

ABSTRACT

João M.B.V. Branquinho

New College

University of Oxford

Degree of D.Phil.

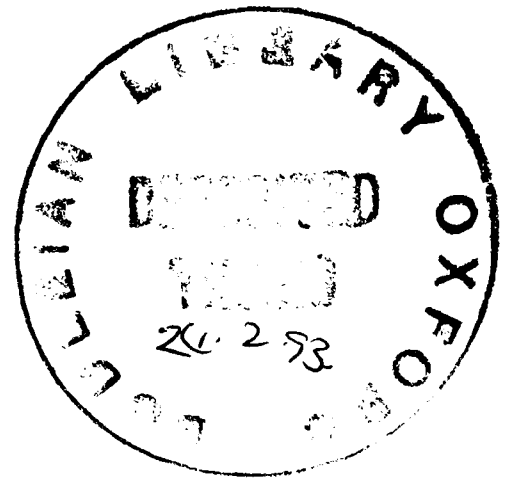
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"DIRECT REFERENCE, COGNITIVE SIGNIFICANCE AND FREGEAN SENSE"

This essay deals with certain problems in the theory of singular reference. The following question is taken as central: What role is to be assigned to non-empty and syntactically simple singular terms in fixing the semantic contents of utterances of declarative sentences in which they may occur? I focus on those aspects of the current dispute between Millian and neo-Fregean approaches to singular reference which are related to issues about the cognitive significance of language use; the following two issues are singled out as crucial: the issue about (alleged) potential differences in informativeness between sentences constructed out of co-referential singular terms; and the issue about (alleged) failures of substitutivity *salva veritate* of co-referential singular terms in propositional-attitude contexts.

The general direction of my arguments is as follows. On the one hand, I argue that "notational variance" claims recently advanced on both sides of the dispute should be deemed unsound; and hence that one is really confronted with separate accounts of singular content. On the other, I argue that Millianism does not provide us with a satisfactory solution to the problems about cognitive significance; and hence that a framework of singular senses is indispensable to deal with such problems in an adequate way. I also discuss the problem of Cognitive Dynamics, i.e. the issue of attitude-retention and persistence of mental content, in connection with the individuation of indexical thought. I argue that the standard Intuitive Criterion of Difference for thoughts might be reasonably extended to the diachronic case, allowing thus the possibility of discriminating between thoughts entertained by a thinker at different times.

**DIRECT REFERENCE,
COGNITIVE SIGNIFICANCE
AND
FREGEAN SENSE**



By João M.B.V. Branquinho

New College, University of Oxford

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PREFACE

This essay is concerned with certain problems in the philosophy of singular reference and singular thought. In particular, I take as central the following question: What kind of role is to be assigned to non-empty, syntactically simple and used singular terms (e.g. ordinary proper names, demonstratives and other indexicals) in fixing the semantic contents of, or the propositions expressed by, utterances of declarative sentences in which they may occur?

My aim is to discuss certain aspects of the current dispute between a directly referential account, which I take as being mainly represented in the Millian version advanced by theorists such as David Kaplan and Nathan Salmon, and a neo-Fregean account, which I take as being mainly represented in the *De Re* conception of singular senses expounded by theorists such as Gareth Evans and Christopher Peacocke. The aspects in question are related to issues about the cognitive significance of language use, and I single out the following two as crucial: (i)- the Informativeness Problem, i.e. the issue about (alleged) potential differences in informative value between utterances of pairs of sentences constructed out of co-referential singular terms; (ii)- the Substitutivity Problem, i.e. the issue about (alleged) failures of substitutivity *salva veritate* of co-referential singular terms in propositional-attitude contexts.

I pay special attention to "notational variance" arguments which have recently been adduced in both directions. On the neo-Fregean side, the claim has been made that a Millian account of singular reference, in its attempt to accommodate certain facts about cognitive significance, might be regarded as a notational variant of a neo-Fregean account. On the Millian side, the claim has also been made that a neo-Fregean account of indexical reference based upon *De Re* singular senses might be regarded as a notational variant of a Millian

account.

The general direction of my arguments is as follows. On the one hand, I argue that the neo-Fregean Notational Variance claim and its Millian counterpart are both unsound (though for different reasons); and hence that one is really confronted with separate theories of singular reference, irreducible to one another. On the other hand, I argue that a Millian account is far from providing us with satisfactory solutions to the problems about cognitive significance mentioned above; and hence that a framework of singular modes of presentation is indispensable to deal with such problems in an adequate way.

I have divided this work into three chapters. Chapter I, "Sense and Cognitive Significance", contains the theoretical background to the issues which concern us; the essentials of Frege's theory of sense and reference are given, the relationship holding between the notion of a singular mode of presentation and the notion of cognitive significance is delineated, and the nature of the controversy between Fregeanism and Millianism over the semantics of singular reference is characterized. Chapter II, "Direct Reference and Cognitive Significance", contains an assessment of various interesting attempts recently made by Millian theorists to deal with the problems of Informativeness and substitutivity in connection with ordinary proper names and syntactically simple indexicals and demonstratives. The upshot is that Millianism, even if supplemented with a framework of guises or ways of apprehending neo-Russellian contents, is unable to account for the phenomena of cognitive significance in a satisfactory way; on the other hand, notational variance arguments adduced on both sides are also considered and eventually rejected. Chapter III, "Cognitive Dynamics and Cognitive Significance", contains a positive contribution to the study of attitude-retention and content-retention in connection with issues about the Individuation of indexical and demonstrative thought. I put forward what I take to be an admissible diachronic generalization of Evans's Intuitive Criterion of Difference for thoughts; and I discuss a number of constraints that should

be imposed upon the notion of retention on which the envisaged principle depends. I also give an outline of the leading ideas of a neo-Fregean approach to the central problem of Cognitive Dynamics (as introduced by Kaplan in his influential paper 'Demonstratives'); Kaplan's and Evans's views are critically examined and a solution is sketched in terms of the notion of a memory-based mode of presentation of an indexically presented object.

CHAPTER I

SENSE

AND

COGNITIVE SIGNIFICANCE

INTRODUCTION

The main purpose of this Chapter is to set out the theoretical and historical background which appears to be relevant to our subsequent discussion of the problem of singular reference in connection with the issue of cognitive significance.

In Section 1, I give an outline of the sort of general approach to the semantics of extensional (declarative) sentences which is due to Gottlob Frege, in particular his theory of *Sinn* and *Bedeutung* for such sentences and for the different categories of expression out of which they are seen as being composed. In Section 2, I offer a representation of an argument originally devised by Frege to support the sense/reference distinction as applied to his category of Proper Names. In Section 3, I identify three central problems about cognitive significance which are motivated by the Fregean argument and upon which our reflection will be centred. Such problems are labelled the *Informativeness Problem*, the *Problem of Cognitive Value*, and the *Problem of Epistemic Modal Value*; and I take it to be a constraint one should impose on any acceptable semantic theory of singular reference that it offer satisfactory solutions to them. Finally, in Section 4, I try to characterize what is at issue in the dispute between Fregeanism and Millianism over the semantics of singular reference.

SECTION 1 - SENSE AND REFERENCE

1.1 Extensional sentences are those sentences which do not contain any occurrences of what could be somehow regarded as Intensional operators; among these one might count modal phrases such as 'necessarily' and 'possibly', psychological verbs such as 'to desire' or 'to hope', epistemic verbs such as 'to know' or 'to believe', and so on. Hence, we shall be dealing (for the time being) either with so-called atomic sentences, i.e. sentences whose general form is $[\Phi^n(t_1, \dots, t_n)]$, where Φ^n is an n-place predicate (with $n \geq 1$) and each t_i is a singular term; or with a certain type of molecular sentences, namely those which one might obtain from given atomic sentences by means of certain non-intensional sentential operators, such as the usual truth-functional connectives, the standard quantifiers, unary operators like 'It is true that', etc. Thus, employing a very broad notion of singular term (one which coincides with Frege's notion of *Eigenname*), the following would all be instances of extensional sentences in the above sense: 'David Kaplan wrote *Demonstratives*', 'My pants are on fire', 'If Hesperus is a planet so is Phosphorus', 'Afla is not Ateb', 'This is a well-formed formula', 'The author of *Die Grundlagen der Arithmetik* held conservative views', 'Yesterday was fine', 'Every philosopher of language admires Frege', and so on. Of course, the semantic theorist will be interested, not in sentences of the above kind taken as certain syntactic items (or as sentence-types), but mainly in given utterances of particular tokens of them by given speakers in given contexts of use.

Now focusing exclusively on atomic sentences will provide us with an excellent starting-point for our subsequent reflection. For the general accounts of singular reference we shall be discussing throughout this essay, namely certain contemporary forms of Fregeanism and Millianism, already diverge with

respect to the correct way of assigning semantic (or propositional) contents to utterances of certain sentences of such a sort in given contexts. And the kind of issues with which we shall be primarily concerned in our assessment of the dispute between those accounts, issues having to do with the cognitive value and the cognitive significance of our use of language, already arise in connection with atomic sentences, when one tries to figure out what sort of thoughts we may entertain and believe by uttering them on certain occasions of use.

1.2 As is well known, Frege put forward a two-tiered semantics for atomic declarative sentences (actually, the proposal applies without restriction to sentences and expressions of every type). The basic idea is that one should assign to every sentence $[S]$ - sharing the general form $[\Phi^1(t_1, \dots, t_n)]$ and uttered in a possible context of use c - two different sorts of semantic value (to use a neutral term). On the one hand, we have the sense (*Sinn*) expressed by $[S]$ with respect to c ; on the other, we have the reference (*Bedeutung*) of $[S]$ with respect to c . The sense expressed by $[S]$ in c should be seen as being subject-relative¹; since it is the sense attached to $[S]$ by some subject, for instance the agent of c ². And Frege's suggestion here is that one should identify the sense of $[S]$ in c with a thought (*Gedanke*), this being typically the

¹ There seems to be no conflict between saying that the sense of an utterance of a sentence (in a certain context) is subject-relative in the given sense, viz. in the sense that it is typically that sense which is expressed by the utterer (in the context), and Frege's doctrine according to which complete senses or thoughts are subject-independent self-subsistent entities.

² Or the addressee of c , or both. Notice that there are cases in which an intersubjective variation in sense may arise since e.g. agent and addressee may attach different senses to the same sentence in the same context, so that the phrase we have employed - 'the sense of $[S]$ in c ' - should be regarded as being merely a convenience which turns out to be inadequate with respect to such situations.

thought which is had or entertained by the agent of c , or the cognitive content of her utterance of $[S]$ in c . As to the reference of a sentence $[S]$ with respect to a context c , Frege claims that it should be construed as being a truth-value; thus, assuming bivalence, the reference of $[S]$ in c will be either Truth or Falsehood. And the relation holding between the thought associated with a sentence as its sense - with respect to a possible context of use - and the truth-value associated with the sentence as its reference - in the context - is to the effect that the former is a mode of presentation, or a way of thinking, of the latter which has the important property of determining it (in some sense); thus, a given Fregean thought is said to have, or to bear, a certain truth-value in virtue of this being that truth-value which is determined by the thought in question.

