T
The present King of France is not-bald		F		~T
The present King of France is bald	Wide-scope negation	F	Weak negation	~T
It's not the case that the present King of France is bald		T		T

If we accept that a negation must yield an opposite truth value, then neither the strong nor the weak negation of a sentence containing an empty subject term, understood in Von Wright's way, could be regarded as a genuine instance of negation. Similar remarks would apply to the strong and weak negation of category mistaken sentences, such as 'The number 7 is red'. Accepting this restriction on a negation operator amounts to accepting only contradictory negation. But why should we accept such a restriction? There seems to be no reason against regarding both 'Not all lions are dangerous' and 'All lions are not dangerous' as negative forms of 'All lions are dangerous'. The former is the contradictory negation and the latter the contrary negation of 'All lions are dangerous'. Frege seems also to have favoured contradictory negation. He says:

> The negative word or syllable often seems to be more closely united to part of the sentence, e.g. the predicate. This may lead us to think that what is negated is the content, not of the whole sentence, but just of this part. We may call a man uncelebrated and thereby indicate the falsity of the thought that he is celebrated... we are not here just negating the sense of a word... it is by combining the negative syllable with a part of the sentence that we do negate the content of the whole sentence. That is to say: in this way we get a sentence in which there is a thought contradicting the one in the original sentence.[22]

Although 'He is celebrated' and 'He is uncelebrated' may form a contradictory pair, it is not always the case that attaching a negative prefix to a predicate yields a sentence contradicting the original sentence. Consider the pair 'He is wise' and 'He is unwise'. These seem to be contraries rather than contradictories, in the sense that they could not both be true, though they could both be false. There is, however, a difference between the pairs:

A.(i) He is wise

(ii) He is unwise

B.(i) All lions are dangerous

(ii) All lions are not dangerous

The only way in which we could represent A.(ii) in symbolic notation without turning it into the contradictory of A.(i) is to recognise a second negation operator besides the classical sentential operator '$\sim$'. This second negation

would operate on predicates to form negative predicates. We could represent the negation of a predicate 'F' as '$\bar{F}$'. We might then represent A.(ii), letting 'W' stand for 'is wise', as[23]

A.(iii) $\bar{W}\underline{a}$

On the other hand, we need not recognise a second negation operator in order to represent B.(ii). This can quite straightforwardly be written as:

B.(iii) $(\forall \underline{x})(L\underline{x} \supset \sim D\underline{x})$

where 'L' stands for 'is a lion' and 'D' for 'is dangerous'.[24] So, contrary negation does not coincide with predicate negation. Thus, although Frege and Russell were mistaken in recognising only contradictory and not contrary negation, this does not show that they should have recognised a second negation operator besides the classical sentential operator '$\sim$'. However, one point has emerged in favour of the notion of predicate negation. This is that it is needed in order to account for the difference between A.(ii) and 'He is not wise'. To summarise my conclusions so far: I have found no good arguments against the notion of predicate negation and one fairly strong argument in its favour. I turn now to the second problem for Von Wright's theory of negation, namely that if we accept predicate negation this requires us to countenance exceptions to the law of excluded middle.

One response is to say that this is no objection because the view which holds (4) to be meaningless must similarly admit exceptions to the law of excluded middle. However, philosophers who hold that (4) is meaningless are likely to say that this is so because 'is not red' is not significantly predicable of numbers, only of those things that are capable of having some colour other than red. In other words, coloured things and numbers belong to different types. And following P T Geach these philosophers could say:

> recognizing a type-distinction is always a way of <u>disallowing</u> exceptions to the Law of Excluded Middle; it does <u>not</u> commit us

> to answering some questions with a third answer on a level with "yes" and "no", but rather entitles us to tell the people who ask them to shut up - perhaps before the question is well out of their mouths.[25]

Another way of showing that calling (4) meaningless does not commit one to admitting exceptions to the law of excluded middle is to appeal to F Sommers' notion of "levels of rectitude".[26] A linguistic sequence may be correct or incorrect in various ways. It may be grammatical or ungrammatical, category correct or category mistaken, consistent or inconsistent, empirically true or false. These various ways of being correct or incorrect form a hierarchy and if a sequence is incorrect at any level then it must be correct at all lower levels but neither correct nor incorrect at any higher levels. For instance, if a sequence is category mistaken, then it must be grammatical, but if a sequence is ungrammatical then the question whether it is category correct or mistaken cannot even arise. Similarly, if a sequence is category mistaken, then it is neither consistent nor inconcistent and also neither true nor false. The rules that we have for determining whether a sequence is consistent or not are logical rules. So logical rules can only apply to sequences that are category correct. Thus logical laws, such as the law of excluded middle and the law of non-contradiction, do not apply to category mistaken sequences, and so it does not make sense to say that category mistaken sequences constitute an exception to such laws.[27] So defenders of what Von Wright calls the "Russellian trichotomy" do not have to countenance exceptions to the law of excluded middle, whereas Von Wright himself does have to recognise such exceptions. There can be no objection as such to logics in which '$\underline{p} \vee \sim \underline{p}$' is not a law. In fact, many such logical systems have been developed, for instance the three-valued logic of Łukasiewicz and the intuitionistic logic of Brouwer and Heyting. The objection to Von Wright's three-valued logic with strong and weak negation is not that it requires us to abandon the law of excluded middle. Rather, the objection is that so long as we can account for all the same data that Von Wright can, but without abandoning the law '$\underline{p} \vee \sim \underline{p}$', then we should take the more conservative

course which retains as many of the classical logical laws as possible.

Von Wright's claim that we need to recognise two kinds of negation seems unwarranted. We can make the same kind of distinctions that he does, but without having to give up the law of excluded middle and without having to defend the notion of predicate negation. However, it was suggested that a language containing only sentential negation would be inadequate for expressing certain negative sentences, and if this claim could be substantiated, this would strengthen the claim that we need to recognise two kinds of negation.

IV. FURTHER EVIDENCE THAT SENTENTIAL NEGATION IS INADEQUATE

The question now is whether or not a system which contains only classical sentential negation can account for as much as a system with two distinct negation operators. We have already been given some reason to think that predicate negation is required if we are to be able to correctly represent the relations that hold between sentences such as A.(i) and (ii). Further suggestions that sentential negation is inadequate come from Leo Apostel in his paper 'The relation between negation in linguistics, logic and psychology'.[28] Apostel's starting point is to show that classical sentential negation is inadequate for drawing fine distinctions between certain negative sentences in English. Consider, for example, the following sentences.[29]

(i) Albert is ill (6)

(ii) It is false that Albert is well (2)

(iii) It is true that Albert is not well (5)

(iv) Albert is not well (1)

(v) It is not the case that Albert is well (4)

(vi) It is not true that Albert is well (3)

(vii) It is not false that Albert is not well (7)

Apostel suggests the following transcriptions for the sentences (i) to (vii) respectively:[30]

(a) $Q(a)$

(b) $F(P(a))$

(c) $T(\sim P(a))$

(d) $\sim P(a)$

(e) $\sim [(E!x)(x=P(a))]$

(f) $\sim T(P(a))$

(g) $\sim F(\sim P(a))$

Here 'Q' stands for 'is ill', 'P' for 'is well', 'E!' designates strong existence and 'x' is a variable ranging over states of affairs. 'T' and 'F' stand for 'true' and 'false' respectively. Now, if we accept that a sentence is true if and only if it is not false, and if we accept that to assert a sentence is equivalent to asserting that the sentence is true, then with the exception of (a) and (e) all the above reduce to '$\sim P(a)$'. Further, if we accept that 'ill' means 'not well', then (a) similarly reduces to ' P(a)'. In other words, once we transcribe the sentences (i) - (vii) in the manner suggested any differences between them disappear. The differences that we observe in (a) - (g) are merely typographic. If we grant that the various equivalences mentioned above hold good, then even these typographic differences disappear.[31]

Now it is precisely this lack of difference between the sentence forms (a) - (g) which causes Apostel to say that classical sentence negation is inadequate for representing the sentences (i) - (vii). The reason is that he thinks that there are subtle differences in the meanings of (i) - (vii). These sentences could be ordered on a scale with the strongest assertion of Albert's illness at the top end. Then (i) would be at the top end of the scale and (vii), being the weakest assertion, would be at the bottom end. As Apostel says: "The scale ..... is obviously a pragmatic scale drawing upon the context and the presuppositions of

the assertions in question ... We ask ourselves in what circumstances such sentences might be produced, to what questions they might be answers, what claims they might be denials or confirmations of, and having asked those questions we come to the order proposed."[32] Once the translation into symbolic notation has been effected no differences in meaning remain. Apostel's conclusion is that "only a pragmatic analysis of negation will do justice to the porperties of the operator used in the vernacular."[33]

This is surely not the only conclusion we can draw form the linguistic data. Another alternative is to introduce further negation operators into our formal language, which do allow us to exhibit the subtle differences in meaning that we detect in (i) - (vii). In fact, this is an alternative that Apostel himself considers, and he argues that such a supplementation of classical logic is indeed needed.[34]

V. IS A PRAGMATIC ACCOUNT OF NEGATION NEEDED ?

The question whether we need to give a pragmatic account of negation is an interesting one, which I will now explore. Apostel offers the following in support of the view that a pragmatic analysis of negation is necessary. Consider the sentence:

(7) John is not going to New York with his motor car today.

Depending on what one takes the scope of the 'not' to be, (7) can be understood in several different ways:

(8) John's not going to New York with his motor car today.
(It's Peter who's going).

(9) John's not going to New York with his motor car today.
(He's going to Boston).

(10) John's not going to New York with his motor car today. (He's flying instead).

(11) John's not going to New York with his motor car today. (He'll go tomorrow instead).

(12) John's not going to New York with his motor car today. (He's coming from there).

(13) John's not going to New York with his motor car today. (He's staying here in Washington).

(14) John's not going to New York with his motor car today. (He's already in New York).

There may be other understandings besides these ones.[35] If we represent 'John' as 'J' , 'New York' as 'N' , John's motor car as 'M', 'today' as 'T' and 'to go to' as 'R', then we might represent what Apostel calles the "global negation" by:

(15) $\sim R(J,N,M,T)$

Apostel suggests that we might paraphrase the "local" negation (8) as 'The person going to New York in his motor car today is not John'. And this suggests the following transcription, where 'ι' is the iota operator:

(16) $\left[(\iota \underline{x})\ R\ (\underline{x},N,M,T)\right] \neq J$

In a similar manner we can represent (9) - (12) respectively as:

(17) $\left[(\iota \underline{y})\ R\ (J,\underline{y},M,T)\right] \neq N$

(18) $\left[(\iota \underline{z})\ R\ (J,N,\underline{z},T)\right] \neq M$

(19) $\left[(\iota \underline{t})\ R\ (J,N,M,\underline{t})\right] \neq T$

(20) $\left[(\iota \underline{v})\ \underline{v}\ (J,N,M,T)\right] \neq R$

(20) suggests that John's action is merely different from going, but that it is nevertheless some other kind of doing that takes place today and to which New York and John's motor car are somehow integral. Thus (20) cannot be used to represent either (13) or (14). In these sentences what is negated is not simply John's going, but his going to New York

today. if John stays put in Washington then his action or (or inaction) is not something that involves New York (as does (20)), except that it can be described inter alia as being one of not going to New York. But then it is also truly describable as being one of not going to Boston, or Tokyo, or Helsinki or ... Similarly, if John is already in New York, then nothing he does today can be described as going to New York. And the only sense in which New York is involved in his actions is that all his actions take place there.[36] Moreover, John may not use his car at all today, so that his motor car is not integral to any of the actions performed by him today. The best representation that we could give of (13) and (14) might be (15). We would then have to rely on contextual features in order to determine how these were to be understood. This does not of course embarass Apostel's position, but in fact lends support to his view that only a pragmatic account can do justice to negation in ordinary language.

As regards (8)-(12), Apostel's position is that in order to represent these we need more than classical first-order functional logic with identity. We need to operate with a higher-order functional logic (see (20) above) and we need the iota operator. We do not need to recognise any other negation operator besides sentential negation, however. But we do need to supplement our logic with pragmatic rules in order to account for the difference in scope that 'not' in (7) has in different contexts. Apostel says that each of the local negations (16) - (20) implies the general negation (15) and that (15) implies the disjunction of (16) - (20). In order to decide which understanding is appropriate on a particular occasion, we have to have some kind of rule which would select one of them[37]. One such rule might be:

> (R_1) The negation is applied to the part of the sentence most heavily stressed.

Then if (7) were uttered with the stress on 'John' we would understand it as (8) and we would represent it by (16). Another suggestion of

Apostel's is that we look at the question (if any) to which (7) is the answer. If, for example, the question was 'Where does John go with his motor car today ?', then we would understand (7) as (9) and (17) would be the appropriate representation. This is not a very good suggestion as (7) is most unlikely to occur as the answer to a question.[38] (R_1) might not be very helpful either if, for example, (7) were uttered without any special stress. Apostel's suggestion is that if there is no internal or external indictor present (e.g. stress pattern or a preceding question) to help us determine the scope of the negation, then we should use the following pragmatic rule:

(R_2) Every sentence must be interpreted as having maximal content.

The negation of a sentence expressing some action will have maximal content if only the least important element of the action description falls within the scope of the negation. The components of an action are ordered in a heirarchy as follows, beginning with the most important: actor, aim, means, conditions. If all these components are specified in the action description, then, in the absence of internal and external indicators, the negation operator is taken to apply just to the conditions under which the action is performed, the other components of the description remaining unnegated. So, in the absence of internal and external indicators, application of (R_2) to (7) would yield (11) and so would be represented by (19).

Chomsky would probably endorse Apostel's (R_1), as he recognises that the interpretation of the scope of negation depends upon stress assignment.[39] Most linguists would agree that in negative sentences contrastive stress singles out the stressed item for inclusion within the scope of the negation.[40] In each of the following it is the stressed item which is negated:

(8') Jöhn's not going to New York in his motor car today

(9') John's not going to New Yörk in his motor car today

(10') John's not going to New York in his motor car today

(11') John's not going to New York in his motor car today

(12') John's not going to New York in his motor car today

Chomsky would like to go further and link the scope of negation with normal stress assignment. On Chomsky's view, the scope of the negation can include any phrase which contains the intonation centre. Thus in the case of (7) the normal final stress assignment would make 'today' the intonation centre. So according to Chomsky, any phrase containing 'today' could fall within the scope of the negation. This would rule out (8), where the scope of the negation is restricted to the subject, as 'John' is not a phrase containing the intonation centre. Ruth Kempson objects to this consequence of Chomsky's view, on the grounds that "the full range of scope possibilites is available with normal stress assignement, and this range cannot be predicted by considering the phrase containing the intonation centre".[41] Kempson may be correct. There probably are circumstances in which each of (8) - (14) is a possible interpretation of (7), when this has the normal final stress assignment. But these certainly would not all be natural interpretations. Another consequence of Chomsky's view is that the smallest possible item that can fall within the scope of negation is the lexical item. Kempson objects to this consequence as well, on the grounds that the scope of negation can be restricted to just one component of a lexical item. Consider the following:[42]

(21) John wasn't running - he was quite still

(22) John wasn't running - he was walking.

In (21), the whole lexical item 'run' is included in the scope of the 'not'. In (22) the motion component of 'run' is unnegated, and only the motion type falls within the scope of the negation. Apostel would probably side with Chomsky rather than Kempson on the issue of stress assignment and scope. However, Apostel and Kempson both emphasise the importance of pragmatic considerations.

VI. NEGATION AND AMBIGUITY

A more interesting issue is whether or not Apostel would regard (7) as ambiguous. The fact that he offers (16) - (20) as representations for the various possible "local" negations suggests that he does regard (7) as ambiguous. At least, this would be so if he thought of (16) - (20) as logical forms or underlying semantic structures. It is quite a common view to think that some negative sentences are ambiguous and that differences in the scope of the negation can account for the ambiguity. Consider:

(23) Everyone did not show up.

This can be understood in either of the following two ways:

(24) Not everyone showed up

(25) No one showed up

In (24) the negation has the widest scope, whereas in (25) the quantifier has the widest scope. This becomes clearer if we represent (24) and (25) in the notation of quantification theory as follows:

(26) $\sim(\forall \underline{x})$ ($\underline{x}$ showed up)

(27) $(\forall \underline{x}) \sim$($\underline{x}$ showed up) [42a]

Another putative example of an ambiguous sentence, whose ambiguity is attributable to differences in the scope of the negation is [43]

(28) The target was not hit by many of the arrows.

Its two readings are:

(29) Not many of the arrows hit the target

(30) Many of the arrows did not hit the target

One could multiply the examples, but these should suffice to make the point. Although these examples may convince one that 'not' does induce scope ambiguities in some contexts, it seems much less plausible to claim that a sentence such as (7) is multiply ambiguous. Now Apostel makes various claims which would indicate that he does not hold such sentences to be ambiguous , but rather to be general .