To sum up, a declarative sentence $[S]$ is said to express a certain thought (relative to a given context of use) and to refer to a certain truth-value (in the context); the Reference-relation is thus the relative product of the other two relations: the Expressing-relation, holding between a sentence and a thought or cognitive content, and the Determining-relation, holding between a thought and its truth-value.

Frege might also be seen as subscribing to two Functionality Principles, one for sense and the other for reference³. Roughly, the former principle is to the effect that the sense of a complex expression (in a given context) is a function of the senses assigned to its constituent parts (in the context) together with the sort of way in which they are combined. Thus, let E be an expression constructed out of component expressions e_1, e_2, \dots, e_n and let E' be the expression obtained from E by replacing (some or all occurrences of) any expression e_j in

³ Frege 1964, 90. See also Frege 1979, 210, 255; and 'On Sense and Reference' in Frege 1952, 56-78 (cf. 62, 64-5).

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E by an expression e_k ; let us also represent the sense of an expression E by $\text{Sen}(E)$. Then what the Principle of Functionality for sense states is that if $\text{Sen}(e_j) = \text{Sen}(e_k)$ then $\text{Sen}(E) = \text{Sen}(E')$. And an associated principle is that if a certain subsentential component lacks a sense (with respect to a context of use) then any complex expression, particularly any sentence, in which it might figure lacks a sense too (with respect to the context in question). Similarly, the Principle of Functionality for reference is to the effect that the reference of a complex expression (in a given context) is a function of the references assigned to its constituent parts (in the context) together with the sort of way in which they are combined. Thus, this principle states that if $\text{Ref}(e_j) = \text{Ref}(e_k)$ then $\text{Ref}(E) = \text{Ref}(E')$ (where $\text{Ref}(E)$ stands for the reference of E); and a related principle which parallels the one above given for sense also holds for reference.

Accordingly, a distinction between sense and reference should also be drawn at the subsentential level, i.e. with respect to the different categories of subsentential units which make up atomic sentences (to take the simplest case), namely singular terms and predicates of an arbitrary degree. Hence, any given singular term t_j taken in a context of use c should be assigned, not only a certain reference with respect to c , where this is just the object (if it exists) denoted by t_j in c , but also a certain sense (with respect to c). The sense expressed by t_j in c is construed as being a certain mode of presentation, or way of thinking, of the object referred to by t_j in c . Again, such a mode of presentation should be seen as being subject-relative: typically, it is that particular way of thinking of an object which is associated with t_j in c by the agent of c , and which represents her particular cognitive perspective on (a certain fragment of) the world. And the relation holding between a singular mode of presentation and the object it presents is of the same sort as that holding between a thought and its truth-value: a singular sense is said to determine (in

some sense) the object it is a way of thinking of.

Concerning this feature of Fregean senses, one should note that sense may determine reference in a number of different ways; and Frege did not provide us with any definite view on the matter, his conception of sense being largely programmatic. Indeed, there are at least four senses in which one could say that a singular sense might determine a certain object as being its referent: (i)- it may determine an object in the functional sense, i.e. in the sense that there is a function which maps singular senses onto referents, so that the possibility of two distinct objects being presented by the same singular sense would be thereby excluded; (ii)- it may determine a referent in the (strictly) descriptivist sense, i.e. in the sense that such a referent is to be taken as that object (if it exists) which uniquely satisfies a certain set of context-independent and purely conceptual conditions; (iii)- it may determine a referent in the verificationist sense, in the sense of consisting in some sort of effective procedure for picking out (or identifying) a particular object (if there is one) as being the referent; (iv)- finally, it may determine a referent in the causal sense, i.e. in the sense that such a referent is to be taken as that object which happens to be the source of a certain amount of information (and misinformation) gathered by a thinker, e.g. information she acquires on the basis of perceptual encounters with the object. Of these possible construals of the Determining-relation, (i) seems to be the weakest - since it is presumably entailed by any of the others - and the least theoretically committed; maybe Frege just had in mind such a sort of construal, and not construal (ii) (as it has been often claimed), when he spoke of senses as reference-determiners. As to construal (iv), which one might associate with certain current so-called *De Re* conceptions of sense⁴, it is *prima*

⁴ These are the neo-Fregean accounts of singular sense in which we shall be particularly interested in the present essay. The reason is that one of our concerns here is the issue of notational variance and the accounts in question

facile incompatible with construal (ii) since it might be seen as entailing the impossibility of there being a singular sense which would not present any object; and such an impossibility is not the case in the light of construal (ii) for it might turn out that the conceptual conditions encapsulating a singular sense are not true of any object at all.

1.3 Let me now summarize Frege's treatment of predicative expressions and thus complete our exposition of the essentials of his semantic account of atomic sentences. Again, the basic idea is that one should assign to every n -place predicate $\Phi^a(\xi_1, \dots, \xi_n)^5$ - with respect to a possible context of use c - two different sorts of semantic value. On the one hand, we have the sense expressed by $\Phi^a(\xi_1, \dots, \xi_n)$ in c ; on the other, we have the reference of $\Phi^a(\xi_1, \dots, \xi_n)$ in c . Frege's suggestion⁶ is that one should identify the reference of $\Phi^a(\xi_1, \dots, \xi_n)$ (in c) with a certain incomplete entity which he calls a concept (*Begriff*). And a Fregean concept is basically a function from objects to truth-values, i.e. a function whose domain is some set of objects (the references of any singular terms which might be inserted in the argument places of a predicate) and whose range is the set of the two truth-values, Truth and Falsehood (the references

apparently bring Fregeanism closer to Millianism, paving thus the way for notational variance arguments in both directions; in Chapter II, Section 3, I consider the general structure of such arguments.

⁵ In Frege's notation the greek letter ' ξ ' is just a device to indicate an argument place, i.e. a place where a singular term might be inserted, and it should not be regarded as a proper constituent of the predicate. A Fregean predicate should thus be viewed as being something which is essentially incomplete in nature, something like a functional pattern which, for given singular terms as arguments, yields a plurality of sentences as its values for those arguments. Hence, the characteristic feature of a Fregean predicate lies in the fact that it always contains a certain number of gaps or empty places, i.e. in what Frege describes as its incomplete or unsaturated nature.

⁶ See especially Frege's posthumously published paper 'Ausführungen über Sinn und Bedeutung' in Frege 1979, 118-25.

of any sentences which might result from such an insertion). As to the sense expressed by a predicate $\Phi^1(\xi_1, \dots, \xi_n)$ (in c), it is to be construed as being a certain mode of presentation, or way of thinking, of the particular function from objects to truth-values which is assigned to the predicate $\Phi^1(\xi_1, \dots, \xi_n)$ as being its reference (in c); and, again, a predicative sense should be seen as determining (in some sense) the particular function of which it is a mode of presentation.

I should notice that one must sharply distinguish between the reference of an n-place predicate, i.e. a certain sort of n-ary function, and what is usually called the extension of the predicate, i.e. the set of all those (and only those) ordered n-tuples of objects which satisfy it. For simplicity, take the case of a unary predicate $\Psi(\xi)$. Frege's idea is that the concept referred to by $\Psi(\xi)$ is an entity whose nature is essentially incomplete or unsaturated, in the sense of being given in the process itself of mapping objects onto truth-values; thus, neither the objects which might occur as its possible arguments nor the truth-values it may determine as values for those arguments are part of the concept $\Psi(\xi)$ itself. By contrast, the extension of $\Psi(\xi)$ is a complete or saturated entity, viz. a certain sort of object (a set).

Frege's distinction between a concept and its extension is derived from a prior distinction he makes between a function and its course of values¹. In Frege's notation, the functional expression $\epsilon[\phi(\epsilon)]$ stands for that second-order unary function whose value for each first-order function $f(\xi)$ as argument is what he calls the course of values (*Werthverlauf*) of the function $f(\xi)$; in other words, the result of completing $\epsilon[\phi(\epsilon)]$ with a first-order functional expression $f(\xi)$ inserted in its argument place ϕ is a certain kind of Proper Name, viz. the Name $\epsilon[f(\epsilon)]$ of the course of values associated with the first-order function

¹ G. Frege, 'Function and Concept' in G. Frege 1952, 21-41; cf. 30-32.

$f(\xi)$. Now courses of values are governed by the following Identity principle: If $f(\xi)$ and $g(\xi)$ are first-order functions then their courses of values are identical, i.e. $\epsilon[f(\epsilon)] = \epsilon[g(\epsilon)]$, if and only if $f(\xi)$ and $g(\xi)$ always determine the same objects as values for the same objects as arguments. Thus, the Fregean course of values $\epsilon[f(\epsilon)]$ of a function $f(\xi)$ could be represented as being a set S of ordered pairs $\langle x, y \rangle$ such that $y = f(x)$, i.e. y is the value determined by $f(\xi)$ for x as argument, and such that if both $\langle a, b \rangle$ and $\langle a, c \rangle$ belong to S then $b = c$. Applying this apparatus to the case of concepts, it turns out that the extension of a concept $\Psi(\xi)$ is to be identified with the course of values $\epsilon[\Psi(\epsilon)]$ of the first-order unary function $\Psi(\xi)$, i.e. with the set of all those ordered pairs $\langle x, y \rangle$ such that y is the truth-value determined by that function for each object x given as argument. The corresponding identity principle would then run as follows: (first-order) concepts $\Psi(\xi)$ and $\Gamma(\xi)$ are said to have the same extension if and only if $\epsilon[\Psi(\epsilon)] = \epsilon[\Gamma(\epsilon)]$; and this amounts to requiring that every object which falls under $\Psi(\xi)$ also falls under $\Gamma(\xi)$ and conversely.

1.4 Let us turn our attention to Frege's central argument for the distinction between the sense and the reference of a singular term. This is an argument in which a crucial appeal is made to the notion of cognitive significance as applied to a significant class of (utterances of) extensional sentences. As we shall see, Frege's argument will play an important role in our discussion, since it - or at least some reconstruction of it - is usually thought of as leading to conclusions which are conspicuously inconsistent with a strictly Millian account of singular reference. By linking the notion of singular sense to the notion of cognitive significance, the Fregean argument in question apparently establishes a very intimate connection between the semantics and the epistemology of singular reference; and that is the sort of connection which direct reference theorists

are in general reluctant to admit.