As already mentioned, he holds that the general negation

(15) $\sim R(J,N,M,T)$

is implied by each of the "local" negations (16) - (20) and that it implies the disjunction of (16) - (20).[44] Which member of the disjunction is appropriate in any particular circumstance is determined by pragmatic features. This view is similar to the one held by Ruth Kempson, who explicitly claims that negative sentences are general or non-specific. According to Kempson, a negative sentence is represented by a disjunction of the negations of each of the components which go to make up the sentence which is negated.[45] An example will make this clearer. The sentence 'A boy ran to his mother' is true if and only if the world is as the sentence say that it is. It will be true, in other words, if it is the case that a male, non-adult human went with a fast motion to someone who was female, adult and a parent of his. Now the negative sentence 'A boy did not run to his mother' will be true if any one of the conditions for the truth of 'A boy ran to his mother' is not met. As Kempson says: "A negative sentence is used to assert that that the corresponding positive sentence is false. But _A boy ran to his mother_ can be false for any one of several reasons - either someone ran to their mother, but not a boy, or a boy went to his mother but did not run, or a boy did something but not run anywhere, let alone to his mother, etc., etc .... Thus what the negation rule states is all the possible ways in which the corresponding positive sentence could be false"[46]. A negative sentence is general rather than ambiguous in the sense that it has only one (disjunctive) reading. It is true if any one of the disjuncts, or some set them, is true. It is general because it is not specified which of the disjuncts actually holds.

VII. GENERALITY AND AMBIGUITY

There are various tests that have been devised by linguists in order to determine whether a sentence is general or ambiguous.[47] Kempson thinks that the application of one of these tests shows that negative sentences are general rather than ambiguous. The test Kempson considers is the so-called conjunction test discussed by G. Lakoff.[48] Consider the following sentence:

(31) John likes visiting relatives and Harry likes visiting relatives.

Each of the conjucts in (31) is ambiguous in two ways, so that the whole sentece is ambiguous in four ways. Applying what is known as verb-phrase pronominalisation to (31) yields:

(32) John likes visiting relatives and Harry does too.

(32) is not ambiguous in four ways but only ambiguous in two ways. Two of the possible readings are disallowed, namely the crossed readings. One could not say (32) and mean 'John likes going to visit relatives and Harry likes relatives who come to see him.' Consider now the sentence:

(33) John wasn't running and Harry wasn't running.

If each of the conjuncts in (33) were ambiguous in many ways, we would expect that verb-phrase pronominalisation would rule out all the crossed readings. In otherwords, if (33) were ambiguous we should not be able to say,[49]

(34) John wasn't running and Harry wasn't either; John was standing still and Harry was walking.

Since (34) is acceptable, this is evidence for the view that negative sentences are general rather than ambiguous. I will discuss this test in more detail when I discuss those sentences, such as (1) above, which are said to be ambiguous between a presuppositional and a non-presuppositional interpretation. I will for the moment suppose that negative sentences

such as (7) and (33) are general rather than ambiguous.

I want now to examine the question of generality as opposed to ambiguity with respect to a special class of negative sentence. As I noted at the beginning of the chapter, Russell was committted to the view that sentences such as (1) are ambiguous between a wide scope and a narrow scope reading for the negation. The presuppositionalists, whose views differ from Russell's, also hold that sentences such as (1) are ambiguous. They believe that (1) has both a presuppositional and a non-presuppositional reading. They do not believe that the ambiguity is merely one of scope (a structural ambiguity), but rather that the ambiguity is a lexical one involving two different negation operators. (Such a view is espoused in the passage from a paper by Lauri Karttunen quoted earlier in this chapter). The non-presuppositional reading involves sentential (external or exclusion) negation whereas the presupposional reading involves predicate (internal or choice) negation. I want here to examine the arguments advanced by Jay Atlas against the presuppositionalists. It is Atlas' contention that sentences such as (1) are general or non-specific rather than ambiguous.[50]

There are two sorts of negative sentence that are said to involve presuppositions, namely those containing definite noun phrases, such as 'the King of France' and those containing factive verbs such as, 'regret', 'realise', 'be angry'. Consider the following two sets of sentences:

(35)(a) The King of France is not wise

(b) It's not true that the King of France is wise

(c) The King of France is non-wise

(d) The King of France is wise

(e) The King of France exists

(36)(a) It did not bother John that Fred laughed

(b) It's not true that it bothered John that Fred laughed

(c) That Fred laughed did not bother John

(d) It bothered John that Fred laughed

(e) Fred laughed

The (b) sentences are the non-presuppositional readings of the supposedly ambiguous (a) sentences. The (c) sentences are the presuppositional readings. The (c) sentences entail the (b) sentences, but not conversely. Both the (c) and the (d) sentences, but not the (b) sentences, entail the (e) sentences. I will examine Atlas' claim that (35)(a) is general rather than ambiguous in some detail. Exactly the same arguments apply to (36)(a). Thus whatever conclusions are reached regarding the former will apply equally to the latter.

Atlas proposes to show that (35)(a) is general by appealing to the ambiguity tests proposed by Zwicky and Sadock.[51] As I noted (35)(c) entails (35)(b), but not conversely. The same is true of what Zwicky and Sadock call "privative opposites". For example, 'dog' meaning 'male canine' and 'dog' meaning 'canine' are privative opposites with respect to gender. The more specific expression 'male canine' entails the more general 'canine', but the converse entailment does not hold. If 'dog' is a genuinely ambiguous expression, then we should be able to assert the general case and deny the specific case without involving ourselves in contradiction. And, indeed, the following is not contradictory if the first occurrence of 'dog' is taken to mean 'canine' and the second occurrence is taken to mean 'male canine':

(37) That's a dog, but it isn't a dog.

Just as 'male canine' entails 'canine' but not conversely, so does (35)(c) entail (35)(b), but not conversely. We saw that we could assert

'canine' and deny 'male canine' without contradiction. If we could similarly assert (35)(b) and deny (35)(c) without contradiction, this would show that (35)(a) is ambiguous between a presuppositional and non-presuppositional reading. If (35)(a) is genuinely ambiguous, then we should find the following acceptable:

(38) It's not the case that the King of France is wise, but the King of France is not non-wise.

Atlas finds (38) "semantically out-of-bounds" and concludes that this is evidence for (35)(a) being non-ambiguous.[52] However, as Atlas remarks, 'non-wise' has a tendency to be read as 'definitely stupid', in which case (38) would be semantically acceptable to some speakers. Thus Atlas suggests we replace (38) by:

(39) The King of France is not wise and it's not even the case that the King of France is wise.

Atlas finds (39) anomalous "which it ought not to be if the negative sentence were ambiguous and took its narrow - scope reading in the first clause"[53]. In fact, (39) will not do as a replacement for (38). If the first clause takes its narrow - scope reading then (39) becomes 'The King of France is non-wise and it's not even the case that the King of France is wise'. But the whole point of this particular test is to see whether we can without contradiction deny the presuppositional reading while at the same time asserting the non-presuppositional one. Thus we should take the first clause of (39) in its narrow - scope form and <u>deny</u> it. This yields 'The King of France is not non-wise and it's not even the case that the King of France is wise.' It is hard to see how this differs from (38) which, we noted, might be semantically acceptable to some speakers. However, I think that it is possible to find a reading of (38) that <u>is</u> semantically anomalous. To see this note that the second clause of (38) is of the same form as (35)(a) and so it too must have a wide - scope and a narrow - scope reading. We can divide (38) into two parts:

A. It's not the case that the King of France is wise, but it's not the case that the King of France is non-wise.

B. It's not the case that the King of France is wise, but the King of France is non-non-wise (=wise)

A. seems acceptable to me, but B. is not. However, the anomalousness of B. does not show that (35)(a) is general rather than ambiguous. The reason is that in order to arrive at B. we have to take the second clause of (38) in its narrow - scope reading. But to simply assume that this is the only acceptable reading is to beg the question at issue. The advocate of the ambiguity view could retort by saying that A. is the only acceptable reading, simply because it supports his view. This test, then, is inconclusive.

Another test that Atlas considers is the test of 'semantic differentia'.[54] By this test, if the difference in the various understandings of a sentence is not very great, then this points towards the sentence being general rather than ambiguous. That is, if a sentence has two understandings which are relatively similar and these understandings differ only in that the one understanding is specified for some feature while the other understanding is unspecified for this feature, then the sentence will be general. Atlas thinks that this is the case with regard to the two understandings of (35)(a). While (35)(c) is specified for the feature 'factivness', (35)(b) is unspecified for this feature, just as personal pronouns in English are unspecified for the age of the referent. Moreover, the difference between the two undertandings (35)(b) and (35)(c) is not as great as the difference between the understandings of a clearly ambiguous sentence such as:

(40) They saw her duck.

Also, there is a similarity between (35)(b) and (35)(c) which is more compelling than any difference between them. Suppose we could compile a list of all the wise individuals. Then the absence of the King of

France from the list would make both (35)(b) and (35)(c) true. Of course, the reason for there being no King of France on the list might be either that there is no unique King of France or that the existing King of France is not wise. This is the difference between (35)(b)'s being true and (35)(c)'s being true. This test of 'semantic differentia' requires us to make judgments about how much the various undertandings of a sentence differ from one another and then to compare these differences with those that hold between the various understandings of other sentences. It seems to me that speakers might disagree in particular cases on both these scores. This test must, then, also be inconclusive.

The two tests already discussed are semantic tests. Atlas also considers some syntactic tests. The first test is the test of transformational potential.[55] The idea is that if a sentence is unspecified for some feature, then this lack of specification should be preserved no matter what transformational operation is applied to it. However, if the sentence is ambiguous, then it is possible that some transformations will eliminate one (or more) of its understandings. For example, according to Atlas, if we apply the passive transformation to (40) we get 'Her duck was seen by them' and this is no longer ambiguous.[56] Now consider the following examples of transformations of (35)(a)[57]

(41) The King of France is not wise, is he ?

(42) I know that the King of France is not wise

(41) seems to me to have only one understanding, namely the presuppositional understanding. This is because (41) is linguistically acceptable only in contexts in which the person asking the question believes (perhaps mistakenly) that there is a King of France.[58] It is less

certain to me whether (42) has one or two understandings. But even if it does have two understandings the fact that (41) has only one understanding shows that the test of transformational potential does not point conclusively to (35) (a)'s being general rather than ambiguous. Atlas himself admits that this test would not be decisive, even if both (41) and (42) preserved lack of specification. There may be other transformation that eliminate one or other of the understandings of (35)(a). It is my contention that we do not have to look further than (41) for such a transformation.

The other syntactic test that Atlas considers is G. Lakoff's conjuction test.[61] I discussed this test above, where I concluded that its application showed that ordinary negative sentences such as 'John wasn't running' are general rather than ambiguous. Consider:

(43) The King of France is not wise and the Queen of England is not wise.

Verb phrase pronominalisation yields:

(44) The King of France is not wise and the same goes for the Queen of England.

Now if (35)(a) is indeed ambiguous, then crossed understandings of (44) will not be allowed, just as they were disallowed for (32) above. In other words, if (35)(a) were ambiguous, then the only acceptable understandings for (44) should be those in which either both the conjuncts have the presuppositional understanding or they both have the non-presuppositional understanding. However, Atlas finds the following non-presuppositional / presuppositional understanding acceptable.[62]

(45) The King of France is not wise (since France is not a monarchy) and the same goes for the Queen of England (who is a typical Windsor).

Zwicky and Sadock point out that there is one situation in which applying the conjunction test is of no help. If the meanings of an ambiguous constituent are related as genus to specie then this test will not

work. The word 'dog' previously discussed is just such an ambiguous constituent. Its two meanings 'canine' and 'male canine' are related as genus to specie. Consider:[63]

(46) Mary bought a dog and Will bought a dog.

Verb-phrase pronominalisation yields:

(47) Mary bought a dog and so did Will.

And this may seem to accommodate the following crossed understandings:

(48) Mary bought a dog and so did Will; Mary got a bitch, but Will was careful to get a male.

Now if crossed understandings _are_ possible, then this, shows that 'dog' is general rather than ambiguous. However, the possibility of crossed understandings of (47) is only apparent. (48) seems possible only because one is really taking 'dog' to mean 'canine' in both conjuncts, in which case we have non-crossed (parallel) understandings. It is possible to do this because 'male canine' entails 'canine'. Of course, it may be difficult to convince the person who finds the crossed understandings acceptable that he or she is shifting the meaning of the words in this way. If this is correct, it has repercussions for the 'King of France' example that I was discussing. In this case too we have one understanding of a so-called ambiguous sentence which entails another understanding of that sentence. So this will be a case in which the conjunction test cannot help us to decide whether the sentence is ambiguous or general. Atlas' claim that (45) shows that crossed understandings of (44) are possible may be due to the fact that he is understanding both conjuncts of (45) in the more general sense. But then this would really be a case of non-crossed understandings, and Atlas would not have shown that (35)(a) is general, rather than ambiguous.

Atlas is aware that such a criticism can be brought against his claim that (45) is an acceptable understanding of (44). He tries to defend his claim by comparing (44) with a clearly ambiguous sentence.

Consider:

(49) I went to the bank and Harold went to the bank

One can utter (49) and mean:

(50) I went to the currency depository and Harold went to the edge of the river.

The verb-phrase pro-form of (49) is:

(51) I went to the bank and so did Harold.

But now, if one utters (51) then one cannot mean (50). One cannot mean this because from (51) it follows that Harold did what I did. But if (50) were the case, then Harold and I would not have been doing the same thing. However, it does seem that there is a sense in which it is true that Harold did what I did. If Harold's and my actions are described respectively as a-going-to-the-edge-of-the-river and as a-going-to-the-currency-depository, then our actions are not the same. But if our actions are described as a-going-to-the-bank, then it is true that Harold did what I did. And if this is so, the following crossed interpretation should be possible:

(52) I went to the bank (since I wanted to deposit some money) and so did Harold (who went to the edge of the river).

Atlas would disagree. He thinks that although identity criteria for actions are a matter for theory, nevertheless for "the ordinary man in the street ... an intentional equivalence between the descriptions of the actions is necessary"[64]. Although both Harold's and my actions can be described as a going-to-the-bank, these descriptions are not intensionally equivalent because of the ambiguity of 'bank'.[65] So if we accept the ordinary man's condition for sameness of actions, we will not be able to accept the crossed understandings in (52).

What then of Atlas' claim that (44) can accommodate crossed understandings

and in particular the crossed understandings in (45) ? From (44) it follows that whatever holds for the King of France holds also for the Queen of England. What holds for both of them is that neither is wise. If what counts as the King of France's not being wise is that there is no French king, while what counts as the Queen of England's not being wise is that she is a typical Windsor, can we say that what holds for the King of France is the <u>same</u> as what holds for the Queen of England ? Atlas says: "If intensional equivalence between descriptions of kinds of states of affairs is again a necessary condition according to the theory of our ordinary speaker, we know that <u>one kind</u> of state of affairs must be exhibited, but we do not thereby know what counts as states of affairs being of one kind. If the criteria for states of affairs being of a kind are loose enough, we shall accommodate the crossed understandings"[66]. It seems to me that we could well say the same with regard to Harold's and my actions. If intensional equivalence between descriptions of actions is a necessary condition, we know that one kind of action must be exhibited. But we do not thereby know what counts as actions being of one kind. If the criteria for actions being of a kind are loose enough, we can accommodate the crossed understandings in (52). I conclude that these sorts of considerations do not help in determining whether a sentence is general or ambiguous. If our criteria for what counts as states of affairs being of the same kind are fairly restrictive, then 'The King of France is not wise' will turn out to be ambiguous. And conversely, if our criteria for what counts as actions being of the same kind are loose enough, then 'I went to the bank' will turn out to be general. This is exactly the opposite of what Atlas would like to say, but I do not think that he has given us good enough reasons for concluding that his view is the better one. Perhaps we cannot decide this issue in the absence of adequate criteria for actions and states of affairs. Thus, as in the case

of the other tests, the results of the conjunction test are inconclusive.

In saying that the results of these various semantic and syntactic tests are inconclusive I do not mean to conclude that the defenders of the generality thesis are mistaken. In fact, I think that their position is rather a strong one. As Gerald Gazdar remarks, if sentences such as (35)(a) were really ambiguous, we would expect that some languages would have different words for the two senses of English 'not', so that translating into these languages would remove the ambiguity.[67] 'Harold went to the bank' is ambiguous, because if we wish to translate this sentence into Czech, for example, we have to decide whether to translate 'bank' by the word 'Břeh' or by the word 'banka'. But (35)(a) and its two understandings have the following Czech translations:

(35)(a') Král Francie není moudrý

(b') To není pravda že král Francie je moudrý

(c') Král Francie je nemoudrý

Here the single negative particle 'ne' serves to express both the wide - and the narrow - scope negation. This is similarly the case with negative sentences containing factive verbs, such as (36)(a).[68] So Czech supports the view that negation is general rather than ambiguous. Of course, there may be other languages which do have two different negations. Gazdar makes a particularly strong claim when he says: "But no language, to the best of my knowledge, has two or more different types of negation such that the appropriate translation of [a negative sentence containing a factive verb] could be automatically "disambiguated" by the choice of one rather than the other"[69].
One could respond by saying that even if no natural language has two negations, a perspicuous language would have to have two such operators. One might say that 'not' in English is rather like 'is' in English,

which can be either a copula, a sign for identity or the existential 'is'. In a perspicuous language, such as classical first order predicate calculus with identity, these differences are marked by having three different symbols. The 'is' of identity is represented by the symbol '=', the existential 'is' is incorporated in the sign '∃' and the copula is represented by the concatenation of a predicate letter with a name or variable, as in 'F*a*'. Similarly, a perspicuous language would have two different symbols for predicate and sentential negation. Classical logic does not in fact have two symbols, and various philosphers have suggested that this is a shortcoming. Von Wright, for example, introduces two negations which he represents by the symbols '~' and '¬'. Another suggestion, already mentioned, is that we represent the sentential and predicate negation of a sentence of the form 'F*a*' as, respectively, '~F*a*' and '$\bar{F}$*a*'. But the choice of notation is unimportant. The important point is the claim that a perspicuous language requires two negations. Since this is not the orthodox view, the defenders of the view that negation is general could claim that we have not yet been given adequate reasons for thinking that such a language would be more perspicuous than the classical one.[70] In the absence of such reasons, and because of the inconclusiveness of the results of the ambiguity tests, it is at least not clear that the view that negative sentences involving presuppositions are ambiguous is the correct one.