To begin with, one should be aware of the fact that Frege's argument is intended to apply to any singular terms - and to any extensional sentences containing them - belonging to his own vast category of Proper Names (*Eigennamen*)⁸. And an expedient way of introducing such a category is by noticing that it is essentially co-extensive with the syntactical category of term - or, to be precise, with that of closed term, i.e. a term containing no free variables - as recursively defined in standard first-order formalized languages. Thus, the following main kinds of expression might be counted as Fregean Proper Names: (i)- individual constants; (ii)- complex terms formed by prefixing n-place functional symbols to ordered sequences of length n of any terms; and (iii)- descriptive terms, i.e. terms which are built up from open sentences by means of a description operator (which is taken as a primitive symbol in Frege's formal language). Hence, besides syntactically simple singular terms, Frege's category of Proper Names also includes definite descriptions and other syntactically complex singular terms.

The most conspicuous semantic feature of a Proper Name - one which plays a decisive role in guaranteeing a truth-value to any extensional sentence containing it - is that it designates, or at least purports to designate, a single object. As we have seen, Frege called such an object the reference (*Bedeutung*) of the Proper Name⁹. Accordingly, the name 'Fernando Pessoa' is said to stand for the well-known Portuguese poet, and this person is said to be its reference; furthermore, since Pessoa availed himself of a number of heteronyms and also

⁸ I use capitals in order to distinguish Frege's category from ordinary proper names (which form a certain subset of it).

⁹ G.Frege, 'On Sense and Reference' in Frege 1952, 56-78 (cf. 57); see also Frege 1979, 191.

wrote under names such as 'Ricardo Reis', 'Alberto Caeiro' and 'Álvaro Campos', he is also said to be the reference of these names. Likewise, the descriptive terms 'the author of *Summulae Logicales*' and 'the Portuguese Pope' are both said to stand for the medieval logician Peter of Spain, who is said to be their common reference.

The case of descriptive terms deserves a closer examination. Thus, for any descriptive term $(\exists x)\Psi(x)$ in a language L, if the open sentence $\Psi(x)$ is satisfied by exactly one object and the given description is proper, then the interpretation of the descriptive term will be given by assigning to it the object in question as its reference. If, on the other hand, either no object or more than one object satisfy $\Psi(x)$ and the description $(\exists x)\Psi(x)$ is improper, then a Fregean semantics¹⁰ for the language L will select an arbitrary individual in the domain as the common reference for all improper descriptive terms in L. Alternatively, if one wants to follow Frege's own procedure in *Grundsetze der Arithmetik*¹¹, the reference of any improper description $(\exists x)\Psi(x)$ will be the class of all those (and only those) objects that fall under the concept Ψ , i.e. either the null-class or a class containing at least two members. This is a natural consequence of Frege's demand that in every language logically in order each well-formed expression functioning as a Proper Name must be assigned a reference.

¹⁰ Such as the Fregean formal treatment of definite descriptions developed in Kalish, Montague and Mar 1980, 306-54.

¹¹ Cf. Frege 1964, 49 ff.

SECTION 2 - FREGE'S ARGUMENT

2.1 Frege holds that the semantic significance¹² of a Proper Name - in the sense of its contribution to the semantic significance of any utterance of a sentence in which it may figure - cannot be equated with the reference of the Name (if it has one). Indeed, Frege clearly rejects the view according to which the function of a Proper Name in the language is exhaustively given by specifying a certain object as being the reference of the Name (where the mode of specification is taken to be semantically irrelevant); or, to use a different formulation, Frege clearly rejects the view according to which understanding a Proper Name (as taken in given contexts of use) consists merely in knowing of a certain object that it is the referent of the Name (in the contexts in question).

His well-known argument¹³ towards such a result could be represented as taking the form of a *reductio ad absurdum* of the following kind. Suppose, for the sake of argument, that we are dealing only with non-vacuous Proper Names¹⁴. Suppose further that the semantic significance of a Proper Name is to

¹² In formulating Frege's argument I use a deliberately broad and neutral notion, viz. **semantic significance**, to cover any sort of semantic property that Proper Names might have in the language (particularly those properties which are relevant to assign truth-values to sentences containing them). The argument might also be given with the help of notions such as **meaning** or **information value**.

¹³ See 'On Sense and Reference' in Frege 1952, 57, 62; and also 'Function and Concept' in *op. cit.*, 29. What follows is not intended as an exegesis of the passages where Frege puts forward his argument, but as a certain reconstruction of it, a reconstruction I take to be relevant for our discussion in the present essay. I have been particularly influenced by the sort of representation of Frege's argument one may find in Nathan Salmon's book 1986; I discuss Salmon's criticism of the argument in the next Chapter.

¹⁴ One might also attribute to Frege a different argument towards the same conclusion, an argument based on the existence in the language of empty Proper Names. Roughly, if the semantic significance of a Name is its referent - or consists in its standing for a certain object - then empty Names have no

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be reduced to its reference, or to its having the reference that it has. Then any two Proper Names *a* and *b* which are co-referential with respect to given contexts of use would be necessarily assigned the same semantic significance. Now take the rather plausible principle according to which the semantic significance of a sentence depends on the semantic significance of its component words and on the way they are put together in the sentence; call this Principle (S). Clearly, the conjunction of principle (S) with the above premisses entails the following result: any two sentences [S] and [S'] - having (respectively) the forms [...a...] and [...b...], where [S'] is thus obtained from [S] by replacing one or more occurrences of a constituent Name *a* by a co-referential Name *b* - would be alike in semantic significance.

On the other hand, one might also assume that if a pair of declarative sentences have exactly the same semantic significance, then they will have exactly the same information content, i.e. the information contained in any of them will coincide with the information contained in the other (with respect to given contexts of use). Indeed, it is natural to think of declarative sentences as containing or expressing certain pieces of information, where such information is typically information about the world. And it is plausible to take the

semantic significance; and hence (assuming compositionality) every extensional sentences containing them lack semantic significance either, which is intended as a rather implausible conclusion. I will not consider such a line of reasoning here; and, in general, I will not take up the issue of empty Proper Names in the present essay. Taken as applying only to syntactically complex Names like definite descriptions (or, better, to descriptions considered in their attributive uses), the argument is surely convincing, in the sense that the above sort of result could hardly be made plausible. Yet, if one considers the case of syntactically simple singular terms - such as empty names (e.g. 'Vulcan') and empty demonstratives (e.g. 'that' used in a context where the agent points to something which she just hallucinates) - then there are respectable views on which that result is taken (with some qualifications) as plausible; indeed, both (certain brands of) Millianism and (certain brands of) neo-Fregeanism endorse - on different grounds - the claim that utterances of sentences containing such singular terms have no semantic content, and fail to express a proposition or a thought (with respect to a context of use).

information content of any given sentence (relative to a given context of use) as being a function of the semantic significance which is in general assigned to the sentence; that is to say, any difference in information content between a pair of declarative sentences should be regarded as entailing some difference in semantic significance between the sentences in question.

One would then obtain, by means of the seemingly plausible assumptions stated above, the following as a consequence of the *reductio* hypothesis: our sentences [S] and [S'] - i.e. [...a...] and [...b...], where a and b are co-referential Names - have precisely the same information content. Now apparent counter-examples to such a consequence are readily available. And the pattern under which these counter-examples fall might be described as follows. One introduces cases in which [S] and [S'] clearly differ in information content; and the reason is that there will be some property F such that the information content of [S] (whatever it might be) differs from the information content of [S'] (whatever it might be) with respect to F. There are a number of choices of F which might be used in order to obtain the desired counter-instances. I select the following three as those which Frege had mainly in mind¹⁵: (i)- the information contents in question might differ with respect to *Informativeness*, i.e. to the property a given information content may have of being informative (to a given subject and at a given time); (ii)- they might differ with respect to *epistemic modal status*, i.e. to properties such as being knowable *a priori* and being knowable *a posteriori*; and (iii)- they might differ with respect to *cognitive value*, in the sense that it might be possible for some reflective subject who understands both [S] and [S'] to give (at a given time) her sincere assent to an utterance of [S], accepting (or believing) thus the information content of [S], while sincerely dissenting (at that time) from an

¹⁵ See, for instance, Frege 1979, 255.

utterance of [S], rejecting (or not believing) thus the information content of [S']. One might group epistemic properties of the above kind under a single label and say that if a pair of information contents differ with respect to any of them, then they will differ in Cognitive Significance. It is important to note that cognitive significance is primarily a property attached to pieces of information, a property which is related to the role pieces of information play in our mental lives and in our behaviour, especially to our propositional attitudes towards such pieces of information and their causal powers; though one could also think of cognitive significance as a property of declarative sentences, in the derivative sense of being a property which is passed on to them by the pieces of information they contain (with respect to given contexts of use).

2.2 Let us illustrate the foregoing remarks by instantiating our Proper Names a and b to 'Peter of Spain' and 'the Portuguese Pope' (respectively), and our sentences [S] and [S'] to

(1) Peter of Spain was Portuguese

(2) The Portuguese Pope was Portuguese

(respectively). There seems to be no plausible way in which one could consider such (true) sentences - or utterances of tokens of them in given contexts - as conveying the same piece of information. To begin with, it is easy to imagine a situation in which a speaker who fully understands (1) and (2) would assent at once to (an utterance of) (2), on the basis of its tautological character, while dissenting from (an utterance of) (1), perhaps by regarding it as sort of self-contradiction; thus, the pieces of information contained in (1) and (2) differ in cognitive value. Secondly, assuming that there is a unique Portuguese Pope, the information contained in (2) is trivially true or true solely in virtue of its logical structure; and a simple inspection of the concepts involved and their

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mode of articulation would be enough to recognize such information as true. In other words, it is the sort of information which is knowable *a priori*. By contrast, in order to recognize the information contained in (1) as true we surely need more than a mere grasp of its logical form and its component concepts (for one thing it seems to be false information or misinformation): we also need a certain amount of empirical knowledge. In other words, it is the sort of information which is knowable only *a posteriori*; thus, the pieces of information contained in (1) and (2) also differ in epistemic modal value. Finally, by being told that (1) is true, or by acquiring the information that Peter of Spain was Portuguese, one might come to learn something one did not know before, a piece of knowledge one could never acquire from sentence (2). (2) is uninformative: it clearly lacks the potential informative power that (1) undoubtedly possesses; thus, the pieces of information contained in (1) and (2) differ in informativeness as well.

The above kind of case might be regarded as uncontroversial. Indeed, it turns on syntactically complex Proper Names, viz. a description ('the Portuguese Pope') and what one might perhaps take to be a quasi-description ('Peter of Spain'). And the (different) information they contribute can be directly extracted from the structure they display: while the latter Name contains information (which happens to be misleading) about a man whose first name was 'Peter' and who apparently was born in Spain, the former represents that man as having been the one and only Pope of Portuguese citizenship. Now on any reasonable semantic account of extensional sentences, including a Millian account, singular terms of such a sort would not be counted as having the same information value (i.e. as having the same contribution to information content), and hence they would not be counted as having the same semantic significance. Thus, the Fregean argument, or at least its conclusion that semantic significance cannot

be assimilated to reference, appears to be beyond dispute when taken as an argument about syntactically complex singular terms.