It should be noted that while Atlas thinks it wrong to say that negative sentences involving presuppositions are ambiguous he would also regard it as incorrect to say that such sentences are univocal. At one point Atlas says that Russell's view, that the negative sentence:

(1) The King of France is not bald

is ambiguous, is mistaken. He continues: "It is a corollary of my view that Strawson's assumption that the negative sentence is univocal is also mistaken".[71]

If (1) were ambiguous, it would be associated with two distinct logical forms or underlying structures. Atlas' view is that (1) is not ambiguous, but general or non-specific. It is general because it can be understood in either of two ways. "But it is not ambiguous between these understandings: however it is understood in a given context, it does not have to be understood that way".[72] Since (1) is not ambiguous, its different understandings cannot be explained by postulating two different underlying structures or logical forms. Atlas rejects the idea that a sentence such as (1) has a logical form which is itself non-specific.[73] He suggests instead that the logical form of (1) be identified with the logical form for its wide-scope negation. In order to account for the different understandings of (1) in different contexts, we appeal to certain pragmatic principles. These principles combine the sentence negation logical form of (1) with descriptions of different contexts and yield different possible propositions, which represent the different possible understandings of the sentence.[74] One may think that the fact that a sentence can express different propositions shows that it is ambiguous. However, this is not Atlas' view, as the following two quotations show:

> An unambiguous sentence with one underlying structure may be used to express different propositions with different truth-values. Propositions are not meanings of sentences. 75

> If we say that this unambiguous sentence may be used to express different propositions, which may differ in truth-value, these propositions are not properly construed as 'meanings' of the sentence. The sentence has one meaning. It is part of understanding the meaning of 'The King of France is not wise' to know that it can be used to express both a weaker and a stronger proposition. 76

Now, as already noted, Atlas thinks that it is a mistake to say that a sentence such as (1) is univocal. And this may seem to conflict with his claim that such a sentence has only one meaning. This conflict is only apparent. A univocal sentence, like a general one, has only one meaning, but unlike a general one, can be used to express only one proposition, that is, has only one understanding.

Atlas' view that negative sentences such as (1) are associated with one underlying structure, and that pragmatic principles explain the different understandings the sentence has, is akin to the views of Ruth Kempson and Leo Apostel already discussed.[77] Whereas Atlas restricts his discussion to negative sentences involving presuppositions, Kempson's discussion is meant to apply to most negative sentences. As already noted, Kempson thinks that negative sentencs are general and that a negative sentence can be represented as a disjunction. Each of the disjuncts in such a disjunction is a sufficient condition for the truth of the negative sentence (although none is a necessary condition for its truth). It is left unspecified in the semantic representation which of the disjuncts holds in a particular case. This is something that has to be determined by the context of utterance of the negative sentence.[78] Apostel's position is less clear. Although he talks of the "general" negation of a sentence such as 'John is not going to New York in his motor car today' being implied by each of its "local" negations, and of the general negation implying the disjunction of the local negations, he does not explicitly endorse the Atlas-Kempson thesis that negations are general rather than ambiguous. Apostel's view differs from Kempson's view, in that whereas Kempson's general negation is a disjunction, Apostel's general negation merely implies a disjunction.[79] Another difference between them is that whereas Apostel would say that we have in some cases (although not necessarily in the kind of cases that have been under discussion in the last three sections) to introduce different kinds of negation into our

logical notation, Kempson would disagre.[80] Both Kempson and Atlas argue against the ambiguity of sentences such as (35)(a) and (36)(a), where the ambiguity is construed as a lexical ambiguity. They argue against the view, held by Lauri Karttunen and others, that there are two kinds of negation, namely exclusion (external, wide - scope, sentence) and choice (internal, narrow -scope, predicate) negation. But Atlas, Kempson and Apostel are agreed on one thing. They all think that (some) negative sentences can be understood in a number of ways, and that how such sentences are to be understood in particular circumstances is something that has to be determined by pragmatic principles.

VIII CONCLUSION

The three main debates with which I have been concerned in this chapter are the Predicate versus Sentential Negation Debate, the Ambiguity versus Generality Debate and the Pragmatics versus Semantics Debate. These three debates are related to one another, in the sense that taking a particular stance in one of them determines the position one is likely to adopt in the other debates. If the Generality thesis is correct, then this supports the view that there is only one negation. If there is only one kind of negation, then negative sentences are not semantically ambiguous. And so, if a sentence has different understandings, these understandings have to be given a pragmatic explanation.[81] However, if the Ambiguity thesis is correct, then it may be the case that there are two types of negation (if the ambiguity is a lexical, and not merely a structural, one). It would also follow that the different understandings of a negative sentence are to be given a semantic explanation, not a pragmatic one.[82]

I have argued that the Generality thesis, althogh not conclusively supported by the arguments offered by its proponents, seems to be more plausible than its alternative. It seems clearly wrong to say that a sentence such as 'Peter is not going to the party tonight' is multiply ambiguous. And although it may seem initially more plausible to hold that sentences such as 'The Queen of Sheba did not attend the wedding' are ambiguous, there are reasons for denying this claim as well. I have also favoured the view that says that the different understandings of a negative sentence should be given a pragmatic explanation. Both these positions lend support to the view that there is only one kind of negation, namely sentential negation. However, I have also said that the arguments <u>against</u> the view that we should recognise predicate negation are not very convincing,/and that there is one fairly strong argument in favour of predicate negation. This argument was that if we do not recognise predicate negation we will not be able to distinguish between 'He is not wise' and 'He is unwise' in our logical notation. One response to this is to say that although these sentences would have one representation, pragmatic principles would determine whether the whole sentence was to fall within the scope of the negation or whether only the predicate was to be understood as negated. This response would bring the seemingly troublesome example into line with the view that there is only one kind of negation.[83] I conclude then that a correct view of negation would hold that there is only one kind of negation, namely sentential negation; that negative sentences are not ambiguous but general, (unless of course, they contain a lexically ambiguous term such as 'duck' or 'bank'); and that the different understandings of a negative sentence are to be explained by appeal to pragmatic principles.

IX GENERAL CONCLUDING REMARKS

In this thesis I have been concerned to discuss three themes involving the concept of negation. In the second chapter I raised the question whether we should admit negative facts or not. My conclusion was that we seem forced to admit such facts. This was for two reasons. The first reason was that Herbert Hochberg has produced a persuasive argument in favour of admitting negative facts. The second was, that all the arguments against admitting negative facts that I have examined fail for one reason or another. This is admittedly not a very good reason for saying that there are negative facts, because there may be arguments against negative facts that I have not examined and that do succeed. However, I think that this failure to show that there are no negative facts, together with Hochberg's argument in favour of such facts, indicates that we should admit negative facts. I also argued that if we do admit negative facts they should be understood to have the nature and function that Wittgenstein thought them to have in the *Tractatus*.

In the third chapter I discussed the Parmenidean paradox of non-being and various attempts to give an account of negative existentials that avoids this paradox. My conclusion was that Russell's account of negative existentials was to be preferred over its rivals, at least for those negative existentials that do not contain names or descriptions of fictional characters or general terms for fictional kinds. I also argued that Terence Parson's account of discourse about fiction was the one that required the least modification to the Russellian account of negative existentials, and hence that we should accept his account of discourse about fictional objects.

In Chapter 4 I was concerned with three related logical and linguistic debates which involve negation. My conclusion was that there is only one kind of

negation, namely sentential negation, that negative sentences are general rather than ambiguous, and that the different understandings of a negative sentence are to be accounted for in pragmatic terms.

The conclusions of the three chapters are to a large extent independent of one another, although there are various connections that can be made. For instance, if negative existentials are treated as Russell treats them (i.e. as implicitly general sentences) then we can say that there are no negative facts corresponding to this class of negative sentence. This is because on Wittgenstein's view of negative facts, which I argued we should accept, negative facts are needed only to account for the falsity of <u>atomic</u> sentences. It is of course another matter whether we need to posit general facts to account for the truth and falsity of such general sentences (Russell believed that we <u>do</u> need to posit such general facts[84]). Again, if the conclusions in the fourth chapter are correct, then Russell's view that sentences such as 'The present King of France is bald' are ambiguous, is mistaken. Such sentences should be regarded as general, in the sense of non-specific. However, this modification to the Russellian view does not materially affect the conclusion that Russell's account of negative existentials is the one that best avoids the paradox of non-being. Furthermore, the conclusion in the fourth chapter that there is only one negation operator, namely the classical sentential operator, squares with the treatment of negation in Chapters 2 and 3. In these chapters it was assumed that there was only this one kind of negation.

However, there are also discontinuities in the subjects of Chapters 2 to 4. As I have stressed, the discussion about negative facts is to be understood as taking place within the framework of the philosophy of logical atomism. But the discussion in Chapters 3 and 4 is not subject to these strictures. As I remarked in the Preface, this thesis is best regarded as a series of studies on some themes concerned with the concept of negation.

Notes to Chapter 1

1. Parmenides, fragment B2. 7 - 8. This translation is given by G.E.L. Owen in his paper 'Plato on not-being' in G Vlastos (ed.) Plato, vol I, p. 225. Other translations of these lines appear in the literature. Here are two alternative translations:
   (i) 'thou couldst not know what is not, nor couldst thou point it out' given by D Gallop in his paper '"Is" or "is not"?', Monist, 62, 1979, p. 61.

   (ii) 'For neither would you recognise that which is not (for it is not accomplishable), nor mention it' given by J Barnes in his book The Presocratic Philosphers, vol I, 1979, p. 157.

2. Parmenides, fragment B.3. Translation given by J Barnes, op. cit., p. 157.

3. Theaetetus, 187e - 188c. My reconstruction of the argument and my comments on it are loosely based on John McDowell's notes to his translation of this dialogue, Plato: Theaetetus, 1973.

4. Theaetetus, 188c - 200d

5. Sophist, 241 A - B

6. Ibid., 241 D

7. Ibid., 254b - 259d

8. A.E. Taylor in his introduction to Plato: The Sophist and the Statesman, edited by R Klibansky and G E M Anscombe, 1971, pp. 81 - 82 argues for the view that Plato does succeed in making these distinctions. J.C.B. Gosling, on the other hand, in his Plato, 1973, pp. 213 - 223 argues that it is not certain that Plato was aware of different uses of the word 'esti'.

9. J McDowell, 'Notes' in Plato: Theaetetus, op. cit., p. 201. The argument for the meaninglessness of negative sentences is in any case a dubious one. Premise (d) merely affirms the Parmenidean view that we can only talk about existing things. This assertian seems plainly false, as we often do talk of such things as dragons, Mr Pickwick and the Golden Mountain. J Barnes in The Presocratic Philosophers, op. cit, pp. 155 - 175 examines Parmenides' own argument in favour of this assertion in some detail and shows that it is invalid.

10. My account is based largely on David Wiggins' discussion in his paper 'Sentence meaning, negation and Plato's problem of non-being' in G. Vlastos (ed.), op. cit., pp. 268 - 303.

11. Ibid., p. 294

12. J.C.B.Gosling, op. cit., pp. 226 - 227

13. See A.E. Taylor, op. cit., p. 63

14. Wiggins also considers and rejects an interpretation of (2) which appeals to the notion of a range of predicates. Wiggins thinks that appealing to this notion will not do because it reimports the notion of negation, which Plato is trying to explain away. See Wiggins, op. cit., p. 301.

15. Ibid., p. 294

16. Ibid., pp. 299 - 300.

17. This interpretation of Plato's account of negation has affinities with the account of negative sentences offered by Gilbert Ryle in his paper 'Negation', Proceedings of the Aristotelian Society, supplementary vol. 9,1929, pp. 80 - 96.
Ryle also attempts to account for negatives in terms of the notion of otherness.

18. E.N. Lee, 'Plato on negation and not-being in the Sophist', philosophical Review, 81, 1972, p. 298. However, even if Lee is right and Plato does not in fact offer a reductive analysis, it seems to me that if Plato is to succeed in refuting Parmenides he ought to offer a reductive analysis. If the analysans contains any negative elements then it too is subject to Parmenides' strictures about meaninglessness.

19. Lee, op. cit., p. 287. His emphasis.

20. Ibid., p.292

21. Ibid.

22. Ibid., p.293

23. Ibid., pp. 296 - 297. His emphases. R.B. Pippin in his paper 'Negation and not-being in Wittgenstein's Tractatus and Plato's Sophist', Kantstudien, 70, 1979, pp. 179 - 196 also discusses various similarities and differences between Plato and Wittgenstein.

24. See A. E. Taylor. op. cit., p. 62.

25. R. Gale in 'Negation and non-being', American Philosophical Quarterly, Monograph series, 10, 1976, pp. 16 - 17 suggests various analyses in terms of the notion of otherness for sentences of the form 'No Ø's exist' or 'There are no Ø's'. Two such analyses are:

    (a) Every property of every object is other than Ø-ness.
    (b) Every true proposition is other than that a Ø exists.

    Gale argues that such analyses are not very satisfactory. Moreover, they certainly do not succeed as reductive analyses, as the relation of otherness is a negative one (See ibid., p. 35).

26. G. Ryle, 'Plato' in P Edwards (ed.) Encyclopedia of Philosophy, vol. 6, 1967, p. 329.

27. Aristotle, De Interpretatione, translated by H P Cooke, 1938, 17a26

28. See W Kneale and M Kneale, The Development of Logic, 1962, p. 147.

29. De Interpretatione, 17a34

30. Ibid., 24b 7 - 10

31. Kneale and Kneale, op. cit., p. 56.

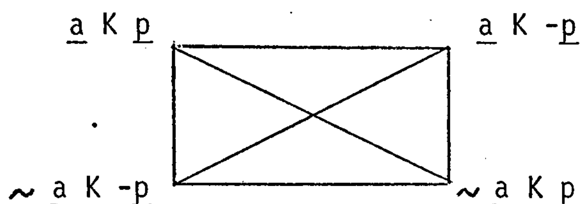
32. Ibid.

33. G Engelbretsen, 'The square of opposition', Notre Dame Journal of Formal Logic, 17, 1976, pp. 531 - 541.

34. G. Englebretsen, in a paper titled 'Knowledge, negation and incompatibility', Journal of Philosophy, 66, 1969, pp. 580 - 585, argues that in a knowledge statement of the form 'a knows that p' we can distinguish three elements, each of which can occur negated or unnegated. Each element is associated with a special kind of negation, which cannot be reduced to either of the other two kinds of negation. Suppose we abbreviate 'a knows that p' as 'aKp', then we can distinguish the following eight forms of knowledge statement:

    (1) a K p (a knows that p)
    (2) a K -p (a knows that -p)
    (3) a $\overline{K p}$ (a doesn't know that p)
    (4) a $\overline{K -p}$ (a doesn't know that -p)
    (5) ~a K p (it's not the case that a knows that p)
    (6) ~a K -p (it's not the case that a knows that -p)
    (7) ~a $\overline{K p}$ (it's not the case that a doesn't know that p)
    (8) ~a $\overline{K -p}$ (It's not the case that a doesn't know that -p)

    Englebretsen demonstrates that various groups of four of these statements can be displayed on squares of opposition. For example, (1), (2), (5) and (6) can be displayed a sqaure as follows:



    Englebretsen identifies four other such squares.

35. My account of Stoic logic is abstracted from Kneale and Kneale, op. cit., pp. 146 - 148, 160.

36. The Stoic denial differs from denial as it is usually understood. Certainly, not only sentences such as 'No one is walking' would be regarded as denials. In fact, it would seem that any sentence, not only those containing a negative particle, can be denied. Consider the following dialogue between A and B:

    A: Only John was walking. The others were riding on camels.

    B: Everyone was walking.

Here B's response is a denial, even though it is not negative. To deny something is to perform a speech act, and there is no need to suppose that all denials contain negative particles, just as there is no need to suppose that all promises do (one can promise to act as well as to refrain from acting). Frege's discussion in his paper 'Negation' in P.T. Geach and M. Black (eds.) Translations from the Philosophical Writings of Gottlob Frege, 1970, pp. 117-135 has bearing on this issue. Frege asks whether there are two ways of judging, one for when what is judged is negative and one for when what is judged is affirmative. He argues that there are not these two ways of judging, for if there were then the following argument would have to be regarded as invalid:

1. If the accused was not in Berlin at the time of the murder, he did not commit the murder
2. The accused was not in Berlin at the time of the murder
3. Therefore the accused did not commit the murder.

Premise 2. is uttered assertively, but the antecedent in premise 1. is not uttered assertively. To indicate this difference we might write premise 2. as 'It is false that the accused was in Berlin at the time of the murder'. It is then clear that the above argument is not valid. In other words, if we recognise two ways of judging, we have to recognise affirmative assertion, negative assertion and a negative word such as 'not' which occurs in sentences uttered non-assertively (e.g. in the antecedent of a conditional such as premise 1). On the other hand, if we follow Frege then we need only recognise one way of judging, namely assertion and a negative word such as 'not' (See Frege, op.cit. pp. 129-130). Although Frege is correct in saying that there is not a special way of judging for when what is judged is negative, I think he is incorrect in saying that we need only recognise one way of judging, namely assertion. It seems clear that there is a difference between:

(a) asserting that not-p (p)
and (b) denying that p (not -p)

There seems to be a difference, even though the same sentence may be uttered in both cases. This can be seen by inverting the order of Speaker A's and speaker B's remarks in the dialogue above.