2.3 Let us then consider a more interesting - in the sense of potentially controversial - sort of case, a case involving only syntactically simple Proper Names¹⁶. Let *a* and *b* be (respectively) 'Álvaro Campos' and 'Fernando Pessoa', and $[S]$ and $[S']$ be (respectively) the (true) sentences

(3) *Álvaro Campos wrote Ode Marítima*

(4) *Fernando Pessoa wrote Ode Marítima*¹⁷.

And let us enter Mário de Sá Carneiro, a colleague of Fernando Pessoa at a firm in Lisbon, where they both work as accountants in the Early Twenties. Carneiro is a great admirer of Pessoa the poet and has read almost all his books. Carneiro also knows everything about Álvaro Campos's life and literary works, and he is specially enthusiastic about his well-known poem *Ode Marítima*. Besides being (obviously) acquainted with Pessoa, it turns out that Carneiro is even (perceptually) acquainted with Campos! For it happened once that Campos - that is to say, Pessoa disguised as Campos, a poet-engineer living in Tavira - was introduced to him at *A Brasileira*, a famous Cafe in Lisbon attended mainly by poets, accountants and poet-accountants. Naturally, although he knows both who the referent of 'Fernando Pessoa' is and who the referent of 'Álvaro Campos' is,

¹⁶ Maybe one should rather say logically simple Proper Names; for there might be a sense in which e.g. the personal names mentioned below would be taken as being syntactically complex. The case discussed is, of course, a variation on Frege's 'Hesperus'/'Phosphorus' example.

¹⁷ It is (perhaps) worth saying that, as a matter of fact, Fernando Pessoa wrote the poem *Ode Marítima* under the name 'Álvaro Campos', so that (3) and (4) are indeed true. The rest of the ensuing story is largely fiction. Mário de Sá Carneiro was actually a poet and a friend of Pessoa, and he was fully aware that Pessoa and Campos were one and the same person (besides, Pessoa did not make any efforts to conceal such an identity); on the other hand, it is indeed true that Pessoa had a job as an accountant (or something of the sort).

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what Carneiro is ignorant of is that Campos is in fact his colleague Pessoa; hence, for instance, he would not be able to draw an inference on that basis from (3), which he knows to be true, to (4).

Now results which parallel those we have obtained with respect to complex singular terms seem to be forthcoming with respect to ordinary names (and other simple Proper Names). Thus, take utterances of tokens of (3) and (4) - or, better, of the Portuguese counterparts of (3) and (4) - made by a certain customer of *A Brasileira* in the course of a conversation with Carneiro. Given the above sort of circumstance, it is clear that Carneiro - a sophisticated speaker of Portuguese who fully understands (the Portuguese versions of) (3) and (4) and is fully competent in using the names involved - would promptly assent to the uttered token of (3); yet, it is also clear that he would vehemently dissent from the uttered token of (4). Of course, what Carneiro is here assenting to, and dissenting from, are not sentence-tokens taken as purely syntactic objects (e.g. as having a certain spelling or a certain number of words and letters), but sentence-tokens taken as conveying certain pieces of information (pieces of information which, in the light of our story, he fully grasps). Accordingly, on the one hand, one should say that Carneiro assents to the uttered token of (3) in the sense that he accepts (takes as correct) the information contained in (3), or simply that he believes that Álvaro Campos wrote *Ode Marítima*; and, on the other, one should also say that Carneiro dissents from the uttered token of (4) in the sense that he rejects (takes as misinformation) the information contained in (4), or simply that he does not believe that Fernando Pessoa wrote *Ode Marítima*. Hence, the pieces of information conveyed by (3) and (4) (with respect to the given contexts of use) may clearly differ in cognitive value. Furthermore, the result would be forthcoming that such pieces of information may also differ in informativeness (relative to some subject, e.g. Carneiro). Thus, whereas the

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Information that Campos wrote *Ode Marítima* is uninformative to Carneiro (in the envisaged context), in the sense that it is already part of Carneiro's knowledge at the time, the information that Pessoa wrote *Ode Marítima* would be highly informative to him (in the context), in the sense that its acquisition would constitute a genuine extension of Carneiro's knowledge at the time; and one could imagine such an acquisition as being carried out as follows: after uttering (4), and after Carneiro's vehement disagreement, the mentioned customer of *A Brasileira* goes on to supply Carneiro with adequate evidence for the truth of the information contained in (4), so that Carneiro eventually accepts this. Carneiro's coming to believe and to know (in that way or other) that Pessoa wrote the poem in question would typically bring about significant changes in his mental life - i.e. in a certain network of doxastic and epistemic states - and thus in his behaviour; and such changes would be left unexplained if one were to assume that (3) and (4) express precisely the same piece of information (with respect to the given contexts of use).

One is then apparently entitled to draw the conclusion that the information contents of sentences such as (3) and (4) should be taken as being distinct from one another; since they may differ in cognitive significance (in any of the above respects)¹⁸. Therefore, the sentences in question should be seen as differing in semantic significance. But, given that it is reasonable to take semantic significance as being governed by some such compositionality principle as (S), such a result is clearly inconsistent with the thesis that the semantic significance of any logically simple Proper Names - like the ordinary names occurring in (3) and (4) - is completely exhausted by their reference (or by

¹⁸ On the other hand, they do not diverge with respect to the sort of properties listed under (ii) above, for it seems plausible to say that they are both pieces of information which are knowable only *a posteriori*; this shows that such an aspect of cognitive significance should be separated from aspects (i) and (iii).

their standing for certain objects). So, given the apparent plausibility of the above result, one concludes that it is this thesis which should be rejected as implausible.

2.4 Finally, I would like to emphasise the following two features of the Fregean argument we have just outlined.

First, contrary to the impression one gets from certain representations of it, the argument is not to be taken as being restricted to identity sentences - i.e. pairs of sentences $[a=a]$ and $[a=b]$, where a and b are co-referential Names - and to pieces of information expressed by utterances of them in certain contexts of use; the examples we have used, all of them involving singular sentences (i.e. sentences of the subject-predicate form), are already evidence that there is no such a restriction. Although identity sentences undoubtedly have some intrinsic interest (I shall deal with them in the next Section), they only form a particular subset of the sort of sentences on which the argument turns. These are atomic sentences, i.e. any sentences of the form $[\Phi^n(t_1, \dots, t_n)]$; or, to be accurate, they are extensional sentences in general, for the Fregean argument can also be made to apply to molecular sentences: just consider pairs of sentences such as 'If Álvaro Campos wrote *Ode Marítima* then Álvaro Campos wrote *Ode Marítima*' and 'If Álvaro Campos wrote *Ode Marítima* then Fernando Pessoa wrote *Ode Marítima*', or as 'Every logician who admires Ruth Barcan admires Ruth Barcan' and 'Every logician who admires Ruth Barcan admires Ruth Marcus'.

Second, and also contrary to the impression one gets from some representations of it, the argument is not to be taken as being restricted to true sentences either; though such a restriction surely holds for the special case of (certain pairs of) identity sentences, in virtue of the requirement that

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the Names used be co-referential. Indeed, take the following pair of false sentences

(1)' Peter of Spain was Spanish

(2)' The Portuguese Pope was Spanish.

Clearly, an utterance of (1)' might be informative to someone, in the sense that it might convey interesting misinformation to her; whereas an utterance of (2)' is bound to be uninformative¹⁹, in the sense that it would convey uninteresting misinformation (misinformation a competent speaker could read off from the structure of the sentence). Moreover, an articulate and reflective subject might find herself in a position to have the false belief that Peter of Spain was Spanish, or to wonder whether Peter of Spain was Spanish, while not having at all the false belief that the Portuguese Pope was Spanish, or not wondering at all whether the Portuguese Pope was Spanish. (And similar remarks could be made with respect to certain pairs of false sentences containing only syntactically simple singular terms).

¹⁹ Assuming, as we have been doing, that the description is proper.

SECTION 3 - THE PROBLEM OF COGNITIVE SIGNIFICANCE

I focus now my attention on three different aspects under which the general problem of cognitive significance might be seen, and I discuss their place in the philosophy of singular reference. In particular, some attention is devoted to the problem of cognitively significant identities.

3.1 Confining ourselves to syntactically simple singular terms *a* and *b* (i.e. to the controversial case), the general problem which is generated by the Fregean argument, and which I shall label the **Problem of Cognitive Significance**, may be formulated as follows. How can pairs of extensional sentences $[S]$ and $[S']$ of the kind discussed - viz. $[...a...]$ and $[...b...]$ (where *a* and *b* are co-referential) - contain pieces of information which differ in cognitive significance? And from the proposed instances of cognitive significance one would get the following special cases of the problem. First, how can $[S]$ and $[S']$ contain pieces of information which differ in informative value? I shall call this the **Problem of Informativeness**. Secondly, how can $[S]$ and $[S']$ contain pieces of information which differ in epistemic modal value? I shall call this the **Problem of Epistemic Modal Value**. Finally, how can $[S]$ and $[S']$ contain pieces of information which differ in cognitive value? I shall call this the **Problem of Cognitive Value**. One should note that the latter problem is closely related to a problem with which I shall be especially concerned in this essay, and which is roughly this. How is it that a subject might come to believe (judge, suspect, hope, etc.) that *...a...* (at a certain time), while not believing (judging, suspecting, hoping, etc.) that *...b...* (at the same time)? In other words, why is it that, *prima facie*, one is not in general allowed to interchange *salva veritate* co-referential (syntactically simple) singular terms *a* and *b* within the 'that'-clauses in propositional-attitude

ascriptions? I shall call this the Problem of Substitutivity.

Differences in cognitive significance of the above kinds are to be taken as basic facts about our use of language, facts we would be able to state on the basis of our pre-theoretical intuitions as competent language-users. Hence, a condition of adequacy one should impose on any semantic account of singular reference is that it should in some way or other accommodate the phenomena in question and solve the problem of cognitive significance. And the upshot of the Fregean argument is that any possible semantic account whose defining feature is given in the thesis that all there is to the semantic significance of a simple (and non-empty) singular term is its reference - or its standing for a certain object - should be deemed inadequate; for the simple reason that such a thesis, taken in conjunction with certain seemingly sound assumptions, entails results which are manifestly incompatible with our intuitions about cognitive significance, viz. the result that it is not possible for the information contents expressed by utterances of sentences [S] and [S'] of the kind discussed (with respect to given contexts of use) to differ in cognitive significance since they are one and the same piece of information (with respect to the contexts in question).

3.2 In spite of this, accounts of singular reference have been recently advanced by a number of philosophers of language²⁰ which are grounded on some such idea as the one which seems to be undermined by the Fregean argument. And one is even caught up by the impression that such accounts, which one might call directly referential accounts, represent in these days the predominant view in the philosophy of singular reference. Thus, in the case of

²⁰ I shall give the relevant references, as well as a more precise formulation of the defining thesis of the directly referential approach, in the next Section.