37. My account of Pierce's treatment of negation is based on A.N. Prior's account in 'Logic, History of' in P. Edwards (ed.), op.cit., vol.4 p. 547and on A.N. Prior's article titled 'Negation' in P. Edwards, op.cit., vol. 5 pp. 458-463.

38. See B. Russell Principles of Mathematics, 2nd edition, 1956, p.18.

39. See A.N. Prior, in 'Logic, History of', op.cit.

40. See L. Wittgenstein in Tractatus Logico - Philosophicus, translated by

D.F. Pears and B. Mc Guiness, 1961, 5.42.

41. See Tractatus 5.46 and 5.476. Wittgenstein's operation of Negation is not to be confused with the ordinary truth-functional negation operator '$\sim$'. Ordinary negation is the special case in which Negation is applied to a single proposition.

42. My remarks on Bradley's views on negation are based on Richard Wollheim's discussion in his F.H. Bradley, 2nd edition, 1969.

43. See note 17 above

44. For Bradley to assert 'S is not P' is really to assert 'S is not - P', where 'not - P' is a general name for any and every possible contrary of 'P'. So, for Bradley, the contradictory of an assertion turns out to be a contrary. Bradley says in Appearance and Reality, 2nd edition, 1902, p. 562: ""What is contrary or contradictory?" (I do not find it necessary to distinguish between these)". Now normally we explain contrariety in terms of the notion of contradictoriness. We say two predicates are contraries if applying both of them to the same object at the same time results in contradiction. But Bradley cannot appeal to the notion of contradictoriness to explain contrariety, because the former reduces to the latter and so cannot explain it.

45. F.H. Bradley, Appearance and Reality, op. cit., p. 572.

46. Ibid., p.566.

Notes to Chapter 2:

1. B. Russell, 'The Philosophy of Logical Atomism' in R C Marsh (ed.) Logic and Knowledge, 1956, pp. 177 - 281.

2. This is a view that Russell held roughly during the period 1914 - 1919. In later writings Russell denied that there were negative facts. See for instance, Human Knowledge: Its Scope and Limits, 1948, p. 520. My exposition of Russell's views on negative facts is based on his 'Philosophy of Logical Atomism' and his 'On Propositions: what they are and how they mean', in R C Marsh (ed.) Logic and Knowledge, op. cit., pp 285 - 320

3. B. Russell, 'The Philosophy of Logical Atomism' p. 182

4. Ibid, p. 138

5. Ibid, p. 270

6. Ibid, p. 195. See also 'On Propositions', p. 285

7. Ibid, p. 185

8. Ibid, p. 183

9. Ibid, p. 184

10. Ibid, p. 185

11. Ibid, p. 185

12. Ibid, p. 187

13. Ibid, p. 214

14. 'Sentence' as Russell uses it is ambiguous between 'sentence token' and 'sentence type'. Following Susan Haack (Philosophy of Logic, 1978, p. 75), I regard a sentence token as a physical object. It is either a series of marks on paper or some other surface or it is a series of sound waves. A sentence type is a class of similar tokens, i.e. of similar utterances and inscriptions. Two tokens are similar if they are typographically or auditorily similar. It would, of course, also be necessary to specify those conditions under which an inscription is to count as being of the same type as an utterance. Now clearly sentence tokens are 'real', as they are physical objects. One may be more hesitant about the ontological status of sentence types. But if one is prepared to grant the status 'real' to abstract objects such as classes, then sentence types are 'real' as well. However, as Russell thought that classes were incomplete symbols ('Philosophy of Logical Atomism' p. 262) it follows that if he meant 'sentence type' by 'sentence', then sentences would not be real after all.

    There is reason to believe that Russell would have favoured the type interpretation. In 'On Propositions', he says that a "word is not a single entity, but a class of entities: there are instances of the word 'dog' just as there are instances of dogs" (p. 290). Presumably the same can be said about a sentence.

15. Russell's Multiple Relation Theory of Judgement (MRTJ) was an attempt to give such an analysis. Russell outlined his MRTJ in 'On the Nature of Truth and Falsehood', Philosophical Essays, revised edition, 1966, pp. 147 - 159, as well as in chapter 12 of The Problems of Philosophy, 1959. He elaborated this theory in an unpublished and unfinished manuscript begun in 1913. ('Theory of Knowledge', MS., n.d., f. 315, Russell Archives, McMaster University).

16. B. Russell, Introduction to L Wittgenstein's Tractatus Logico - Philosophicus (translated by D F Pears and B F McGuiness) 1961, p. xx .

    In 'On Propositions', Russell says: "Propositions are facts in exactly the same sense in which their objectives are facts. The relation of a proposition to its objective is not a relation of something imagined to something actual: it is a relation between two equally solid and equally actual facts." (p. 135)

17. Part of the reason for Russell's apparent inconsistency in his use of the word 'proposition' is that his views about propositions, beliefs, truth and faslehood were undergoing a change during the period in which he wrote 'Philosophy of Logical Atomism' (1918), and 'On Propositions' (1919). In 'Philosophy of Logical Atomism' (pp. 216 - 228) he gives an account of beliefs and statements of the form: 'A believes that p' which is substantially like his earlier theory, his so-called Multiple Relation Theory of Judgement (MRTJ) which Wittgenstein had criticised. (For a reconstruction of Wittgenstein's ciricisms and an account of their consequences for Russell's theories, see S. Sommerville 'Wittgenstein to Russell (July 1913). "I am very sorry to hear .... my objection paralyses you" ' in Language, Logic and Philosophy. Proceedings of the 4th International Wittgenstein Symposium, 1979.). In 'Philosophy of Logical Atomism', Russell does indicate that there are some problems with his MRTJ. He says: "the theory of judgement which I set forth once in print some years ago was a little unduly simple". (p. 226). But this does not affect Russell's views about propositions understood as the objects of our mental acts. Both in the MRTJ and in the 'Philosophy of Logical Atomism' theory they are regarded as incomplete symbols, to be analysed away. In 'On Propositions', on the other hand, Russell rejects the MRTJ. He says: "The theory of belief which I formerly advocated, namely, that it consisted in a multiple relation of a subject to the objects constituting the 'objective', i.e. the fact that makes the belief true or false, is rendered impossible by the rejection of the subject". (pp. 306 - 307). In 'On Propositions', a proposition is defined as what we believe when we believe truly or falsely (p. 285). A proposition is the content of a belief (p. 308). Russell distinguishes two types of propositions, namely word-propositions and image-propositions and says the "most important thing about a proposition is that, whether it consists of images or of words, it is, whenever it occurs, an actual fact, having a certain analogy of structure ... with the fact which makes it true or false." (p. 309). In 'On Propositions', propositions understood as the objects of our mental attitudes, 'what is believed, judged etc.', are rehabilitated. But they are given the status of 'real' entities. They are actual complex occurrences (p. 307). They are actual facts and, moreover, positive facts (p. 317). They are composed of words and phrases, which are sensible, and hence positive (p. 317). (Presumably Russell would have to say also that images, because they are introspectible, are positive). Russell, unlike Meinong, does not want to admit that there are objective falsehoods, or false facts and so he attempts to account for the truth and falsehood of the poropoitions we believe by positing a distinction between positive

and negative facts. It is this distinction which is the subject of the present chapter. Russell says in 'On Propositions': "The questions which arise concerning propositions are ... many ... . One very important question is as to whether propositions are what I call 'incomplete symbols' or not. Another question is as to whether the word 'proposition' can stand for anything except a form of words". (p. 289). I have tried to show that when discussing belief in 'Philosophy of Logical Atomism', Russell still clung to his MRTJ and thus thought that propositions were incomplete symbols. However, this notion of a proposition as an incomplete symbol seems to be at odds with the notion of proposition with which Russell operates when he is discussing atomic and molecular propositions and positive and negative facts. This latter notion seems to be better rendered by the words 'declarative sentence'. In 'On Propositions', Russel rejects the MRTJ and reinstates propositions, although these are not be be thought of as shadowy entities subsisting in some Platonic heaven. In 'On Propositions', but not in 'Philosophy of Logical Atomism', Russell uses the word 'proposition' uniformly to mean something like 'declarative sentence'. My present concern is not with Russell's account of belief and so I intend to restrict my attention to the notion of proposition that Russell operates with in 'On Propostions' and 'Philosophy of Logical Atomism' when he is not concerned to analyse statements of belief and other propositional attitudes. This notion would perhaps be better rendered by the words 'declarative sentence', as the word 'proposition' does tend to suggest commitment to some sort of suspect metaphysical entity. However, I will continue, following Russell, to use the word 'proposition' intending it to be understood roughly as 'declarative sentence'.

18. 'Philosophy of Logical Atomism' p. 187

19. Ibid., p. 208

20. Ibid., p. 199 Russell's emphasis

21. 'On Propositions' p. 286

22. The relation can either be monadic or dyadic or triadic or ... A quality can be thought of as a monadic relation. The terms a relation in an atomic fact are also called 'particulars'. See 'Philosophy of Logical Atomism' p. 199.

23. 'On Propositions' p. 286

24. Ibid., p. 287, Russells emphasis.

25. Ibid., p. 287. Although Russell talks only of facts containing three constituents, what he says is meant to apply to all atomic facts, however many constituents they have. In a footnote ('On Propositions' p. 287) Russell explains that one reason for choosing to use facts containing three constituents for illustrative purposes is that it is possible to doubt that there are subject-predicate facts, i.e. facts containing only two constituents. Russell is here referring to the view that the smallest number of constituents that a fact can have is three, viz. a particular, a monadic relation and the relation of exemplification, which unites the other two constituents.

26. This way of representing the two forms was suggested to me by certain remarks made by D Brownstein in his paper 'Negative exemplification', <u>American Philosophical Quarterly</u>, 10, 1973, p. 48.

27. This seems to presuppose that we have criteria for distinguishing between positive and negative propositions. When Russell was asked what test he had for determining whether a proposition was positive or negative he replied that there was no formal test, but that in the ideal logical language it would always be obvious at once whether a proposition was negative or positive ('Philosophy of Logical Atomism' p. 215). A number of philosophers have suggested criteria for distinguishing negative from positive propositions. See for instance, A J Ayer 'Negation', <u>Journal of Philosophy</u>, 49, 1952, pp. 797 - 815 and R Gale 'Negation and non-being' <u>American Philosophical Quarterly</u>. Monograph Series, 10, 1976, pp. 19 - 35.

28. J Rosenberg, 'Russell on negative facts', <u>Nous</u>, 6, 1972, p.32.

29. Ibid., p. 32 Rosenberg's emphasis

30. 'Philosophy of Logical Atomism', p. 197

31. There is some suggestion by Russell that the account of truth and falsehood in terms of correspondence is intended as a <u>definition</u>. See 'On Propositions' p. 320.

32. Here, as elsewhere(except within quotations from other authors, where their usage has been retained), the italicized lower-case letters *p*, *q*, *r*, ... are used as metavariables ranging over sentences, and are used to talk generally about sentences. These letters are not place-holders or abbreviations for particular sentences. Where two metavariables are joined by a connective, that connective (e.g. the 'v' in the expression '*p* v *q*') is to be regarded as functioning as a name for itself in such a context. So, the expression '*p* v *q*' is to stand for any sentence which consists of a sentence, a wedge and another sentence, in that order.

33. 'Philosophy of Logical Atomism' p. 197

34. Ibid., P. 207

35. I say that Russell <u>mistakenly</u> thought of negations of atomic propositions as atomic as it seems to follow from Russell's atomist presuppositions that such negations be regarded as <u>molecular</u> rather than atomic. It is because 'and', 'or' and the other logical constants do not stand for anything in reality that conjunctions, disjunctions and so on are treated as truth-functional compounds. Russell thought that 'not' was likewise not a representative and so it seems a mere oversight on Russell's part that negations of atomic propositions were not also regarded by him as truth-functional compounds. Wittgenstein seems to have had no difficulties on this score. When asked by Russell whether there were any negative atomic propositions he replied: "Of course no elementary propositions are negative" (<u>Notebooks: 1914 - 1916</u>, 2nd Edition, 1979, Appendix III, letter dated 19. 8. 19, p. 131). R J Fogelin has recently argued that matters are not as straightforward as they might seem. Fogelin considers the possibility that it is Wittgenstein who is mistaken and that Russell might after all have had a point in thinking that there are negative atomic or elementary propositions('Negative elementary propositions' <u>Philosophical Studies</u>, 25, 1974, 189 - 197).

36. See J Rosenberg 'Russell on negative facts' pp. 30 - 31.

37. 'On Propositions' p. 287.

38. This is no doubt just a careless error on Russell's part. In 'Philosophy of Logical Atomism' he makes it quite clear that verbs are constituents of propositions. They express relations, which are constituents of facts (pp. 199 - 200). Russell also says: "You remember that I defined an atomic propositions as one which contains a single verb" (p. 208).

39. 'Russell on negative facts' p. 30. This separation seems to be easy to make, 'True' and 'false' are predicates of propositions / sentences and hence attach to names of sentences. 'Not' on the other hand is a propositional / sentential connective and attaches directly to propositions / sentences to form new propostions / sentences. However, if one subscribes to a redundancy theory of truth such as F Ramsey's then one would deny that 'true'and 'false' are predicates, and this distinction between negation and falsehood would be obliteratd.

40. 'Philosophy of Logical Atomism', p. 210. Years later, in 1940, Russell wrote: "It is unnecessary to have the two words 'false' and 'not', for, if p is a proposition, 'p is false' and 'not-p' are strictly synonymous. The difference in practice is one of emphasis. If you are interested in the object you say 'not p' but if in the statement you say 'p is false' .... Such rhetorical points, however, do not concern us, and we may safely treat 'false' and 'not' as synonymous" (Inquiry into Meaning and Truth, 1962, p. 74). Rosenberg seems to assume that Russell's 1940 view is representative of Russell's thinking in 1918, as he includes in his paper this quotation from Inquiry into Meaning and Truth. It is not clear to me that we can assume that Russell's views underwent no changes during the years between 1918 and 1940. However, it is clear that Russell must have held some such view in 1918, even though he does not explicitly endorse his 1940 view.

41. 'Russell on negative facts' p. 31

42. 'Philosophy of Logical Atomism' p. 216

43. 'On Propositions' p. 287

44. 'Philosophy of Logical Atomism' p. 214.

45. 'On Propositions' p. 288, his emphasis. Eric Toms has a similar argument against replacing negative facts with a mere absence of fact (Being, Negation and Logic,1962, pp. 75 - 76, p. 98). He says that to account for the truth of a proposition such as 'A is not B' by saying that 'A is B' fails to correspond to the facts is just to substitute for "the simple negative fact concerning A another and more complex negative fact concerning the relation between 'A is B' and the facts" (p. 76).

46. 'Russell on negative facts' p. 35, his emphasis

47. H Hochberg 'Negation and generality', Noûs, 3, 1969, pp. 330 - 332. Hochberg has recently repeated his claims. See his Thought, Fact and Reference, 1978, chap. 14, pp. 419 - 422.

48. Although I have used the word 'property', I think that these characterisations of negative facts apply also to facts containing dyadic, triadic, tetradic, etc., relations. A property is just a monadic relation. For instance, the negative element view says that in general a negative fact is a complex in which n particulars, an n-adic relation and a negative element are related by the tie of exemplification.

49. See 'Philosophy of Logical Atomism' pp. 212 - 213 and R Demos 'A discussion of a certain type of negative proposition' Mind, 26, 1917, pp. 189 - 190.

50. 'A discussion of a certain type of negative proposition' p. 190.

51. See note 48 above.

52. D Brownstein in 'Negative Exemplification' pp. 45 - 46 offers another objection to the negative property view of negative facts. His objection is that this view "would seem to require that we introduce qualities on a wholesale basis whether or not we are ever acquainted with them" (p. 45).

53. H Hochberg, 'Negation and generality' p. 331.

54. Ibid.

55. Tractatus, 5. 44d

56. See Notebooks, Appendix I, p. 99. This objection of Wittgenstein's is noted by L Nathan Oaklander and S Miracchi in their paper 'Russell, negative facts and ontology' Philosophy of Science, 47, 1980, pp. 441 - 442.

57. 'On Propositions', p. 287

58. Tractatus, 4. 0621a. Wittgenstein's emphasis

59. D Brownstein, 'Negative exemplification' pp. 48 - 49. Brownstein has also suggested that Wittgenstein held a negative element view of negative facts and that this is why he rejected negative facts. If this is so then Wittgenstein's rejection of negative facts applies only to negative facts as characterised by view (a). It remains an open question whether negative facts are acceptable or not when characterised in some other way.

60. H Hochberg, 'Negation and generality' p. 331

61. See D Brownstein, 'Negative exemplification' pp. 48 - 49.

62. Tractatus, 6. 1201

63. Ibid, 6. 3751c. See also 4.211

64. See H Hochberg 'Negation and generality' pp 325 - 333.

65. Ibid., p. 326

66. 'A discussion of a certain type of negative proposition' pp. 193 - 194

67. This argument against the incompatibility view of negation was suggested to me by what Russell says in 'On Propostions' pp. 288 - 289

68. See 'Philosophy of Logical Atomism' pp. 213 - 214.

69. Ibid., p. 214

70. Ibid., p. 214

71. Oaklander and Mirrachi ('Russell, negative facts and ontology' pp. 442 - 447) call this new kind of fact required to ground '*p* is incompatible with *q*' a necessary fact. They then counter Russell's objection to Demos' proposal by saying that negative facts *also* require the introduction of necessary facts. If this is so, then Russell's objection loses its force. They try to show this as follows: positive and negative facts come in pairs. At any one time one and only one of such a pair exists, and this is not a contingent matter but a matter of necessity. But what kind of necessity is involved here ? If the necessity is *logical*, then the necessity is a matter of the form of language and negative facts do not commit one to the further existence of necessary facts. But if the necessity is factual, then negative facts would commit one to necessary facts. Oaklander and Mirrachi consider the necessary truth (T) 'One and the same spot cannot be both red and not red' and ask whether this can be transcribed into symbolic notation as a logical truth. If it can't be so transcribed, then the necessity involved must be a factual necessity, and one would have to admit necessary facts. Oaklander and MIracchi consider three interpretations of (T) corresponding to the three interpretations of negative facts I have mentioned in the text. If one holds a negative property view of negative facts, then 'red' and 'not-red' are two different properties, and so in a perspicuous notation one would have different signs representing them. One might represent 'This is red' as 'Pa' and 'This is not red' as 'Qa'. Then (T) would be transcribed as '∼(Pa & Qa)'. But this is not a logical truth; so to ground the necessity of (T) one would have to admit that there are necessary facts. If one holds a negative exemplification view of negative facts, then in a perspicuous notation one could represent 'This is red' as 'Ra' and 'This is not red' as 'aR'. Then (T) would be transcribed as '∼(Ra & aR)'. But this is not a logical truth either. So once again we seem forced to admit necessary facts. And if one holds a negative element view of negative facts then one might represent this negative element by 'N'. Then 'This is red' would be written as 'Ra' and 'This is not red' as 'NRa'. (T) would then be transcribed as '∼(Ra & NRa)'. But neither is this a logical truth, and so one is forced, it seems, to admit necessary facts to one's ontology.

It is not so clear that this argument works for the negative element view of negative facts. If '∼(Ra & NRa)' is a representation of (T), then this means that the negation sign in (T) is playing a double role. But as Wittgenstein says: "once negation has been introduced, we must understand it both in propositions of the form '∼*p*' and in propositions like '∼(*p* v *q*)', '(∃*x*).∼f*x*', etc. We must not introduce it first for the one class of cases and then for the other, since it would then be left in doubt whether its meaning

were the same in both case, and no reason would have been given for combining the signs in the same way in both cases." (Tractatus, 5. 451a). The other two representations of (T) also require that the negation in (T) be ambiguous. But in these cases one can give reasons for the ambiguity. In these cases the 'not' which attaches to an atomic proposition is misleading. There is no constituent of the fact which the proposition expresses that the 'not' represents. On the negative property view, for instance, the 'not' is really part of the (complex) symbol 'not-P' which stands for a (simple) negative property. And on the negative exemplification view the 'not' serves merely to indicate that the tie which relates the particular and the property is of a different kind from ordinary exemplification. On the negative element view, however, the 'not' does stand for a constituent of the fact. The 'not' is to be taken at face value. It cannot be explained away as really part of something else. But then there is no reason to think that 'not' is ambiguous in (T) and so there is no reason to use two different signs to represent 'not', one for 'not' as it attaches to atomic propositions and another for 'not' regarded as an operation on molecular propositions. But then one should represent (T) as '~(Ra & ~Ra)' and this is a logical truth. Thus the necessity involved in (T) will be logical necessity and there will not be a need to introduce necessary facts.

Oaklander and Miracchi consider another line of attack. Suppose we admit that as it stands, 'Ra & NRa' is not a contradiction but we propose to reformulate the laws of logic so that 'Ra & NRa' is a contradiction and so that '~(Ra & NRa)' is a tautology. Oaklander and Miracchi argue that if 'Ra & NRa' is regarded as a formal contradiction then 'Ra' and 'NRa' can no longer be regarded as mirroring facts. They say that if 'Ra & NRa' was "to suppose the impossible .... both a contradictory proposition and a mirror of a positive and negative fact, then it would follow that reality contained contradictory facts and tautological facts as well" (p. 445). Oaklander and Miracchi think that if ' (Ra & NRa)' is to be a formal truth, a truth about language which has no ontological significance, then it cannot also represent a fact. This is correct, but it does not follow that 'Ra' cannot represent a positive fact and that 'NRa' cannot represent a negative fact. The logical truth in '~(Ra & NRa)' does not stand for a fact as there are no logical facts, but this doesn't mean that the components of this truth cannot correspond to facts,and in particular to positve and negative facts.

I have already noted that Russell probably held a negative exemplification view of negative facts. Suppose that Oaklander and Mirrachi's argument works for the case in which negative facts are understood in the negative exemplification sense. Then, if one is committed to negative facts understood in this way, one is committed to necessary facts. And if this is so, Russell can no longer maintain that his view is simpler than the incompatibility view. This reinforces the conclusion reached in the text that Russell has no good grounds for thinking that his view is simpler.

72. Alternatively, we could conclude that the fact which verifies '~Wb' is not after all the same as the fact which falsifies 'Wb'. But if one holds that p is true (false) if and only if ~p is false (true), or that whenever a sentence is true (false) its negation is false (true), then one seems constrained to say (if one also holds a correspondence theory of truth and falsehood) that it is the same fact that makes p true (false) and ~p false (true). If it weren't the same fact it would seem to be an extraordinary co-incidence that p is true (false)

whenever $\sim$p is false (true).

73. 'Philosophy of Logical Atomism' p. 182.

74. Russell, of course, criticised the incompatibility account of negation. He thought that one needed to postulate negative facts in order to account for the falsity of atomic propositions. Thus Russell's claim that the fact that Socrates is dead (which seems prima facie to be a positive fact) shows that 'Socrates is alive' is false may seem to be in conflict with his professed views. The answer is, I think, that Russell regards Socrates' being dead as a negative fact. When asked: "Do you consider that the proposition 'Socrates is dead' is a positive or a negative fact ?" Russell replied: "It is partly a negative fact. To say that a person is dead is complicated. It is two statements rolled into one: 'Socrates was alive' and 'Socrates is not alive'" ('Philosophy of Logical Atomism' p. 215). One might be inclined to respond to this by saying that there is no reason for thinking that 'Socrates is alive' is positive and that 'Socrates is dead' is partly negative. Why could it not be the other way around ? Why shouldn't 'Socrates is alive' be the negative of the pair, being really the two sentences 'Socrates is not dead' and 'Socrates will be dead' rolled into one ?

There is another, related problem here, Russell says that the fact expressed by 'Napoleon hates Wellington' is positive, whereas the fact expressed by 'Napoleon does not love Wellington' is negative (See 'On Propositions' pp. 286 - 287). Now Napoleon hates Wellington' and 'Napoleon does not love Wellington' seem to be synonymous, and so one would have to say that synonymous propositions express facts of opposite forms. It may seem problematic to maintain this. One way of dealing with this problem is simply to deny that these two propositions are synonymous, on the grounds that 'hates' and 'does not love' are not synonyms. The reason for this is that 'does not love' leaves open the possibility of 'likes' or of 'is indifferent towards', whereas 'hates' definitely excludes these alternatives.

75. See J Rosenberg 'Russell on negative facts' pp. 37 - 39.

76. Ibid, p. 38

77. In other words, the incompatibility account has to be a reductive account of negation. A proposition p is true if the proposition negated, is false. And p is false if some proposition q incompatible with p is true. If this is to be a reductive analysis, incompatibility has to be a positive relation. Richard Gale in his monograph 'Negation and non-being' op.cit., pp. 19 - 35 discusses various criteria for distinguishing between negative and positive propositions and properties, with the aim of finding criteria which will enable him to determine whether incompatibility is positive or negative. His conclusion is that it is negative. See also note 86 below.

78. 'Russell on negative facts' p. 39, his emphasis.

79. Ibid, p. 39, his emphasis. This idea that predicates come in families is akin to P F Strawson's notion that predicates belong to incompatibility ranges (see Introduction to Logical Theory, 1952, p.6).

80. This example is adapted from R Gale 'Negation and non-being' p. 27.

81. These strategies and the criticisms of them were suggested to me by certain remarks made by Hochberg in his Thought, Fact and Reference, chapter XIV, pp 417-419. See also his 'Negation and generality' p 330.

82. See R Gale, 'Negation and non-being', p 4. Gale mentions and later discusses two further theses, namely the higher-order thesis and the subjectivity thesis. Gale thinks that the former is defensible and the latter not. I shall not discuss either of these views in any detail. A version of the higher-order thesis is defended by G Ryle in his 'Negation', op.cit., where he claims that negative facts are "abstract" because "they are ex officio facts about facts about things, or characters of characters of things, and not directly facts about things or characters of things" (p 88). For example, to assert 'Mrs Smith's hat is not green' is not to ascribe anything to Mrs Smith's hat, but is really to ascribe some-colour-other-than-green to the colour of her hat (see pp 87-88). In asserting this we would not have ascribed an individuating character to the colour of Mrs Smith's hat, but this does not mean that we have said nothing positive about its colour. We have said something about the colour of the hat, even if we have said nothing of it. Ryle says that we feel dissatisfied with negative facts "because they don't, as a rule, constitute all that we want to know, since they are only 'facts about' when we want to find the 'facts of'" (p 96). Negative facts are genuine facts, if not very interesting ones. There are a number of objections to Ryle's view, but I will not discuss them here. A version of the subjectivity thesis was defended by F H Bradley. His views were discussed in chapter 1.

82a. Russell would have said that false positive propositions require negative facts. Those who wish to advocate the reducibility thesis have to show how negative facts can be avoided in this case as well. The strategy discussed in the text was the claim that false positives can be accounted for in terms of true positives (which require only positive facts) and a (positive) relation of incompatibility.

83. This distinction between redundancy and reducibility is one that is commonly made in philosophy. Compare the remarks in the text with the following quotation from S Kripke 'Naming and necessity' in D Davidson and G Harman (eds) Semantics of Natural Language, 1972, p 271:

> Although the statement that England fought Germany in 1943 perhaps cannot be reduced to any statement about individuals, nevertheless in some sense it is not a fact 'over and above' the collection of all facts about persons, and their behaviour over history. The sense in which facts about nations are not facts 'over and above' those about persons can be expressed in the observation that a description of the world mentioning all facts about persons but omitting those about nations can be a complete description of the world, from which facts about nations follow. Similarly, perhaps, facts about material objects are not facts 'over and above' facts about their constituent molecules. (Kripke's emphases)

84. See R Gale, 'Negation and non-being', pp 4-35.

85. See ibid, pp 36-43.

86. See ibid, p 35. See also pp 19-35 for Gale's discussion of criteria for distinguishing positive from negative propositions. Gale's conclusion that incompatibility analyses fail as reductive analyses depends on the outcome of this discussion. One might try and challenge Gale's conclusion that incompatibility is an irreducibly negative notion by challenging his criterion for negativity. For the purposes of the argument in the text, however, I will assume that Gale's criteria for distinguishing positives from negatives are acceptable.

87. Rosenberg seems to be aware of the fact that such a criticism of the incompatibility analysis is possible. He thinks that the incompatibility between two propositions is grounded in a (higher-order) relation of *exclusion* which holds between two relations belonging to the same *family of relations* (see the text for a fuller description of Rosenberg's position). Rosenberg claims that even though we can say that two relations exclude one another if they cannot be simultaneously exemplified by the same particular, this does not mean that we have re-introduced the notion of negation we were trying to eliminate by introducing the relation of *exclusion*. This, says Rosenberg, is because *exclusion* is a relation *which is* epistemologically and ontologically *basic*. However, this doesn't seem to be a very convincing argument, as something's being epistemologically and ontologically basic doesn't preclude it from being negative. In fact, this is precisely what is at issue in the negative fact debate. If Russell is right, then some ontologically basic things are negative. And if Russell is wrong, then Rosenberg has to show why this is so. He cannot simply assert that ontologically basic things are non-negative.

88. Although Wittgenstein in the *Tractatus* seems prepared to say that a statement like '$Bb \supset \sim Wb$' is a *tautology* . He says: "The statement that a point in the visual field has two different colours at the same time is a contradiction" (6.3751).

89. R Gale, 'Negation and non-being', p 41.

90. H Hochberg, *Thought, Fact and Reference*, pp 418-419.

91. E Toms, *Being, Negation and Logic*, p 98.

92. In the *Notebooks* Wittgenstein says: "Negative facts only justify the negations of atomic propositions" (Appendix I, p 97). A little earlier on the same page he says: "There are positive and negative facts: if the proposition "this rose is not red" is true, then what it signifies is negative". This seems to be a view very similar to the one held by Russell that I wish to reject, except that Russell would not have said that negative facts justify only basic negations. In 'On propositions' Russell said that the distinction between positive and negative facts could be made in the non-atomic case as well, "though it is less clear which is negative and which positive" (p 287). However, even if Wittgenstein's writings seem in places to support Russell's conception of negative facts, in general the views of these two philosophers on negative facts are very different.

93. Another way of saying this is to say that there are no negative elementary propositions. Robert Fogelin in his paper 'Negative elementary propositions', op.cit., argues that Wittgenstein's views in the *Tractatus* are compatible with saying that basic negations are atomic. Although Wittgenstein explicitly denied that there are negative elementary propositions, Fogelin argues that he could have, and perhaps should have, maintained that basic negations are simple or elementary. See note 35 above, as well as my paper 'Can negative propositions be elementary?' (Forthcoming).

94. Wittgenstein, *Notebooks*, op.cit., Appendix I, p 95.

95. *Tractatus*, 4.0621. Wittgenstein's emphasis.

96. See also ibid, 5.2341.

97. *Notebooks*, 3.11.14, p 26.

98. H O Mounce, *Introduction to Wittgenstein's Tractatus*, 1981, p 38.

99. *Notebooks*, 3.11.14, pp 25-26. Wittgenstein's emphases. See also *Tractatus*, 4.0641.

100. *Tractatus*, 2.06.

101. *Notebooks*, Appendix I, pp 98-99. Wittgenstein's emphases. See also the *Tractatus*, 4.024.

102. See *Notebooks*, Appendix I, p 104. On the same page Wittgenstein says: "I understand the proposition "aRb" when I know that either the fact that aRb or the fact that not aRb corresponds to it."

103. Ibid, p 95.

104. Ibid, p 102.

105. See ibid, 14.11.14, p 30.

106. See ibid, 27.11.14, p 34 and 25.1.15, p 40. To give a truth-functional account of negation is *not* to be committed to the view that '∼p' means 'p is false'. In any case, Wittgenstein could not consistently maintain this. An atomic proposition does not cease to be atomic if it is false, but the negation of an atomic proposition *is* non-atomic.

107. See 'Philosophy of logical atomism', p 216.

108. See *Tractatus*, 4.3. In the light of 2.06 this amounts to saying that they are possibilities of positive and negative facts.

109. These remarks were suggested to me by a reading of H Le Roy Finch's book *Wittgenstein: The Early Philosophy*, 1971, chapter 6, pp 127-130. At one point Finch says "The *Tractatus* proceeds on the view that all representation gives equally what-may-be-there and what-may-not-be-there so that everything is settled both ways, except for a *yes* or *no* (4.023). True-or-false has no more "content" than exist-or-not-exist which is, as it were, no "content" at all. (It is not until negation appears that a *separate sense* can be given to what-is-not, and this has to be understood in terms of truth possibilities)." (p 128. Finch's emphases).

110. This is not to deny that there may be philosophers who are not logical atomists who also believe that there are negative facts.

Notes to Chapter 3

1. Parmenides B2.7-8. Quoted in G E L Owen 'Plato on not-being' in G. Vlastos (ed) Plato, vol I, 1971, p 225.
2. E Toms. Being, Negation and Logic, 1962.
3. Ibid. p 96
4. Ibid. p 95
5. E Toms. 'The problem of negation', Logique et Analyse, 15, 1972, p 8. See also his 'Non-existence and universals', Philosophical Quarterly, 6, 1956, p 142.
6. One might wish to say that the denial of the existence of a fact is of a 'higher order' than an ordinary negative existential.
7. Toms' claim in Being Negation and Logic that all negations are paradoxical actually rests on two claims, namely that negative facts are unavoidable and that denials of existence are paradoxical. In the previous chapter I dealt at length with negative facts and tried to show that there is no clear-cut case in favour of admitting such facts.
   In this chapter I will attempt to show that the paradox of non-existence can be avoided. If I am right, Toms' claim that the whole field of negation is infected with paradox will be discredited. In 'The problem of negation' (pp 9-15), Toms tries to show that the paradox of negation can, after all, be avoided. This attempt involves distinguishing propositional from predicate negation. I do not think that Toms is successful. A positive fact is said to be the instantion of a kind and a negative fact the non-instnatiation of a kind (p 4. See also p 10). To say that there are no unicorns, for example, is to say that the universal unicorn is uninstantiated. This seems to me to be no different from saying that there are no instances of the kind unicorn. That is, negative facts are or involve denials of existence. But it is precisely this conception of negative facts which Toms is trying to avoid, on the grounds that it is paradoxical and self-contradictory. Toms' attempt to escape the paradox in 'Non-existence and universals' (pp 142-144) by the introduction of the notion of 'limited non-existence' fails for similar reasons.
8. Toms, Being, Negation and Logic p. 72
9. P T Geach 'Symposium: On what there is', Proceedings of the Aristotelian Society, supplementary vol 25, 1951, p 125, his emphasis. Quine has nicknamed this paradox 'Plato's beard'. See 'On what there is' in From a Logical Point of View, 1961, pp 1-2.
10. W V Quine. 'Existence and quantification' in Ontological Relativity and Other Essays, 1969, p 100. Quine rejects this way of speaking in 'On what there is' p 3.
11. Meinong's position can be abstracted from his paper 'The theory of objects' in Chisholm (ed) Realism and the Background of Phenomenology, 1960, pp 76-117
12. Ibid, p 81. The use of the capital signifies that it is Meinong's sense of 'object' that is intended.