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proper names, the claim has been put forward that the semantic significance of a proper name is just the bearer of the name (relative to a context of use). And, in the case of indexicals (and demonstratives), the weaker claim has been put forward that an important part of the semantic significance of a (syntactically simple) indexical expression - namely that part which is given in the role played by the indexical in fixing the information content of a sentence containing it (relative to a context of use) - consists merely in the object referred to by the indexical (in the context). Of course, the relative weakness of the latter claim is due to the fact that indexicals are in general acknowledged to have linguistic meanings, i.e. their use is seen as being governed by certain conventional rules by means of which they are assigned a reference from given contexts of use.

As a result, it is no surprise that the Fregean argument, or rather that version of it which concerns simple singular terms, has been challenged by proponents of the directly referential approach. And a wide variety of argumentative strategies have been devised to the effect. Without aiming at completeness, let me mention briefly three possible lines of attack on the Fregean argument; it is worth noticing that all of them have to do with the issue of what sort of connection, if any, should obtain between the notions of cognitive significance and information content.

A first possible line of attack might be described as follows. One should reject as unsound one of the crucial premisses in the Fregean argument, viz. the assumption that cognitive significance is a property which is to be in the first place ascribed to propositional or informational contents. Consequently, one would thereby be able to reject the claim that the pieces of information contained in sentences [S] and [S'] of the envisaged sort differ from one another in virtue of their (possibly) differing in cognitive significance; for, it is alleged, it would be wrong - or it would not make sense - to say that they

so differ. According to such a line of criticism²¹, the main reason one has for giving up the above assumption (and hence the above claim) is that cognitive significance should be treated as a notion which belongs to the pre-semantics, and not to the semantics, of singular reference. Accordingly, it would not be part of the job of the semanticist to explain possible differences in informativeness, or in cognitive value, between (utterances of) pairs of extensional sentences [S] and [S'] built up in the same way from co-referential (and syntactically simple) singular terms. The phenomena of cognitive significance are indeed to be accounted for, but not on the basis of the semantic machinery of a theory of reference. To take a particular version of the view in question, it is claimed that some light might be thrown upon such phenomena (perhaps in a Wittgensteinian way) on the basis of a broader philosophical description of a certain network of social conventions and rules which constitute the general background against which the relevant aspects of our use of language take place. (Notice that under this sort of criticism the other crucial premiss in the Fregean argument - viz. the claim that informational content is in general a function of semantic significance - might still be preserved.)

Let me now introduce a second possible line of attack on the Fregean argument. According to it, one should reject the Fregean assumption that cognitive significance is basically a feature of informational contents. Yet, one should do it on grounds which are substantially different from the ones appealed to above. And the right sort of grounds are (roughly) as follows²². Cognitive significance is indeed to be treated as a purely semantic (and not as a pre-semantic) property of utterances; and hence the associated problems are

²¹ This is the sort of strategy followed in Wettstein 1986. See also Taschek 1987.

²² See, for instance, John Perry's paper 1988.

indeed to be dealt with by means of the strictly semantic apparatus of a theory of reference. Still, it is not at the particular semantic level of propositional content, or at the level of reference, that one should locate such a property; it should be located elsewhere. On such a view, it is normally assumed that the conceptual apparatus of a directly referential account of singular reference contains notions which may be put to use with a view to providing us with an adequate solution to the problems involving cognitive significance; in fact, and especially in the case of indexicals, attempts have been made to employ certain semantic notions - e.g. the notion of character - for such a purpose. (Notice that under this sort of criticism the Fregean premiss connecting semantic significance with information content would presumably be rejected.)

Finally, let me outline a third possible line of attack on the Fregean argument. The claim has been advanced²³ that, although the premiss that cognitive significance is primarily a property of information contents is to be taken as sound, what one should rather reject is the (seemingly intuitively sound) additional claim that utterances of sentences [S] and [S'] of the envisaged kind (in given contexts of use) convey pieces of information which may differ from one another in cognitive significance; hence, the result would be blocked that such pieces of information are to be counted as distinct. Thus, for instance, the information contents expressed by utterances of (3) and (4) (in the envisaged contexts of use) should be regarded - contrary to what one would be intuitively inclined to think - as not differing at all in informativeness or in cognitive value; despite appearances to the contrary, such pieces of information are actually both uninformative (to our subject Carneiro at the time), and if one of them is believed, judged, etc. by someone (e.g. by Carneiro) then this is also necessarily true of the other. Of course, such an approach must then offer a

²³ See Salmon 1986, especially Chapter 6.

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satisfactory explanation of why we have the strong intuitions (to the contrary) that we in fact have, and why such intuitions are not reliable; and it is claimed that it is on a pragmatic basis that the intuitions in question are to be explained away. (Notice that on this sort of view the Fregean premiss connecting semantic significance with information content would be accepted.)

3.3 A substantial part of the present essay will be devoted to an assessment of the soundness of the anti-Fregean approaches to cognitive significance - taken in its connection with singular reference - we have just delineated. The upshot of my discussion is to the effect that the lines of counter-argumentation adduced are far from providing us with good, solid or conclusive reasons to reject the Fregean argument; and I come to the conclusion that the distinct strategies proposed to tackle the problems involving cognitive significance should be rated as unsuccessful (for different sorts of reason, of course).

I focus my attention mainly on what has been referred to above as the second and the third lines of attack on the Fregean argument. The reason is twofold. On the one hand, as far as I know, a sufficiently developed conception of cognitive significance along the pre-semantic lines alluded to in the first line of attack does not seem to be available for examination. On the other hand, and more important, I am inclined to assume from the outset that cognitive significance must at least be a matter of semantics (assuming thus that semantics is concerned, not only with the relationship between language and reality, but also with the relationship between language and people and their minds); so I am inclined to exclude from our consideration any views on which it is not part of semantics to explain apparent differences in cognitive significance of the kind discussed.

In Chapter II, I take up the third anti-Fregean strategy mentioned above

In connection with the semantics of ordinary proper names. And I discuss there, and also in Chapter III, certain aspects of the second anti-Fregean strategy in connection with the semantics of demonstrative and indexical expressions. I try to show that adequate and intuitively acceptable solutions to the problems of Informativeness and Cognitive Value (and, in particular, to the problem of Substitutivity) are not available in the light of either of those directly referential approaches.

3.4 Frege's main *rationale* for introducing a notion of *Sinn* for Proper Names, on top of his notion of *Bedeutung*, is undoubtedly that of accounting for the cognitive significance of a broad class of utterances of extensional sentences containing them. From a semantic viewpoint one might thus regard singular senses as being certain theoretical entities which are posited *inter alia* with a view to explaining possible differences in informativeness, or in cognitive value, or in epistemic modal value, between (the contents of) utterances of pairs of extensional sentences of the envisaged sort in given contexts of use.

Hence, in general, one might say that utterances *u* and *u'* of sentences $[S]$ and $[S']$ - i.e. $[...a...]$ and $[...b...]$ (where *a* and *b* are co-referential Proper Names) - in contexts *c* and *c'* may differ in cognitive significance - with respect to a given speaker *x* - because they may express different complete senses or Fregean thoughts in *c* and *c'*; and *u* and *u'* may express different thoughts because such thoughts may involve different singular senses: the speaker *x* may employ in thought distinct modes of presentation, or distinct ways of thinking, of the object referred to by the Names *a* and *b* (in *c* and *c'*). A Fregean thought might be regarded as playing a double role, or as arising out of a fusion of two kinds of content. On the one side, it is an informational content, in the sense of being a guide to reality: Fregean thoughts are the

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primary bearers of truth-values; on the other side, it is also a cognitive content, in the sense of being a guide to how reality is presented to, or cognized by, a thinker: Fregean thoughts are the primary bearers of cognitive significance - they are the sort of things to which given thinkers stand in certain epistemic or psychological relations.

Potential differences in cognitive significance between sentences [S] and [S'] of the kind discussed are then to be accounted for in terms of the possibility of different singular senses being attached by some speaker to the constituent co-referential Names a and b. Frege often characterizes the sense of a Proper Name as containing the way of being given (*die Art des Gegeben-seins*)²⁴ of the object which is the reference of the Name. Accordingly, the common reference of Proper Names a and b may be given to a speaker from disparate cognitive perspectives, or it may be seen by her under different aspects, so that she may fail to know of the objects thus presented that they are one and the same.

Now the Fregean senses attached to Proper Names may be conventional in nature; that is to say, there are cases in which the same mode of presentation of an object is by and large associated with a given Proper Name by the overwhelming majority of competent users of the Name. This surely holds with respect to most syntactically complex singular terms, e.g. definite descriptions such as the one occurring in (2), where the structure of the term provides us at once with a conventional way of identifying an object as its reference; but, presumably, it also holds with respect to certain ordinary proper names like 'Hesperus' and 'Phosphorus', where the associated modes of presentation of Venus are somehow "public", and to certain syntactically simple indexicals like

²⁴ G. Frege, 'On Sense and Reference' in *op. cit.*, 57.

'yesterday'. However, Fregean singular senses may also be non-conventional in nature; that is to say, there are cases concerning which a Fregean account must make room for an intersubjective variation in sense, cases in which different senses are thus attached to a given Proper Name by different (and competent) users of the Name. Presumably, this holds with respect to most ordinary proper names in use, prompting thus Frege's remark to the effect that, as far as proper names are concerned, we can hardly be described as strictly speaking the same language. And proper names such as the ones occurring in (3) and (4) exemplify that category of singular terms which do not have conventional senses attached to them. Indeed, a significant divergence is very likely to exist between the sense associated by Carneiro with the name 'Fernando Pessoa' - e.g. when he hears a token of sentence (4) uttered by the customer of *A Brasileira* mentioned in our story - and the sense associated by the utterer of (4) with the name in the same context; according to a certain construal of singular senses of the above sort, the distinct modes of presentation of Pessoa in question might be thought of as arising out of two different chains of information which happen to have the same person, viz. Pessoa, as their source (those chains being formed on the basis of certain cognitive transactions, including perceptual ones, with Pessoa). And such a distinctness in singular sense could be subsequently used to explain differences in cognitive significance, e.g. to explain why an utterance of (4) would be informative to Carneiro, but (comparatively) uninformative to his friend (with respect to our story). Of course, the Fregean theorist would have to offer a plausible account of communication, an account which ought to be made compatible with the acknowledged possibility of a variation in singular sense from speaker to speaker; for instance, she would have to explain how is it possible that, in spite of the divergent non-conventional senses they attach to the name 'Fernando Pessoa', Carneiro and his friend succeed in communicating

with each other by means of utterances of sentences such as (4) (as it is reasonable to assume they do). And sometimes this is thought of as constituting a serious objection to a Fregean semantics for ordinary names. Yet, there seems to be no reason to think that such an account could not be, in principle, given²⁵; and in developing such an account one might explore in a fruitful way the idea that what successful communication requires are only "public" referents, not "public" senses.