13. Ibid, p 82.
14. Ibid, p 92. See also pp 83-84 and p 108.
15. Ibid, p 86.
16. Ibid, p 86.
17. Ibid, p 108
18. Ibid, p 80 and p 81.
19. Ibid, p 96.
20. Ibid, p 85.
21. Ibid, p 86.
22. Ibid, p 82.
23. See Quine 'On what there is' pp 4-5.
24. Russell 'On denoting' in Marsh (ed) Logic and Knowledge, 1956, p 45.
25. T Parsons. Nonexistent Objects, 1980, pp 38-42. Substantially the same reconstruction is offered by V Warren Bourgeois in 'Beyond Russell and Meinong', Canadian Journal of Philosophy, 11, 1981, pp 659-660.
26. Parsons, Nonexistent Objects, p 42.
27. Meinong was apparently prepared to accept that it followed from his principles that the round square is both round and not round, and in defense said that the law of contradiction is to be applied only to actual and possible, but not impossible, objects (See Meinong Über die Stellung der Gegenstandstheorie in System der Wissenschaften. 1907, p. 16. Quoted in Parson's Nonexistent Objects, p 31). If impossible objects did indeed infringe the law of contradiction it would not be possible to reason consistently about such objects. But Meinong did presumably wish to make certain inferences about impossible objects. I conclude that he should have argued against Russell's criticisms along the lines sketched by Parsons.
28. The two occurrences of 'he' are pronouns of laziness.
29. Meinong Über die Stellung der Gegenstandstheorie, p 223. Quoted in V Warren Bourgeois, op cit, p 664.
30. Russell. 'Review of: A Meinong, Über die Stellung der Gegenstandstheorie in System der Wissenschaften', Mind, 16, 1907, p 439.
31. See V Warren Bourgeois, op cit, pp 663-664. Parsons gives an account of Meinong's distinction between being existent and existing in terms of his own distinction between 'nuclear' and 'extranuelear' properties (See Nonexistent Objects, pp 42-44). To assess Parsons' account would require an assessment of his whole program, as developed in his book, and this lies beyond the scope of this dissertation.
32. Parsons, Nonexistent Objects, p 43. This argument may not be damaging for Parsons' version of Meinongianism, but I think that it does work against Meinong's own theory. And in any case Parsons mentions yet another variant of Russell's criticism which seems to clinch the matter against Meinong. (Nonexistent Objects, p 31). Consider the object denoted by 'the object which is golden and also not golden'. This object is clearly a contradictory object.

33. There are of course philosophers who defend modified Meinongian positions. Parsons is one of them. See also H-N Castañeda 'Philosophical method and the theory of prediction and identity', Noûs, 12, 1978, 189-210, as well as the articles by T Parsons, W J Rapaport and R Clark in this same volume of Noûs.

34. In fact, in the case of such objects (particulars) it is as meaningless to affirm as to deny their existence. The terms referring to such particulars Russell called logically proper names (See 'Philosophy of logical atomism' pp 199-202).

34a. Russell presents an argument for the view that descriptions are incomplete symbols in various places (See for instance Principia Mathematica vol I 2nd ed, 1925, p 67. Also 'Philosophy of Logical Atomism' pp245-255, and My Philosophical Development, 1959,p 84). Karl Lambert has argued that Russell's argument is equivocal because the word 'means' vacillates between 'has the same sense' and 'has the same reference'. The result is that the argument is unsound (See Lambert 'Philosophical foundations of free logic' Inquiry,24, 1981, pp 174-175). Leonard Linsky, on the other hand, maintains that Russell's argument is sound. He claims that the common view that Russell's argument relies on a confusion of meaning and denotation is mistaken (See Linsky Names and Descriptions, 1977, pp 19-23). Some recent views on Russell's "proof" are to be found in A. Stroll 'Russell's proof' Canadian Journal of Philosophy, 4, 1975, pp 653-662. W Kent Wilson 'Incomplete symbols and Russell's proof', CJP, 10, 1980, pp 233-250. J D Carney 'Russell's "proof" again', CJP, 10, 1980, pp 587-592.

35. Quine 'On what there is', p 6.

35a. This is why sentences containing descriptive phrases (or ordinary proper names, which are just disguised descriptions) are not 'about' anything. This is not to deny that a descriptive phrase may denote something. Russell says: "if 'C' is a denoting phrase, it may happen that there is one entity x (there cannot be more than one) for which the proposition 'x is identical with C' is true ... We may then say that the entity x is the denotation of the phrase 'C'." ('On denoting' p 51). It does admittedly sound strange to say that a descriptive phrase may denote an object and yet that a sentence containing such a phrase is not about the object, but I think that this is the correct way to understand Russell. I quote Keith Donnellan in support of this: "Russell's analysis of statements containing definite descriptions and, by extension, ordinary proper names, shows, he believed, that such statements are not really about, do not really mention, the denotation of the description or the referent of the name" ('Speaking of nothing' in Hockney et al (eds) Contemporary Research in Philosophical Logic and Linguistic Semantics, 1975, p 99).

36. Russell,'Philosophy of Logical Atomism' p. 243.

37. 'On what there is' pp 7-8.

38. Whether or not 'existence' is ever to be regarded as a predicate is an open question. Frege thought 'existence' was a second-level concept. To say that F's exist is to say that the (first-level) concept 'F' is instantiated (See 'On concept and object' in Geach and Black (eds) Translations from the Philosophical Writings of Gottlob Frege, 2nd edition 1960, pp 48-51). Russell held much the same view (See 'Philosophy of Logical Atomism' p. 232). Quine on the other hand is opposed to such an understanding of '$(\exists x) Fx$'. He says: "Surely we can understand quantifiers perfectly well with or without classifying them as predicates which make assertions about that which first level predicates stand for.

Nothing is achieved by this move except the creation of an opportunity to talk of first-level predicates as standing for something". ('Symposium: On what there is', Proceedings of the Aristotelian Society, supplementary vol. 25, 1951, p. 156). And Quine of course objects to the view that predicates stand for anything.

39. P T Geach 'Symposium: On what there is', op. cit. p. 127
40. Ibid.
41. Ibid. pp 128-131. Geach mentions a number of other objections which are, in my opinion, adequately met by Quine in his replies to Geach in 'Symposium: On what there is' pp 149-160. See also A J Ayer's contribution to this symposium (pp 137-148).
42. Quine. 'On what there is' p 12.
43. Ibid. p 6.
44. For Strawson's arguments see 'Singular terms and predication' in Strawson (ed) Philosophical Logic, 1967, pp 69-88, as well as his Subject and Predicate in Logic and Grammar, 1974. A response by Quine is to be found in 'The variable and its place in reference' in Van Straaten (ed) Philosophical Subjects, 1980, pp. 164-173.
45. J K Swindler 'Parmenides' paradox' Review of Metaphysics, 33, 1980, p 734.
46. Swindler does cite a passage from J Searle's Speech Acts which supposedly supports his claim that if a property exists, then it is instantiated. I do not think that Searle's view supports this contention.
47. Geach 'Symposium: On what there is' p 126.
48. Toms, 'Being, Negation and Logic', p 69 his emphases. It is not entirely clear to me whether Toms would endorse a substitutional or an objectional interpretation of the quantifiers. That is, it is not clear which of the following he would endorse:
    (i) '$(\forall x) \sim \emptyset x$' is true iff for every closed term 't' of the language '$\sim \emptyset t$' is true
    (ii) '$(\forall x) \sim \emptyset x$' is true iff every object in the universe of discourse satisfies the open sentence '$\sim \emptyset x$'
49. Being, Negation and Logic, p 80, his emphases.
50. Ibid. p 94, his emphasis.
51. Ibid. p 96, his emphases
52. Parsons Nonexistent Objects, p 6. I might just add here that this issue over how the quantifier '$\exists$' is to be read is not the issue about whether the quantifiers should be interpreted substitutionally or objectually. Parsons himself favours the objectual interpretation (see Nonexistent Objects pp 11-12 & p 36)
53. Quine, 'Existence and quantification' op. cit. p. 100.
54. Nonexistent Objects, p 7.
55. It is indeed interesting to have a Meinongian theory worked out in detail, which is what Parsons attempts in Nonexistent Objects. However, if Parsons is correct in saying that a Kuhnian paradigm shift is needed for the Meinongian view to prevail then giving a detailed account of the Meinongian view will not in itself be sufficient to overthrow the rival Russellian account.
56. As Karl Lambert remarks, if 'non-denoting' is understood as 'does not refer to an existent', then it would seem to follow that free logicians of a Meinongian persuasion must countenance terms which are both denoting and non-denoting. For example, 'Sherlock Holmes' will be non-denoting because it refers to no existent, but it will also be denoting because it refers to the non-existent object who was a dective who lived in

London with his friend Watson. Lambert thus suggests that 'non-denoting' ('irreferential', 'empty') be understood to mean 'does not refer to anything', minus the qualifier 'existent' (See 'Philosophical foundations of free logic' op. cit. p. 160.

57. Ibid, p 159.

58. See S Kripke 'Naming and necessity' in Harman and Davidson (eds) *Semantics of Natural Language* , 1972, especially pp 273-303. K Donnellan 'Proper names and identifying descriptions' in Harman and Davidson (eds), op cit, pp 356-379 and 'Speaking of nothing' in Hockney et al (eds), op cit, pp 83-118.

59. 'Speaking of nothing', p 94.

60. See J Searle 'Proper names' in Strawson (ed), *Philosophical Logic*, 1967, pp 89-96. Also *Speech Acts*, 1969, chapter 7.

60a. It may be that the referent of a name must, of necessity, satisfy some of the descriptions in the cluster associated with the name. For example, we may want to claim that the referent of 'Homer' must be human and could not turn out to be a dog. In this case not *all* of our beliefs about the bearer of this name could turn out false. But such necessary descriptions do not serve to single out any individual uniquely (See Donnellan, 'Proper names and identifying descriptions' p 367 and also Linsky, *Names and Descriptions*, p 104).

61. Kripke, 'Naming and necessity' p 277.

62. According to Kripke, if 'Homer' is synonymous with 'the author of the *Iliad* and the *Odyssey*' then it would turn out to be a necessary truth that Homer was a poet. But this is only a contingent truth. Moreover, no appeal to *de re/de dicto* scope ambiguities will help here. Names, being rigid designators, do not induce scope ambiguities in modal contexts. Both

'$\Box[N]\psi(N)$'

and '$[N]\Box\psi(N)$'

are false, where 'N' stands for 'Homer', 'ψ' for 'is a poet', '$\Box$' is the necessity operator and '$[N]$' is a scope operator. On the other hand, while

'$[(\iota x)(\emptyset x)]\Box\psi(\iota x)(\emptyset x)$'

is false

'$\Box[(\iota x)(\emptyset x)]\psi(\iota x)(\emptyset x)$'

could be true if '$(\iota x)(\emptyset x)$' is the description 'the author of the *Iliad* and the *Odyssey*', 'ψ' stands for 'is a poet' and '$[(\iota x)(\emptyset x)]$' is a scope operator for descriptions. Since names and descriptions behave differently in modal contexts, they cannot be synonymous, as synonyms should be inter-substitutable *salva veritate* in all contexts. Many philosophers are critical of Kripke's views, but I cannot here enter into the debate.

63. See 'Naming and necessity' pp 298-303.

64. Ibid, p 302.

65. 'Speaking of nothing', p 104.

66. See Ibid, pp 105-106.

67. Ibid, p 110.

68. Ibid, p 111.

69. Ibid, p 112. In order to accommodate cases in which a name has never been used in any predicative sentences, Donnellan considers modifying (R) so as to talk of possible uses (See p 113). Also, as (R) stands, it would seem that the truth-conditions of negative existentials depend on facts about the use of particular names. And this may seem unsatisfactory in certain cases. For example, we might be inclined to say that 'Santa Claus

does not exist' and 'Père Noël n'existe pas' express the same proposition. But according to (R) these have different truth-conditions, because if true, the one involves a block in the history of the use of the name 'Santa Claus' and the other a block in the history of the use of the name 'Père Noël'. Donnellan's solution is to say that these do indeed express the same proposition, despite their having different truth conditions, in virtue of a certain historical connection holding between the blocks themselves (See pp 114-116).

70. By general existentials I mean sentences such as 'Lions exist' or 'Unicorns do not exist'. By singular existentials I mean those containing singular terms such as names and definite descriptions.

71. Linsky, Names and Descriptions, p 109. The description which, according to Linsky, lies behind our use of the name 'Aristotle' has what Donnellan would call its attributive use (See Donnellan, 'Reference and definite descriptions', The Philosophical Review, 75, 1966, pp 281-304).

72. The mistake can be seen as either:

    (i) the association of certain philosophical writings with the wrong man

    or

    (ii) the association of the name 'Aristotle' with the wrong man.

73. Usually this happens because of slight changes in the spelling or pronunciation of a name. These could of course have a cumulative effect over time, so that the end result would be markedly different from the original.

74. L. Wittgenstein, Philosophical Investigations, translated by G E M Anscombe. Oxford : Blackwell, 1958, pp 36-37. Wittgenstein's emphasis.

75. For Linsky's views see Names and Descriptions, especially p 99, p 105 and p 111. At one point Linsky says: "Ordinary language contains vague and ambiguous terms and there is no precise logic which they obey" (p 111). I am not certain that Wittgenstein would have agreed with this. Certainly his view on the Tractatus was that ordinary language was in perfect logical order (See 5.5563).

75a In fact, John Searle's position in 'Proper Names', op.cit., is very similar to Wittgenstein's position as interpreted by Linsky. Searle says that the statement 'Aristotle never existed' is one which "asserts that a sufficient number of the conventional presuppositions, descriptive statements, or referring uses of 'Aristotle' are false. Precisely which statements are asserted to be false is not yet clear, for what precise conditions constitute the criteria for applying 'Aristotle' is not yet laid down by the language". ('Proper names' p 96). Linsky, however, thinks that Searle's modification of Russell's view is different from Wittgenstein's. He says that the latter "is a genuine alternative to both Searle and Russell as well as to Kripke's causal theory" (Names and Descriptions, pp 110-111). Linsky seems to think that Searle's position is different from Wittgenstein's because he misunderstands Searle's position. He thinks that Searle believes that the question whether or not Aristotle existed has a definite answer, because 'Aristotle' has an exact meaning determined in advance by some fixed cluster of descriptions (See Names and Descriptions, p 111). However, the above quotation from

Searle seems to show that this is not Searle's position, and that in fact Searle's view is much more akin to Linsky's own view. And if this is so, then Kripke's arguments against Searle's cluster theory can be countered in much the same way that Linsky counters Kripke's attacks on Russell's position.

76. Linsky talks here about names being ambiguous and about the need in certain circumstances for fixing their meanings. If it is Linsky's view that we fix the meaning of a name by a description (or some set of descriptions), then it would seem that his position is open to objections of the sort mentioned in note 62 above. But Linsky had earlier admitted that "if the sense of the name 'St Anne' is identical with the sense of 'the mother of Mary' it would follow that it is also necessary de dicto that St Anne is a mother, and this I have been at some pains to deny". (Names and Descriptions, p 84). Linsky's solution is to say that the sense of a name is only partly given by its associated description(s). Another part of the sense of the name derives solely from the fact that it is, and functions as, a name. It is not clear to me how Linsky thinks that this feature of the sense of a name is to be represented in the regimented language. It is clear that there is no feature of the logical analysis that Russell gives of sentences containing names that corresponds to such a feature. An alternative would be to accept that if a name 'N' has the same sense as a description '$(\iota x)(\emptyset x)$' then it is necessary de dicto that N is a $\emptyset$. This means having to accept the view that names induce de re/de dicto scope ambiguities in modal contexts. This would seem to be a position held by Michael Dummett (See Frege: Philosophy of Language, 1973, pp 110-151).

77. Of course this is not something the story says either. It has to be something that we assume on the basis of our experience of ordinary horses and cows. Normally, being a horse excludes being a cow. But is it legitimate to make such an assumption about winged horses? I think this is a problem for the view that I have sketched. One solution is to say that unless the story says something that suggests that our normal assumptions would be inoperative, we are to continue making such assumptions. If the story was a bizarre enough science fiction tale, we might have to admit the possibility of horse-cows.

77a The view outlined here is similar to the one propounded by Rodney Bertolet in his Reference, Predication and What is Said, University Microfilms International, 1977. It is however, a much less refined account than is Bertolet's. There is also a significant difference. According to the view I have been sketching 'Pegasus' refers to a fictional object. According to Bertolet's account, the reference is not to any object but to the Pegasus story or myth. The view in the text seems to be compatible with Parsons' account of fictional objects as well (See Nonexistent Objects pp 49-60 and 175-211). Once again, of course, Parsons' account is spelt out in much more detail.

77b See Nonexistent Objects, p 50.

78. T. Parsons, Nonexistent Objects, p 113. A's reactions are meant to be normal. Parsons' view is that not only are descriptions such as 'the man in the doorway' non-referential, but also ones such as 'the dragon in the Sherlock Holmes novels', and presumably also ones like 'the winged cow that was captured by Bellerophon'. Parsons, however, also wants to allow that descriptions such as 'the round square' and 'the golden mountain' refer and so he introduces a special "Meinongian" use of 'the' (See Nonexistent Objects pp 118-120).