However, the foregoing characterization of a Fregean approach to sense and cognitive significance might be in a sense misleading. Indeed, one might hold the view that it is not strictly necessary for the Fregean semanticist to take the notion of thought (and the notion of singular sense) as being conceptually prior to the notion of cognitive significance (and to the associated notions of informativeness, cognitive value, etc.), or as being the sort of notion which comes first in the order of explanation. In effect, nothing would prevent the Fregean semanticist from introducing the notions in question simultaneously into her account of singular reference and singular thought. The notions of thought and cognitive significance would be thus construed as notions which are to be explained by reference to one another, as well as by reference to certain other notions of which the Fregean theorist might naturally avail herself; and any possible charge of (vicious) circularity made against such an account (on that basis) would be unwarranted. Hence, in general, one might as well say that utterances *u* and *u'* of sentences $[S]$ and $[S']$ of the envisaged sort in contexts *c* and *c'* may express different Fregean thoughts in *c* and *c'* - and the constituent Names *a* and *b* may express different singular senses in *c* and *c'* - because *u* and *u'* may differ in cognitive significance with respect to some

²⁵ See, for instance, the account outlined by Graeme Forbes for the case of indexical senses in his article 1989b (especially 468-70).

speaker who understands both $[S]$ and $[S']$. Nevertheless, there is a sense in which the sort of formulation we have employed above may be regarded as innocuous and as being perfectly acceptable. And that is the sense in which one might see the notion of cognitive significance as being intuitively prior to the notion of a Fregean thought, or as the sort of notion which comes first in the order of intuition. In fact, relying merely on our untutored or pre-theoretical intuitions as competent language-users, we are indeed able to make a number of judgements and verdicts involving cognitive significance, e.g. judgements to the effect that certain utterances differ in informative value, or in cognitive value, with respect to some subject; sometimes intuitions of this sort are the only thing on which to rely when discussing certain issues in the semantics of singular reference, and so they should be assigned a central place in a Fregean account.

3.5 Let me close this Section by giving an outline of Frege's treatment of identity sentences as a special case of his general approach to reference and cognitive significance.

It is worth pointing out that there is some resemblance between Frege's problem in the opening paragraphs of his *'Über Sinn und Bedeutung'*, namely how are true and yet informative identity sentences possible, and Kant's problem in his *Kritik der Reinen Vernunft*, namely how are synthetic *a priori* judgements possible. Indeed, both problems seem to fall under the same general pattern: the existence of a certain class of propositions is given as a matter of fact and the philosopher's task is to uncover their conditions of possibility.

The problems involving cognitive significance raised by the particular case of identity sentences might be stated as follows. How can utterances u and u' of true sentences of the form $[a=a]$ and $[a=b]$ in contexts c and c' , where $c=c'$,

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contain information contents which may differ in informative value, or in cognitive value, or in epistemic modal value (with respect to c and c' and relative to a speaker who understands both sentences)?

Naturally, it is assumed that there are indeed such potential differences in cognitive significance, and such an assumption is taken as being legitimated on the basis of our pre-philosophical intuitions (at least as regards to informativeness and cognitive value). And, in the case of identity sentences, the intuitions we have to that effect seem to be even stronger. In the first place, utterances of sentences of the form $[a=a]$ are *typically* uninformative. In general, they do not convey pieces of information which one did not possess previously. And they seem to play a meagre role in our cognitive lives and behaviour: we hardly use them as premisses of useful inferences and we seldom act upon them. By contrast, utterances of sentences of the form $[a=b]$ *may* be (and often are) informative; they may convey (and often convey) pieces of information which one did not possess previously. And they may play a significant role in our cognitive lives and behaviour. We often use them as premisses of useful inferences; for instance, in our story, if Carneiro comes to acquire the information that Pessoa is Campos then he will be able to deduce that Pessoa wrote *Ode Marítima* on the basis of his knowledge that Campos wrote *Ode Marítima*. And we often act upon them: detectives arrest people on the basis of certain informative identities involving ordinary proper names or (syntactically simple) demonstratives; and a single name for Venus - viz. 'Venus' - was introduced into our language as a result of the discovery that Hesperus is Phosphorus. In the second place, utterances of sentences of the form $[a=a]$ typically convey pieces of information which virtually everyone would agree to, or believe; whereas utterances of sentences of the form $[a=b]$ may convey pieces of information which some competent and reflective speaker would

disagree with, or disbelieve, or simply fail to believe; and the discordant psychological attitudes one might take towards the kinds of piece of information in question surely have discordant causal powers with respect to our psychological and behavioural economy. In the third place, and in the light of any reasonable construal of the epistemic modalities, utterances of sentences of the form $[a=a]$ typically convey pieces of information which are knowable *a priori*; whereas utterances of sentences of the form $[a=b]$ typically convey pieces of information which are knowable only *a posteriori*.

One should notice that there are cases in which utterances of sentences of the form $[a=a]$, where we have two token singular terms of the same type flanking the identity symbol, may convey pieces of information which are genuinely informative (to some subject). Thus, consider the following modification of our previous story involving Carneiro and his cognitive transactions with Pessoa. Suppose that everything is as before except for the following important details. Suppose now that Carneiro is aware of the fact that Pessoa (the poet) is Campos, so that the information contents of (3) and (4) would be both (relatively) uninformative to him. This time what Carneiro is ignorant of is the fact that his colleague Fernando Pessoa is the same person as Fernando Pessoa the poet²⁶; and one might even assume that Carneiro, besides being perceptually acquainted with Pessoa the accountant, whom he sees everyday at work, is also perceptually acquainted with Pessoa the poet: he has met him at *A Brasileira*, a place where he would never dream of coming across his colleague Pessoa. Under these circumstances, an utterance of

(5) Fernando Pessoa is Fernando Pessoa

might convey a piece of information which would be highly informative to

²⁶ Incidentally, the Portuguese term for person is precisely 'Pessoa', so that the Portuguese counterpart of this sentence would turn out to be rather bizarre.

Carneiro: Just imagine (5) said by someone in such a way that her intention to refer with the first token of 'Fernando Pessoa' to Pessoa the poet and with the second to Pessoa the accountant would be made manifest to Carneiro; whereas an utterance of

(6) Fernando Pessoa is Álvaro Campos,

where 'Fernando Pessoa' is used with the intention to refer to Pessoa the poet, would convey (relatively) uninteresting information to Carneiro. Furthermore, the information contents of (5) and (6) in the envisaged contexts of use would clearly differ in cognitive value: Carneiro would be disposed to disagree with the former, but not with the latter (to which he would promptly agree). Yet, they would be alike in epistemic modal value, being both *a posteriori* truths.

A general claim one might perhaps establish on the basis of a certain development of the above sort of case is this: not every difference in cognitive value between a given pair of pieces of information (relative to a given subject) is necessarily a difference in informativeness (relative to the subject in question). If this claim holds then, given our previous result that given differences either in informativeness or in cognitive value do not in general entail corresponding differences in epistemic modal value, one would be in a position to see the three aspects of cognitive significance under consideration as involving notions which are not co-extensive; and this might turn out to be important for argumentative purposes. Thus, let us introduce to the effect a third version of our story about Carneiro, a version which results from the one given above simply by dropping from it the assumption that Carneiro is aware that Pessoa the poet is Campos (suppose that he is still ignorant of this). Now utterances of (5) and (6) in the sort of contexts described before - where 'Fernando Pessoa' in (6) is thus used to refer to Pessoa the poet - would both convey pieces of information which, in the above circumstances, turn out to be

informative to Carneiro. Yet, it seems that one might still picture him as possibly standing in distinct cognitive relations to those pieces of information. Indeed, on the one hand, one might conceive Carneiro as emphatically rejecting the piece of information contained in (5), i.e. as disbelieving that Pessoa the poet is his colleague Pessoa (or as believing that Pessoa the poet is *not* Pessoa the accountant); but, on the other hand, one might as well conceive him as simply entertaining or considering (at the same time) the piece of information contained in (6), i.e. as just wondering whether Pessoa the poet might be Campos (after all, he knows that they are both poets). Therefore, if this is along the right lines then we are given an instance of a difference in cognitive value which is not a difference in informativeness.

Again, the Fregean claim is that the preceding sort of data concerning cognitively significant identities cannot be accommodated by a conception of singular reference whose constitutive feature is given in the thesis that the semantic significance of a syntactically simple singular term is just its bearer, or consists merely in its having a certain bearer (with respect to a context of use). And this is taken by the Fregean theorist as sufficient (if not conclusive) evidence that the conception in question is seriously flawed. According to such a conception, utterances *u* and *u'* of true sentences of the form $[a=a]$ and $[a=b]$ in contexts *c* and *c'* are invariably assigned the same particular information content (with respect to *c* and *c'*), this being in both cases the uninteresting and truistic information that a certain object - the referent of *a* and *b* - is identical to itself²⁷. Hence, on that view, one would not be even allowed to

²⁷ I think that it is incorrect to argue against the directly referential view on the basis of a description of such an information content as being the information that a certain object is self-identical. Indeed - as shown by Salmon in his article 'Reflexivity' in N.Salmon and S.Soames (eds.) 1988, 240-74 - the *monadic* property (or the attribute) of *x* being self-identical is not to be confused with the *relational* property of *x* being identical to *x*.

say that utterances of $[a=b]$ may have information contents which are informative, or that they typically convey *a posteriori* truths. For it would be logically impossible for an utterance of $[a=b]$ to contain a piece of information which might be valuable to someone, or whose acquisition might extend someone's knowledge; indeed, such a piece of information is necessarily uninformative (to everyone) and knowable *a priori* (by everyone). Likewise, the piece of information contained in any utterance of $[a=b]$ is invariably alike in cognitive value to the piece of information contained in any utterance of $[a=a]$, such pieces of information having thus the same (meagre) cognitive role and causal powers.

Now I think that the Fregean claim is essentially correct. I believe that the general implausibility and counter-intuitiveness of results of the above sort, particularly those relative to the role played by singular pieces of information in thought and action, should be in the end regarded as a *reductio* of a directly referential conception of singular reference. Yet, one must admit that rather sophisticated and interesting theoretical developments have recently taken place on the direct reference side, either with a view to showing that our intuitions about cognitive significance can after all be semantically accommodated by, and made consistent with, a directly referential view; or with a view to showing that such intuitions have essentially pragmatic sources and can (and should) be challenged from a strictly semantic standpoint, the data to which they give rise being after all pseudo-data which need not be semantically accommodated by, or made consistent with, a directly referential account. I think that such developments constitute a stimulating challenge to someone who is inclined to hold a general view on singular reference which is broadly Fregean in nature; and so I start my critical examination of them in the next Chapter.