79. Ibid, pp 116-121.

80. R. Cartwright 'Negative Existentials' in Caton (ed), Philosophy and Ordinary Language, 1965, pp 55-66.

81. Cartwright views the relation between 'Dragons don't exist' and 'Dragons are mythical beasts' as one between analysandum and analysans. On the Russellian view they are related because the former materially implies the latter. If we represent the former as '$\sim(\exists x)Dx$' and the latter as '$\sim(\exists x)(Dx \,\&\, \sim Mx)$' then we can show $\vdash \sim(\exists x)Dx$, as follows:

1.	$\sim(\exists x)Dx$		Assumption
2.	$(\forall x)\sim Dx$	1	Interdefinability of quantifiers
3.	$\sim Dy$	2	Universal instantiation
4.	$\sim Dy \vee My$	3	Addition
5.	$\sim(\sim\sim Dy \,\&\, \sim My)$	4	De Morgan
6.	$\sim(Dy \,\&\, \sim My)$	5	Double Negation
7.	$(\forall x)\sim(Dx \,\&\, \sim Mx)$	6	Universal generalisation
8.	$\sim(\exists x)(Dx \,\&\, \sim Mx)$	7	Interdefinability of quantifiers.
9.	$\sim(\exists x)Dx \supset \sim(\exists x)(Dx \,\&\, \sim Mx)$	1-8	Conditional proof

82. J. Searle 'The Logical Status of fictional discourse' in French et al (eds), Contemporary Perspectives in the Philosophy of Language, 1979, pp 233-243.

83. Ibid, p 238.

84. A slightly different account is given by G D Martin in 'A new look at fictional reference' Philosophy, 57, 1982, pp 223-236. On Searle's view it would seem to follow that discourse in fiction is neither true nor false because the normal semantic rules are suspended. Martin, on the other hand, wishes to maintain that discourse in fiction is partly true and partly false, and this is because fictions do in some sense refer to the real world.

85. In fact, as already mentioned, Parsons does wish to recognise such impossible objects as the round square and such non-existent objects as Vulcan and the golden mountain. But in order to refer to these he has to introduce a special description operator (see note 78 above). I can see no reason against simply dropping this description operator. It would still be true that fictional names and descriptions refer, but names such as 'Vulcan' and descriptions such as 'the round square' would be irreferential and would be treated in much the same way as they are in Russell's theory. Sentences containing such terms would turn out false.

Notes to Chapter 4:

1. It may seen that pairs of sentences of the following form constitute an exception to this:

   (a) Some S are P
   (b) Some S are not P

   Dropping 'not' from (b) yields (a), but (b) is not the negation of (a). At least it is not the contradictory negation of (a), which would of course be 'No S are P'.(b) is the contrary negation of (a). Talking of contrary and contradictory negation, however, does not commit one to recognising a kind of negation other than sentential negation. This is perhaps made clearer when (a) and (b) are written in the notation of quantification theory; (a) and (b) become respectively:

   (a') $(\exists \underline{x})$ $(S\underline{x}$ & $P\underline{x})$
   (b') $(\exists \underline{x})$ $(S\underline{x}$ & $\sim P\underline{x})$

   In (b') the '$\sim$' operates on the open sentence '$\underline{x}$ is P' to yield a new open sentence '$\sim$($\underline{x}$ is P)'. To form the contradictory negation of (a') one would have to apply '$\sim$' to the entire closed quantificational sentence, which would yield '$\sim(\exists \underline{x})(S\underline{x}$ & $P\underline{x})$'. We do not have to recognise a kind of negation other than sentential negation, although we have to admit that the operator '$\sim$' applies to two kinds of sentence, namely open and closed sentences. What we do have to recognise is that it is not in general true of English (and other natural languages) that we can determine which sentence is being negated simply by dropping the 'not'. However, if negative sentences are re-written using the locution 'it is not the case that', then we can determine which sentence is negated, simply by omitting this phrase.

1a. Another view,which I shall not discuss in the text, is that there are <u>many</u> different negations in natural language and that the classical negation operator '$\sim$' cannot adequately represent all of them. This seems to be the view held by Leo Apostel in his paper 'The relation between negation in linguistics, logic and pshchology: A provisional conclusion', <u>Logique et Analyse</u>, 15, 1972, pp 333 - 401. He says there: "we shall have to introduce a variety of negation operators, and we shall not be able to satisfy ourselves only with a sentence negation" (p. 337). He goes on to suggest that we introduce a negative quantifier, as well as negative verbs, adjectives and adverbs. However, it is by no means clear that we need to recognise a negative quantifier over and above the standard quantifiers and the operator '$\sim$'. Apostel's quantifier '$(N\underline{x})$' could very well be replaced by '$(\forall \underline{x})\sim$'. Now Apostel claims that '$(N\underline{x})$' "can be defined in a purely positive way" (p. 345). If this is correct, and if one has an interest in showing that all negatives can be positively characterised, then one might be inclined to favour '$(N\underline{x})$' over '$(\forall \underline{x})$' as a representation of 'no one', 'nothing', 'nowhere' and 'never'. Apostel does indeed seem to have such an interest. In his 'Negation: The tension between ontological positivity (negationless positivity) and anthropological negativity (positively described)', <u>Logique et Analyse</u>, 15, 1972, pp 209 - 317 he seems to be committed to the following three claims:

   (i) Negative sentences can be reduced to positive ones, since the former are mere abbreviations of the latter (see p. 209 and p. 215)

   (ii) Negative sentences are redundant in the sense that an adequate and complete description of the world is possible in purely positive terms (see p. 209)

(iii) Negation is a purely anthropocentric concept. It is not needed to describe what actually is the case, but only to allow us to express our hopes, fears, desires, etc., to allow us to say what it is that we value and to allow us to state what we are obliged to do or prohibited from doing (See p.289 and p. 291)

It is for these reasons that Apostel discusses various attempts that have been made to develop a negationless logic. Many other philosophers have made claims similar to claims (i) and (ii) above. These matters were discussed in some detail in chapter 2 above.

1b. Another view that I do not discuss in the text but that one might be inclined to advance is the view that there is more than one negation in the sense that negation in classical first-order predicate logic is different from negation in many-valued logics and negation in intuitionistic logic. This is different from the claim that we should recognise more than one negation <u>within the same logic</u> (which is, I take it, the claim that Leo Apostel is making - see note 1a above - or that G H Von Wright is making - see text below). One might be inclined to say that classical sentential negation differs from many-valued negation, for instance, because some of the logical laws containing negation which are valid in classical logic are invalid in some many-valued logics. For example, the law of excluded middle ($p \vee \sim p$) is invalid in the 3-valued logic of Łukasiewicz. However, it is not clear that this shows that we are dealing with a different negataion operator. Applying the negation operator to a sentence yields a truth-value opposite to the truth-value of the negated sentence. One might say that this feature of the negation operator is common to classical and many-valued negation. It is then a separate question as to which formulae that are tautologies in classical 2-valued logic remain tautologies in many-valued logics. For an interesting discussion of negation in many-valued logics, bivalence and the law of the excluded middle see A A Zinov'ev, <u>Philosophical Problems of Many-Valued Logic</u>, 1963. See also S Sommerville's paper 'True, false or neither', Xerox, Philosophy Department, Rhodes University, where he argues that it is possible to satisfy the condition for an adequate negation operator (viz that the negation has the truth-value opposite to the negated sentence) and for the laws of excluded middle and double negation to remain valid, even in the absence of bivalency.

2. See B. Russell,'On denoting' in R.C. Marsh (ed.) <u>Logic and Knowledge</u>, 1956, pp. 52 - 53.

3. If one believes as Strawson does ('On referring' in Copi and Gould (eds.) <u>Contemporary Readings in Logical Theory</u>, 1976, pp. 105 - 127) that failure of presupposition results in a truth-value gap, then one could not represent the presuppositional understanding of (1) as (2), because when there is no unique King of France (2) is false and not neither true nor false. Strawson would of course deny that there is a non-presuppositional understanding of (1), so he would presumably claim that (1) is univocal, not ambiguous.

4. L. Karttunen, 'Presuppositions of compound sentences', <u>Linguistic Inquiry</u>, 4, 1973, p. 187.

5. See W. Kneale and M. Kneale, <u>The Development of Logic</u>, 1962, p. 147.

6. See for example G.H. Von Wright, 'On the logic of negation', <u>Logical Studies</u>, 1957, pp. 3 - 30; G Englebretsen, 'The square of oppositon', <u>Notre Dame Journal of Formal Logic</u>, 17, 1976, pp. 531 - 541; B.H. Slater, 'Internal and external negations', <u>Mind</u>, 88, 1979 pp. 588 - 591.

7. See G.H. Von Wright , op, cit., pp. 3 - 4

8. See ibid., pp. 5 - 6.

9. Ibid. p. 5. Von Wright puts his point slightly differently later on, when he says that if a thing is removed from the range of application of the predicate P, then it is also removed from the range of application of not - P (p. 11). To say that x is removed from the range of application of the predicate P is to say that x does not belong to any genus which is either intrinsically or extrinsically appropriate to P (p. 9). For example, a thing is removed from the range of application of the predicate 'sighted' if it is not a human or an animal or some other creature which has eyes. A genus is intrinsically appropriate to the predicate P if the mere fact something belongs to that genus entails that it is P. A genus is extrinsically appropriate to P if the mere fact that a thing belongs to that genus does not settle the question whether it is P, but we know what tests to carry out in order to determine whether or not it is P (p. 8). If x does not belong to any genus that is intrinsically or extrinsically apporpriate to P, that is, if x is removed from the range of application of P, then ⌜x is P' is neither true nor false, but merely not true (p.9). In this case, 'x is not - P' is also merely not true.

9a. There does not seem to be all that much difference between the idea that certain predicates are not significantly predicable of certain objects and Von Wright's idea that certain objects may be removed from the range of application of certain predicates (see note 9 above). In both cases what this amounts to is that certain predicates are inapplicable to certain objects. Where Von Wright and his opponents differ is in how they describe the result of predicating an inapplicable predicate of an object. Von Wright would say that the resulting sentence was merely not true, whereas his opponents would say that the sentence was meaningless.

10. Von Wright, op. cit., p. 7 His emphasis.

11. L. Wittgenstein, Tractatus - Logicao Philosophicus, 4·461 - 4. 4611.

12. See Tractatus, 6. 12.

13. This may seem to clash with Tractatus 3. 328. However, 3. 328 seems only to be saying that if a sign has sense then it has a use. It does not rule out the possibility that a sign which lacks sense may also have a use.

14. H.O. Mounce, Wittgenstein's Tracatus: An Introduction, 1981, p. 104. His emphasis.

14a. I should perhaps point out here that Von Wright's positon differs from Strawson's position as outlined in 'On referring', op. cit. Both Strawson and Von Wright would agree that a sentence such as

(A) The King of France is not-bald

is meaningful. Moreover, both would agree that (A) is neither true nor false. But whereas Von Wright would say that (A) is merely not true (a third truth value), Strawson would say that (A) induces a truth-value gap, since (A) cannot at present be used to make either a true or a false statement. Von Wright is also committed to the view that

(B) The King of France is not bald

is true. However, Strawson would see no difference between (A) and (B). The 'not' in such sentences is always to be regarded as an instance of predicate negation. The 'not' in such sentences is univocal.

15. Of course the law of excluded middle still holds with respect to a sentence and its weak negation.

16. D. Wiggins, 'Sentence meaning, negation and Plato's problem of non-being' in G. Vlastos (ed.) Plato, vol. I, pp 299 - 300.

17. P.T. Geach, 'The law of excluded middle' in Logic Matters, 1972, p. 79.

18. I am assuming that what colours there are is something that is in principle determinable. Of course, different people will make different colour discriminations, and what discriminations they make will likely depend on their interests. An artist, for instance, will probably need to make finer discriminations than others. It is also possible that we do not have names in our language for all the shades of colour that we are able to discriminate. This is no objection to writing (5) as (6), because we could always invent new names.

    One may also object that there are indefinitely many ways of dividing up the colour spectrum and that if each way of dividing it up yields a different set of colours, then we could never complete (6). I think the answer is that one has to decide in advance on one such method of dividing up the colour spectrum and stick to it. Which such method one chose would be an arbitrary matter. I am also assuming that what colours there are depends on the human visual apparatus. If we had eyes that were sensitive to different light frequencies, then we might not be able to discriminate the colours we do.

19. See P.F. Strawson. Introduction to Logical Theory, 1952, p. 6.

20. See G.H. Von Wright, op. cit., p. 4

21. B. Russell, 'The philosophy of logical atomism' in Logic and Knowledge, op. cit., pp. 212 - 213.

21a. If Russell is saying that a sentence and its negation must always have opposite truth-values, then he has to deny that the narrow-scope negation of a sentence containing an empty subject term is really a negation of that sentence. In such a case, if the sentence is a universal one, then both it and its narrow-scope (contrary) negation will be true and if the sentence is an existential one or one containing a definite description, then it and its narrow-scope negation will both be false. The following examples illustrate this:

All dragons are furry $\sim(\exists \underline{x})(D\underline{x} \,\&\, \sim F\underline{x})$ T	All dragons are not furry $\sim(\exists \underline{x})(D\underline{x} \,\&\, F\underline{x})$ T
Some dragons are furry $(\exists \underline{x})(D\underline{x} \,\&\, F\underline{x})$ F	Some dragons are not furry $(\exists \underline{x})(D\underline{x} \,\&\, \sim F\underline{x})$ F
The King of France is bald $(\exists \underline{x})\left[(\forall \underline{y})(K\underline{y} \equiv \underline{x}=\underline{y}) \,\&\, B\underline{x}\right]$ F	The King of France is not bald $(\exists \underline{x})\left[(\forall \underline{y})(K\underline{y} \equiv \underline{x}=y) \,\&\, \sim B\underline{x}\right]$ F

In fact, Russell's argument against predicate negation would rule out contrary negation even when the subject term is not empty, as contraries do not always have opposite truth-values. Although contraries may not be true together, they may both be false. Similarly, those pairs of sentence which are called sub-contraries may not both be false, but they could both be true. But the contrary negation of a sentence has an equal claim to being a negative form of that sentence as has

its contradictory negation. However, recognising both contrary and contradictory negation does not mean that we have to recognise predicate negation. As was pointed out in note 1 above, recognising both contrary and contradictory negation is compatible with the view that there is only one kind of negation operator, namely the classical sentence operator '$\sim$'.

22. G. Frege, 'Negation' in Geach and Black (eds.), Translations from the Philosophical Writings of Gottlob Frege, 1960, p. 131

23. There is some question as to how we should read '$\bar{W}$'. If we read it as 'not - wise' then it seems that we should understand this as we understood 'not - red' in the text. That is to say, to predicate 'not - wise' of somebody would be to say that some predicate other than 'wise', but in the same incompatibilty range as 'wise', applied to that person. But 'unwise' seems to be more specific than this and to mean something like 'definitely stupid'. If this is so, then we could not represent A(ii) as A(iii). We might call 'not - wise' the logical contrary of 'wise' and 'unwise' one of its non-logical contraries. The logical and non-logical contraries of a predicate are related though. The logical contrary of a predicate is equivalent to the disjunction of all its non-logical contraries. (For this distinction between logical and non-logical contraries of a predicate, see G. Engelbretsen, op. cit., pp 534 - 534). The reason that both A(i) and A(ii) could be false is that the person referred to may be neither profoundly intelligent nor unenlightened, but fall somewhere between these two extremes. However, the only reason that both A(i) and 'He is not - wise' could fail to be true is if there was no one referred to by the pronoun 'he'. This points to another difference between 'unwise' and 'not - wise'. If predicate negation forms the logical contrary of a predicate this suggests that the only way to represent 'unwise' is to treat it as non-complex. We might then represent A(i) as 'Wa' and A(ii) as 'Ua'. The disadvantage of such a representation is that it disguises the relation that holds between A(i) and (ii).

24. See note 1 above

25. P.T. Geach, op. cit., p. 85, his emphasis.

26. See F. Sommers, 'Types and ontology', Philosophical Review, 72, 1963, p. 348.

27. Category mistaken sequences are also neither true nor false, according to Sommers. But, one might say, this is to admit that category mistaken sequences are, after all, exceptions to the law of excluded middle. My response to this would be to say that the law of excluded middle does not state that a sentence is either true or false (this would be the priciple of bivalence), but rather says that either a sentence or its negation must be true. This amounts to saying that $p \vee \sim p$ is always true.

28. L. Apostel, 'The relation between negation in linguistics, logic and psychology: A provisional conclusion', op. cit., pp 333-401.

29. The numbers in brackets behind each sentence are the numbers Apostel gives to them. See Apostel, op. cit., p. 333.

30. Ibid. pp. 335 - 336.

31. (e) is of course an exception, since it cannot be reduced to '$\sim$P(a)'. However, it is not clear to me why Apostel found it necessary to represent (v) as (e) in the first place. A much more natural representation for (v) would have been simply

'~P(a)'. If we had used this very natural representation to begin with, then (e) would not have constituted such a bothersome exception.

32. Apostel, op. cit., p. 335

33. Ibid. p. 336

34. His arguments for this view are to be found in ibid. pp 340 - 357. See also note 1a above.

35. Not all of (8) - (14) are explicitly considered by Apostel. Some other possible understandings of (7) are:

    (i) John's not going to New York in his motor car today (He doesn't have a motor car)

    (ii) John's not going to New York in his motor car today (There's no such person as 'John' and no one else is going anywhere today).

36. Although of course, the immediate effects of his actions may happen elsewhere.

37. See Apostel, op. cit., pp. 338 - 340

38. This is because negative sentences in general are rarely used in response to questions, the reason being, presumably, that someone who asks a question is seeking information, and a negative reply would not be informative.

39. See N. Chomsky 'Deep structure, surface structure and semantic interpretation' in Steinberg and Jakobovits (eds.) Semantics, 1971, pp. 183 - 216.

40. See for example H. Lasnik 'On the Semantics of negation' in Hockney et. al (eds.) Contemporary Research in Philosophical Logic and Linguistic Semantics, 1975, pp 301 - 303.

41. R. Kempson, Presupposition and the Delimitation of Semantics, 1975, p. 192. See also pp. 22 - 23.

42. Ibid. p. 23

42a. Here the scope ambiguity is clearly a structural ambiguity, and not a lexical one. There are not two kinds of negation involved in (26) and (27). The same sort of ambiguity is involved here as is involved in 'Everybody loves somebody', which is ambiguous between '$(\exists \underline{x})(\forall \underline{y})L\underline{y}\underline{x}$' and '$(\forall \underline{y})(\exists \underline{x})L\underline{y}\underline{x}$'. The next example given in the text seems also to be a case of structural, and not lexical, ambiguity. (Some linguists, for example, R.S. Jackendoff in 'An interpretive theory of negation', Foundations of Language, 5, 1969, pp. 222 - 228, have argued that the reverse is the case. Jackendoff argues that two kinds of negation, what he calls NP and VP negation, are invovled. For an argument against Jackendoff's claim, see R. Kempson, op. cit., p. 21, her argument against step (c)). If (16) - (20) are indeed to be thought of as underlying semantic structures and if (7) is therefore ambiguous, one might ask whether this ambiguity is structural or lexical. In the case of a sentence such as (7), Apostel himself thinks that we need only one kind of negation, namely classical sentential negation, in order to represent its different understandings. Hence the ambiguity must be a structural one. In other cases though, Apostel thinks that classical sentence negation is inadequate and that we need to introduce different sorts of negation operators into our logical notation. If a negative sentence

were ambiguous between understandings which involved different negations, then the ambiguity would be a lexical one. However, Apostel does not discuss examples of such ambiguous sentences.

43. H. Lasnik would for instance regard (28) as ambiguous between a wide and a narrow scope reading. This is not an example he actually uses, but his own examples are similar. See Lasnik, op.cit., p 280 and pp 298-299. The example actually comes from R.S. Jackendoff 'An Interpretive theory of negation', op.cit., pp 223-224 and p 230, who in fact believes that (28) is <u>unambiguous</u>, its only possible reading being (29). I think that Jackendoff is mistaken. To understand Jackendoff's position, note that we can without contradiction add the phrase 'but many of them did hit it' to (30) whereas adding this to (29) results in contradiction. In other words, (a) is anomalous but (b) is not:

(a) *Not many of the arrows hit the target, but many of them did hit it.
(b) Many of the arrows did not hit the target, but many of them did hit it.

Now according to Jackendoff, (c) below is also anomalous, which it should not be if (28) really were ambiguous

(c) * The target was not hit by many of the arrows, but many of them did hit it.

I do not find (c) contradictory, as there is a reading of the first conjunct which makes it acceptable. Support for my view comes from Ruth Kempson, who believes that there are two possible scope interpretations for sentences such as (28). Kempson would, of course, deny that these two interpretations correspond to two meanings, as on her view (28) is not ambiguous, but is general or non-specific. But to show that Jackendoff is wrong, one needs only to show that there are two scope readings for a sentence such as (28), something he denies. (It is then a further question whether these readings constitute differenct meanings or not. I discuss the generality versus ambiguity issue in the text). I might just add that Jackendoff is attempting to argue against the generative semanticist's view that transformations do not change meaning. One of Jackendoff's strongest arguments in favour of an interpretive theory of negation is to claim that the passive transformation sometimes changes meaning. This he claims is the case with respect to (30) and (28). However, if (28) has two scope readings then Jackendoff's case against the generative semanticist is weakened. For Kempson's arguments against Jackendoff see Kempson, op.cit., pp 20-22.

44. See Apostel, op.cit., p 338.

45. See Kempson op.cit. pp 11-16. See also Kempson, <u>Semantic Theory</u>, 1977 pp 117-121. Although there are similarities between Apostel's and Kempson's views, there are also differences. See Section VII below and notes 78 and 79.

46. Kempson, <u>Presupposition and the Delimitation of Semantics</u>, op.cit., pp 34-35.

47. See for example A. Zwicky and J. Sadock 'Ambiguity tests and how to fail them' in Kimball (ed.) <u>Syntax and Semantics</u>, vol. 4, 1975, pp 1-36 and G. Lakoff, 'A note on ambiguity and vagueness' <u>Linguistic Inquiry</u>, 1, 1970, pp 357-359.

48. G. Lakoff, op.cit.

49. If negative sentences are truly general, then it should be possible to accommodate any and every crossed understanding of 'John wasn't running and neither was Harry'. Although it does seem possible to accommodate the example (34) given in the text, I'm less sure about an example such as the following:

    John wasn't running and neither was Harry;
    it was Peter who was running and there is nobody
    by the name of 'Harry' around here.

    In the first conjunct only the subject is negated, whereas in the second conjunct the whole sentence falls within the scope of the negation.

50 Atlas advances his arguments in a number of places. See On the Semantics of Presupposition and Negation, Princeton University Ph.D., 1976; 'Negation, ambiguity and presupposition', Linguistics and Philosophy, 1, 1977, pp 321-336; 'On Presupposing', Mind, 87, 1978, pp 396-441. Ruth Kempson independently advanced arguments against the view the negative sentences involving definite noun phrases or factive verbs are ambiguous. See Presupposition and the Delimitation of Semantics, op.cit., pp 66-70, 95-100; Semantic Theory, op.cit., chapters 8 and 9.

51. See note 47 above.

52. Atlas On the Semantics of Presupposition and Negation, op.cit., p 83.

53. Ibid, p 83.

54. See ibid, pp 83-84.

55. See ibid., pp 84-85.

56. Actually, I disagree with Atlas on this point. (40) is three-ways ambiguous and so is its passive form. It seems to me that there is a sense in which we can be said to see the actions of others, and if this is so then all three readings of (40) are preserved under the passive transformation. Of course this does not show that (40) is not ambiguous. There may be other transformations which do eliminate some of its understandings.

57. These are not Atlas' examples. His own examples are 'It's not true that the King of France is wise, is it?' and 'I know that it's not true that the King of France is wise'. However, these are not transformations of (35) (a) but of (35) (b). Since Atlas thinks that (35) (a) and (b) are near paraphrases (see op.cit., p 80) it clearly would not make much difference to him which he applied these transformations to. However, since his opponents think that (35) (a) is ambiguous while (35) (b) is univocal, it would seem preferable to restrict our attention to the avowedly ambiguous (35) (a).

58. It has been suggested to me that in the case of fictional characters, generality would be preserved. But I do not think that this is so. Consider:

    (i) The cheshire cat doesn't have a body, does he?

    Providing the questioner knows that the cheshire cat is a fictional character then he cannot be presupposing that the cheshire cat exists. The only understanding available is the non-presuppositional one.

In other words, in discourse about fiction only the non-presuppositional understanding is possible. Actually, this latter claim may not always hold good. It may be possible to seriously utter the following without presupposing that there is a largest prime:

(ii) The largest prime hasn't been discovered yet, has it ?

However, if (ii) were uttered, it would be more likely to be used facetiously (say by a mathematics teacher to a student who erroneously assumed that there is a largest prime).

59. I would say that (42) only has the non- presuppositional understanding because I can know that it is not the case that the King of France is wise, but I cannot know that the King of France is non-wise, because there is no king of France. Of course, if I erroneously believe that there is a King of France and that I know certain things about him, then I can say that I know that the King of France is non-wise, but I will not really know this. So perhaps there is a presuppositional understanding of (42) after all. However, if (42) is changed to 'He knows that the King of France is not wise' then it seems that only the non-presuppositional understanding is possible.

60. Atlas, op. cit., p. 85.

61. See ibid., pp. 87 - 93.

62. Ibid. p. 88. See also Kempson, Presupposition and the Delimitation of Semantics, op. cit., p. 100.

63. This example is taken from R. Kempson, Semantic Theory, op. cit., p. 136. She goes on to give an explanation as to why sentences containing ambiguous terms such as 'dog' must fail the conjunction test. I do not think her account is altogether satisfactory and prefer the account I give in the text.

64. Atlas, op. cit., p. 92.

65. In other words, before we can judge whether or not two actions are of the same kind, their action descriptions have to be disambiguated.

66. Atlas, op. cit., p. 92. His emphasis.

67. G. Gazdar, Pragmatics: Implicature, presupposition and logical form, 1977, pp. 65 - 66.

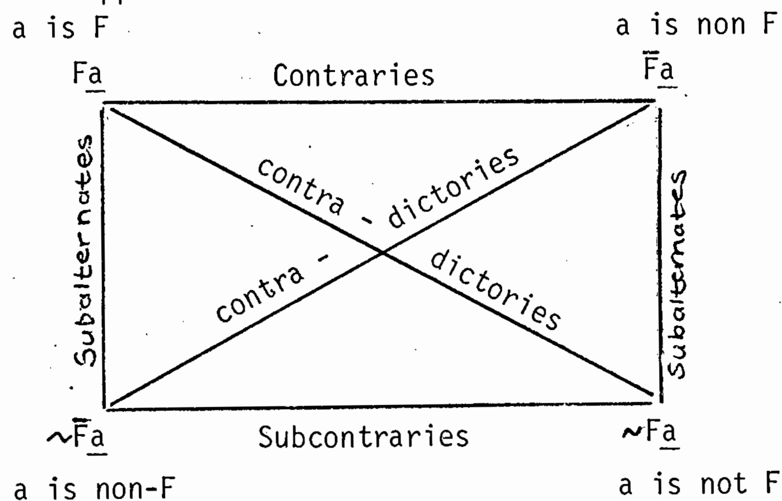
68. (36) (a) and its two understandings have the following Czech translations:

(36) (a') To nevadilo Johnovi že se Fred smál
(b') To není pravda že to Johnovi vadilo že Fred se smál
(c') Že se Fred smál nevadilo Johnovi.

69. G. Gazdar, op. cit., pp. 65 - 66.

70. In fact, we have already noted one reason for thinking that a perspicuous language would have to have two negations. The reason is that if we recognise only classical sentential negation, we do not seem able to distinguish between 'He is not wise' and 'He is non-wise'. B.H. Slater in his paper ' Internal and external negations', op. cit., suggests that recognising two kinds of negation would help to resolve a number of outstanding philosophical puzzles, for instance problems about existence, problems about fictions and

problems about propositional attitudes. However, I do not think that the only way to solve such problems is to recognise two negations. Another suggestion, made implicitly by Slater and explicitly by G. Englebretsen in 'The Square of opposition' op. cit., is that if we recognise two kinds of negation, then we can exhibit the relations that hold between a singular sentence and its two negations on a square of opposition as follows:



The value of this is presumably that it suggests that this square of opposition is related to the traditional Aristotelian square of oppositon. In fact, Englebretsen thinks that both are special cases of a completely general square of opposition (see G. Englebretsen, op. cit., pp 537 - 538.

71. J. Atlas, op. cit., pp 154 - 155. See also p. 161, and note 3 above.

72. J. Atlas, 'Negation, ambiguity and presupposition', op. cit., p.332. His emphasis.

73. Ibid, p. 332

74. Ibid. p. 334 note 12. See also On the Semantics of Presupposition and Negation, op. cit., pp. 167 - 168. Similar remarks apply of course to sentences containing factive verbs, such as (36) (a)

75. J. Atlas, On the Semantics of Presupposition and Negation, op. cit., p. 619. His emphasis. A little later Atlas says: "There is nothing incoherent in saying that the logical form captures a proposition expressed by the sentence but does not capture its meaning ... . And if my claim that negation creates generality rather than ambiguity is correct, underlying structure cannot represent meaning" (Ibid. p. 171)

76. J. Atlas 'Negation, ambiguity and presuppositon', op. cit., p. 332.

77. This view, which Atlas proposes in On the Semantics of Presupposition and Negation, op. cit., he later abandons. See his 'Negation, ambiguity and presupposition', op. cit., pp 334 - 335, note 12, for his reasons for rejecting this view. In this note he also discusses and rejects an alternative view, which suggests a representation for sentences such as (1) which adapts H.P. Grice's bracket notation (This view is also discussed in Atlas' 'On presupposing', op. cit., pp. 406 - 407). Finally, Atlas suggests that a solution to the problem lies in offering a semantic

representation which is given in the form of a computer program. But he does not discuss this alternative. I will confine my discussion in the text to the "pragmatist's view".

78. Kempson would represent a negative sentence as follows: Let 'S' be a sentence, which is interpreted as a conjoint set of semantic components (P_1 & P_2 & .... Pn). Then '~S' can be replaced by 'A/S' where:

$$A / S \equiv A / P_1 \vee A / P_2 \vee \ldots \vee A / Pn.$$

Here each A / Pij (i = 1, ..., n) is the antonymy operator for some (arbitrary) member Pij of a set (Pi_1, Pi_2, Pi_3, ...Pij, ..., Pim) of antonymous items such that:

$$A / Pij \equiv Pi_1 \vee Pi_2 \vee \ldots \vee Pi(j-1) \vee Pi(j+1) \vee \ldots \vee Pim.$$

(See Kempson, Presupposition and the Delimitation of Semantics, op, cit,. pp. 12 - 13 and pp. 170 - 171. I have slightly altered Kempson's notation to make it conform with my own usage in this thesis). A simple example may make this clearer. Suppose we interpret the sentence 'John hit Mary' as:

$$([J]x \;\&\; [M]y \;\&\; [HIT]xy)$$

Then 'John did not hit Mary' would be represented as the disjunction:

$$[A / J]x \vee [A / M]y \vee [A / HIT]x{\cdot}y$$

Here 'A / J' is the antonymy operator for 'J', which belongs to the set of personal proper names. The same is true of 'A / M'. 'A / HIT' is the antonymy operator for 'HIT', which belongs to some such set as (HIT, BIT, KICKED,...)

79. As already mentioned in the text, Apostel regards the form of a negative sentence such as 'John is not going to New York in his motor car today ' as:

$$(i) \sim R\ (J,N,M,T)$$

Each local negation, such as

$$(ii)\ \left[(\iota \underline{x})\ R(\underline{x},N,M,T)\right] \neq J$$

is meant to imply the general negation (i). And (i) is meant to imply the disjunction of all the local negations of the form of (ii). In fact, given Apostel's choice of notation, it is not at all clear that these implications hold. (ii) is a quantificational sentence (aside: is it plausible to claim that ordinary negations are really quantificational sentences ?), whereas, (i) is not. Neither does (i) follow from (ii) by existential instantitation. Of course if (i) is merely an abbreviateion for the disjunciton of all the local negations then it will be the case that each local negation such as (ii) implies (i) and that (i) implies the disjunction of all the negations such as (ii) (since any sentence implies itself).

80. See note 42a above.

81. This view has affinites with H. P. Grice's view that the natural language particle 'not' is adequately represented by the logical particle '~', whose definition is given by the familiar two-valued truth-table. If English 'not' seems to diverge in

meaning and use from logical '~' this is to be explained by appealing to certain conversational presumptions, maxims and implicatures. Ruth Kempson is explicitly concerned with developing a Gricean account of negative sentences (See Presupposition and the Delimitation of Semantics, op. cit., chap. 8). For an attack on the Gricean view see L.J. Cohen 'Some remarks on Grice's views about the logical particles of natural language' in Y. Bar-Hillel (ed.) Pragmatics of Natural Language, 1971, pp. 50 - 68. (see especially pp. 52 - 54).

82. Leo Apostel's position is more complicated that this. He holds both that there are many negations and that we have to give a pragmatic account of negative sentences. He does not explicitly enter the Ambiguity vs. Generality Debate, but on the basis of certain of his remarks it seems fair to conclude that Apostel would support the view that certain negative sentences (namely those which have different understandings depending on the scope of the negation) are general rather than ambiguous. As Apostel nowhere discusses negative sentences involving presuppositions no conclusions can be drawn as to where he stands in the Generaltiy vs. Amgiguity Debate with regard to this class of negative sentence.

83. Another possible response is to deny that our aim in constructing a formal language is to be able to express everything that can be expressed in some natural language, but to express it in a more perspicuous way. If nuances of meaning in English cannot be adequately expressed using only the particle '~', this does not show that we should recognise another kind of negation. Those who respond in this way are likely to say that what cannot be expressed in classical first-order predicate calculus (which is a language adequate for scientific purposes) is of no importance in any case. A similar response could be made to the claim that '~' is inadequate for expressing English 'not' because it fails to account for the fact that in certain dialects of English asserting 'I ain't never done nobody no harm' is equivalent to asserting 'I've never harmed anybody'. If English negation were adequately represented by '~', then it should conform to the law of double negation, which holds for '~'. But as the above example shows, English negation does not conform to the law of double negation, and so it cannot be adequately represented by '~'. The response to this would be to say that our aim in constructing fromal languages is not to enable us to translate stretches of ordinary language discourse into such language. Formal calculi were construced with quite other purposes in mind.

84. See B Russell 'Philosophy of logical atomism', pp 183-184.

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