As to the sort of solution proposed by Frege to his problem about

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cognitively significant identities, the general idea can be (briefly) sketched as follows. Utterances u and u' of true sentences $[a=a]$ and $[a=b]$ in contexts c and c' (with $c=c'$) may convey pieces of information which differ in cognitive significance relative to some speaker (who understands both sentences) because the speaker may attach different singular senses to the singular terms a and b (with respect to c and c'); that is to say, she may think of the object referred to by these terms under distinct modes of presentation, and hence she may entertain in c and c' distinct Fregean thoughts about the object in question. This would then give us a principled explanation of potential differences in informativeness, or in cognitive value, or in epistemic modal value, between the contents of identity sentences built up from co-referential singular terms.

Utterances of the form $[a=b]$ are typically informative because the piece of information they typically convey might be represented as being the Fregean thought that a certain object as presented under a certain mode is identical to itself as presented under a different mode; of course, a subject may not be aware that the objects presented to her in such distinct manners are in fact one and the same. And the possibility of utterances of sentences of the form $[a=a]$ being informative would be accommodated along the same lines within a Fregean framework of singular senses. Thus, an utterance of (5) in the envisaged context conveys a piece of information which would be informative to Carneiro because if he were to accept it then he would thereby accept a Fregean thought to the effect that Pessoa as presented to him under a certain mode is after all identical to Pessoa as presented to him under a distinct mode. And a possible way in which one might picture such different modes of presentation of Pessoa is as consisting in separate "mental files" formed in Carneiro's mind and containing distinct sorts of information (and misinformation) which is causally related to

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Pessoa, information which Carneiro has gathered on the basis of his cognitive encounters with Pessoa (as his colleague and as the well-known poet).

SECTION 4 - MILLIANISM VERSUS FREGEANISM

4.1 In order to assess the directly referential approach to singular reference, mainly in terms of its ability to handle the phenomena of cognitive significance, one must first have a more precise idea about the nature of such an approach and about the nature of the theoretical conflict holding between it and a Fregean account of singular reference.

With a view to stating what is normally taken to be the characteristic thesis of a direct reference theory, it is convenient to isolate a certain class, say *M*, of singular terms to which the range of application of that thesis is restricted and concerning which the dispute between Millianism and Fregeanism arises. The envisaged class is a proper part of Frege's category of *Eigenname* and it might be (crudely) introduced in the following way. *M* has as members all those (and only those) singular terms which are syntactically simple or unstructured. In addition, it will also be assumed that such singular terms are taken in contexts where they occur as used (as opposed to mentioned).

Let t_i be an arbitrary singular term in *M* (e.g. an ordinary proper name, or a one-word demonstrative or indexical expression). Then the Direct Reference Thesis, (DRT)²⁸, might be formulated as follows:

(DRT) t_i is directly referential: the propositional value of t_i ²⁹ - i.e. its

²⁸ The directly referential approach, as represented in (DRT), has been subscribed to by a number of philosophers, e.g. David Kaplan, Joseph Almog, Howard Wettstein, Nathan Salmon and Scott Soames. See, for instance: Kaplan 1988b; Salmon 1986; Soames 1987; Almog 1984; and Wettstein 1986. Furthermore, philosophers like Saul Kripke and Keith Donnellan seem to be very sympathetic to (DRT) (though they do not explicitly endorse it); see e.g. Kripke 1979 (especially Section I) and Donnellan 1990.

²⁹ In Kaplan's terminology, the content of t_i ; in Salmon's terminology, the information value of t_i ; in Soames's terminology, the semantic content of t_i .

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contribution to fixing the proposition expressed by, or the information content of, any declarative sentence containing it (with respect to a possible context of use) - *is* the referent of t_i (in the context).

The reason why (DRT) is not taken as being applicable to syntactically complex or mentioned singular terms is obvious. In the first case, it would be implausible to equate the propositional value of e.g. a definite description with the object it picks out (if there is such an object). Thus, (attributively used) definite descriptions - even when they happen to be proper - are seen as contributing something other than their referents to the propositions expressed by utterances of sentences in which they may occur. On some directly referential accounts, they contribute complexes which are *inter alia* composed out of the properties semantically associated with, or the characteristic functions of, the constituent predicates. In some cases, e.g. 'The pupil of Plato', the propositional value of a description may also include an individual (Plato) as a component part. But the individual picked out (Aristotle) is never the sole contribution of the description to propositional content; notice that there are cases, e.g. 'The grandson of Aristotle's paternal grandfather' (assuming that this is a proper description), in which the individual singled out may be part of a description's propositional value. In the second case, if occurrences of singular terms within quotation marks (or similar devices) were allowed, then the absurd consequence would follow from (DRT) that sentences such as "'Frege' has two vowels' and "'Frege' denotes Frege' would respectively express (relative to given contexts of use) the singular proposition about the man Frege to the effect that he has two vowels and the singular proposition about the man Frege to the effect that he denotes himself.

I assume further that, besides being syntactically simple and used, the

singular terms we shall be dealing with are also non-empty³⁰. The exclusion of empty terms from our consideration might appear to be *ad hoc*; indeed, it might be regarded as a way of evading a very delicate problem in the philosophy of singular reference, viz. the Non-Existence Problem (as one might call it). *Grosso Modo*, this is a problem which is in general posed by any sentences containing vacuous singular terms. And it seems to generate particularly serious difficulties for a directly referential approach. Thus, take the case of a sentence like 'Vulcan orbits the Sun' as uttered by a certain astronomer who believed (some decades ago) that there is a tenth planet in the solar system, viz. Vulcan. According to (DRT), the name 'Vulcan' has no propositional value; hence, assuming a principle of compositionality for propositions, it follows that the astronomer's utterance fails to express a proposition, or to have an information content (at least, it fails to express a complete proposition, or to have a complete information content); and the result that nothing definite would be said by means of such an utterance is, *prima facie*, intuitively implausible. Or take the case of a negative existential sentence like 'Vulcan does not exist' as uttered nowadays by some competent astronomer. There is a strong intuition to the effect that such an utterance is true, and hence to the effect that it must have a (complete) content. Yet, in the light of (DRT), the consequence is once more forthcoming that no (complete) content is available, for the name 'Vulcan' does not refer to anything; hence the astronomer's utterance cannot be counted as true (or as false, for that matter).

³⁰ In general, I shall keep these three assumptions throughout the present essay. I shall also suppose that descriptive names in Gareth Evans's sense - i.e. syntactically simple names which are introduced into the language by means of certain descriptive stipulations (see Evans 1982, 31) - are not included among the singular terms with which we will be concerned. On the one hand, it is unclear whether (DRT) would apply to them (some proponents of (DRT) would deny that it does); on the other, they are unimportant to our subsequent discussion.

However, it turns out that the Non-Existence Problem also generates serious difficulties for a certain (significant) range of neo-Fregean views on singular reference. In fact, problems which are similar to the ones sketched above with respect to a direct reference theory are very likely to arise with respect to those Fregean accounts which are in some way or other based on an essentially *De Re* construal of singular senses, a construal on which the existence of a singular mode of presentation depends on the existence of the thing (*Res*) it presents³¹. Roughly, if there is no referent then there is no singular sense, and if there is no singular sense then there is no complete sense either, i.e. no complete proposition or Fregean thought is available to be evaluated in terms of truth or falsity. Hence, results which parallel the preceding ones would be forthcoming on such neo-Fregean accounts. Thus, given that the Non-Existence Problem is a problem which arises both for Millianism and (certain important brands of) Fregeanism, and having in mind our general purpose, I will not consider it here.

4.2 Going back to thesis (DRT), it is important to distinguish it from certain related theses which have been often regarded as characterizing a directly referential semantics for singular terms. Since the doctrines associated with such theses have also been taken as falling under the general label "direct reference theory", I shall follow Salmon's suggestion³² and call any theory of singular reference whose defining feature is given in (DRT) a "Millian" theory. Of the theses in question I single out two - the Non-Descriptivist Thesis, (NDT), and

³¹ See e.g. John McDowell's article 1984.

³² Salmon 1990, 216, footnote 3. An excellent discussion of the distinct doctrines associated with the directly referential approach is offered by Michael Devitt in his recent article 1989, Sections 1 and 2.

the Rigid Designation Thesis, (RDT) - as being those which are more relevant to our immediate concerns; they might be represented as follows:

(NDT) t_i is non-connotative: it does not express a purely descriptive sense which determines its referent.

(RDT) t_i is a rigid designator: it refers to the same object in every possible world (or counterfactual situation).

(NDT) is entailed by (DRT), as long as one assumes that the purely descriptive senses putatively expressed by singular terms are regarded as being entered into propositional content. But the converse entailment does not hold. Indeed, one is by no means compelled to face the following sort of dilemma: either the propositional value of a singular term t_i is a strictly descriptive sense, or it is just the referent of t_i . In particular, a neo-Fregean theorist might have good reasons to endorse (NDT) without these being reasons to endorse (DRT). For instance, she might introduce singular senses which combine the following two features. On the one hand, they determine their referents only with the help of certain contextual factors, in the sense that their availability is essentially dependent on the availability of certain causal relations holding between a thinker and items in her environment; hence they are not purely descriptive senses. On the other hand, they are partially descriptive in nature, in the sense that their specification is regarded as being adequately given by means of certain (conceptually impure, so as to speak) definite descriptions; hence they are not purely non-descriptive senses either³³. Thus, if such a position can be plausibly developed, one is not compelled to face the following

³³ This seems to be the sort of neo-Fregean conception of sense which one may find in writers such as Christopher Peacocke, especially in connection with indexical expressions; see his book 1983, Chapters 5 and 6.

sort of dilemma either: a singular term t_i expresses a sense which is either a strictly conceptual or a strictly non-conceptual representation of its referent.

(NDT) represents the kind of result one might see as having been established by well-known arguments advanced by Hilary Putnam, Saul Kripke and Keith Donnellan³⁴ against what they take to be the classical or orthodox conception of singular reference (a conception which has been unjustly attributed to Frege). In a recent paper³⁵ Donnellan refers to what amounts to (NDT) as being the *negative aspect* of the directly referential approach, and to what amounts to (DRT) as being its *positive aspect*. On the classical view, as characterized by those philosophers, the purely descriptive sense allegedly associated with a given singular term (in the envisaged class) is construed as being a purely conceptual and context-independent representation of the term's referent; such a representation is thought of as naturally assuming the form of a description (or a set of descriptions) - presumably free of indexicals and other context-sensitive expressions - which is (are) uniquely satisfied by a certain object, this object being then assigned to the term as its referent. Now there are reasons to think that such a doctrine has been severely damaged (if not conclusively refuted) by the arguments in question, whether one takes it as a view about the sort of propositional values that singular terms are supposed to have, or simply as a view about the mechanism of reference involved (i.e. as an account of how the reference of a singular term is fixed). Indeed, in the case of proper names, it has been shown that in order to use competently a given name a speaker needs not possess the kind of identifying knowledge about the name's bearer which is required on the classical view. On the one hand, in a

³⁴ See e.g.: H. Putnam, 'The Meaning of 'Meaning'', reprinted in Putnam 1975; S. Kripke 1980; and K. Donnellan 1972.

³⁵ Donnellan 1990, 201-2 (Donnellan's discussion is restricted to proper names).

number of cases such knowledge is not available at all; on the other, even in those cases where such knowledge happens to be available, it might just turn out that the embodying descriptions pick out the wrong object as being the name's bearer. And persuasive arguments have been mounted, e.g. by Kaplan³⁶, to show that the classical view is also implausible as a view about the reference of demonstrative and indexical expressions.

Now I am inclined to take for granted the sort of negative result associated with thesis (NDT) and sketched above; in other words, I am inclined to take as correct the so-called negative aspect of the directly referential approach. Yet, what follows from this is just that the particular picture of singular senses which underlies the classical view is wrong, and not that singular terms of the envisaged sort do not have any kind of Fregean senses attached to them (with respect to given occasions of use); in particular, it does not follow that one ought to embrace the so-called positive aspect of the directly referential approach.

As to thesis (RDT), it is also entailed by (DRT). In effect, it can be shown that if t_i is a directly referential singular term then, given certain relatively uncontroversial assumptions, t_i rigidly designates its referent³⁷. But, again, the converse entailment does not hold. One can always rigidify a given definite description by prefixing the Actuality operator to it; thus, for instance, one may turn the flexible 'The Portuguese Pope' into the rigid 'The actual Portuguese Pope'. Now suppose that every proper name is assigned some rigidified description of the above kind as its sense; and suppose further that such a

³⁶ Kaplan 1988a.

³⁷ See Kaplan 1988b, especially 569-71. Kaplan distinguishes between obstinately rigid and non-obstinately rigid designators; (RDT) is formulated in terms of the former notion, but the distinction is irrelevant to our concerns.

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description is taken to be the name's propositional value. Then proper names would rigidly refer to their bearers (via the associated descriptions); yet, they could not be counted as directly referring to their bearers (in the sense of (DRT)). This sort of consideration could also be employed to show that (NDT) is not entailed by (RDT) (though some argument could presumably be mounted to obtain (RDT) from (NDT)). Indeed, if proper names were subjected to the above sort of treatment then they would come out both rigid and connotative (i.e. as expressing purely descriptive senses)³⁸. Needless to say, a neo-Fregean theorist could certainly endorse (RDT) and introduce singular senses which rigidly present their referents, while obviously rejecting (DRT).

4.3 Let me finish these preliminary remarks by stating what, lacking a better designation, I shall call the Indirect Reference Thesis, (IRT). The doctrine associated with this thesis might be regarded as constituting the neo-Fregean alternative to the Millian doctrine represented by (DRT)³⁹; thus, I shall call any account of singular reference whose defining feature is given in (IRT) a "Fregean" account. Let t_i be any singular term in M ; then (IRT) might be formulated as follows:

(IRT) t_i is indirectly referential: the propositional value of t_i - i.e. its contribution to fixing the proposition expressed by, or the Information content of, any declarative containing it (with respect to a possible context of use) - necessarily includes some mode of presentation of the

³⁸ In order to get this result one would have to assume that, *pace* David Lewis, the Actuality operator is not a context-sensitive expression.

³⁹ Of course, I do not mean to imply that a rejection of (DRT) would be *eo ipso* a vindication of (IRT), i.e. that the latter doctrine should be seen as the only alternative to the former doctrine.

object referred to by t_i (In the context).

Notice that, strictly speaking, (IRT) does not amount to the negation of (DRT). Of course, if (IRT) were true then (DRT) would be false; and so they are inconsistent claims. But they might both be false. Indeed, if (IRT) were false then it would not follow that (DRT) would come out true; for there would always be room for an account of a singular term's propositional value which, though rejecting the conflation of propositional value and reference, would invoke some theoretical construction other than singular modes of presentation.

In formulating (IRT) I have deliberately left open the following two questions. First, how are the singular modes of presentation supposedly associated with singular terms of the envisaged kind to be conceived? Second, what exactly is contributed by such singular terms to propositional content?

As to the latter issue, (IRT) makes room for at least two positions concerning the sort of propositional value which is to be assigned to a singular term t_i : it might be thought of as being exhausted by a mode of presentation of the referent of t_i (and this would be the standard Fregean view); or it might be thought of as being something like an ordered pair consisting of the referent of t_i itself and some mode of presentation of it. Concerning the former issue, (IRT) naturally allows for a number of choices, either actually available or merely possible, about the specific nature of singular senses. However, there are two basic constraints that one should impose upon the general notion of a singular mode of presentation. The first relates to the role of singular senses as reference-determiners; accordingly, the notion of a singular mode of presentation employed in (IRT) should be seen as satisfying the following sort of minimal principle:

(D) Necessarily, if m is a mode of presentation of object o and of object o' then $o=o'$.

In other words, it is impossible for the same singular sense to present distinct objects. The second constraint relates to the sort of connection holding between the notion of a singular mode of presentation and the notion of cognitive value (as introduced before); it might be given by means of the following kind of principle⁴⁰:

(F) Necessarily, if a rational subject x believes an object o to be F at a time t and x disbelieves o to be F at t , then there are modes of presentation m and m' of o such that $m \neq m'$ and x believes o to be F at t under m and x disbelieves o to be F at t under m' .

⁴⁰ Stephen Schiffer calls this principle *Frege's Constraint*; see Schiffer 1978, 180. Instead of belief and disbelief, other pairs of conflicting propositional attitudes might have been used to formulate the principle.

CHAPTER II

DIRECT REFERENCE

AND

COGNITIVE SIGNIFICANCE

INTRODUCTION

The central issue I discuss in this Chapter is the issue about the potential cognitive significance which our use of sentences containing syntactically simple singular terms apparently has. I examine two current mutually conflicting sorts of approach to the semantics of singular terms in connection with the problem of cognitive significance: the Millian view and the Fregean view. And I consider several interesting developments which have been lately carried out by Millian theorists with a view to coping with the phenomena of cognitive significance. The result of my assessment of such developments is essentially negative in that they should be counted as being, in general, unsound; on the other hand, a neo-Fregean approach seems to contain the sort of theoretical ingredients which I take to be necessary for a satisfactory account of singular reference and cognitive significance.

In Section 1, I consider certain versions of a Millian approach to the Informativeness problem in connection with ordinary proper names. I discuss Nathan Salmon's ingenious (alleged) refutation of Frege's Puzzle and his general policy of explaining away differences in informative value on pragmatic grounds; the general upshot is that Millianism does not yield an adequate answer to the issue about Informativeness. In Section 2, I consider certain versions of a Millian approach to the problems of Cognitive Value and Substitutivity in connection with proper names, particularly Salmon's analysis of belief-reports in terms of his notion of a guise. I argue that Millianism about attitude-reports should be rejected on the grounds that it is manifestly incompatible with some of our basic pre-theoretical intuitions, these intuitions being perfectly sound; but, on the other hand, I also reject a claim made on the neo-Fregean side to the effect that Millianism should be seen as a mere terminological variant of a neo-Fregean

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account on the grounds that it is bound to invoke sense-like entities. The remainder of the Chapter is devoted to the topic of Indexicality in relation to the problem of cognitive significance. I undertake a critical examination of what I call the *Millian Notational Variance Claim*; this is the claim that those versions of a neo-Fregean semantics for demonstratives and other indexicals which rest upon the notion of a *De Re* sense are eventually notational variants of a directly referential conception of Indexicality. In Section 3, I begin with some brief considerations about the structure of notational variance arguments proposed by theorists on both sides of the dispute; then I spell out certain lines of reasoning that might be pursued by the Millian theorist with a view to establishing the Millian Notational Variance Claim. In Section 4, I try to show that such lines of reasoning are inconclusive, and hence that the Millian claim is in general unsound. The problem of cognitive significance is tackled in connection with those categories of indexicals concerning which neo-Fregeanism and Millianism are alleged to yield similar results, viz. temporal indexicals, spatial indexicals, and perceptual demonstratives; and I argue towards the conclusion that the notions the Millian theorist might invoke to accommodate the phenomena of cognitive significance in this area of Indexicality are hardly adequate to the effect.

SECTION 1 - NAMING AND INFORMATIVENESS

In this Section I would like to address the following two (closely related) questions. First, how does a directly referential approach to the semantics of proper names fare with respect to the Informativeness Problem? And what should one say about current claims to the effect that such a problem is indeed soluble¹ within the framework of a direct reference theory? Secondly, how is one to assess certain arguments recently adduced by some Millian philosophers towards the conclusion that the Fregean argument introduced in Chapter I - or, better, a form of it confined to ordinary proper names and to the property of informativeness - should be deemed unsound?

1.1 Nathan Salmon's provocative book *Frege's Puzzle*² contains a powerful attack against a classical argument to the effect that the propositional value of a syntactically simple and used singular term cannot be equated with the object referred to by the term. The argument criticized by Salmon, and labelled by him "Frege's Puzzle", is basically a variation on the sort of Fregean argument about cognitive significance discussed in the preceding Chapter, though it depends on fewer premisses and is thus potentially more effective. The conclusion of the argument is strictly inconsistent with thesis (DRT). Therefore, if Frege's Puzzle is sound, then (DRT) is false and Millianism is wrong; and, given the nature of the premisses employed, Frege's Puzzle might be seen as indirectly supporting thesis (IRT) and hence a Fregean approach. On the other hand, if Salmon's

¹ I count certain Millian attempts to show that the problem is non-existent - i.e. that there are no relevant differences in informative value of the kind discussed in Chapter I, Section 3 - as being attempts to solve the problem.

² Salmon 1986.

counter-arguments are sound, then what is commonly viewed as one of the most serious objections to Millianism would be discarded, and the way would be paved for taking (DRT) as the right sort of basis for an account of singular reference.

It is therefore of importance to assess in some detail the soundness of Salmon's alleged dissolution of Frege's Puzzle and, by implication, the tenability of the Millian strategy adopted to tackle the Informativeness Problem. The reason why I have picked out Salmon's approach in particular is that it is perhaps the most comprehensively developed and cogently argued genuinely Millian account of cognitive significance currently available. I begin by displaying the structure of Frege's Puzzle (as represented by Salmon); then I consider his counter-arguments and discuss what I take to be their fundamental flaws.

For convenience, let us once more confine ourselves to sentences of the form $[\Phi^n(t_1, \dots, t_n)]$, where Φ^n is an n -ary simple predicate and each t_i a singular term of the envisaged kind. Concerning the semantics for such sentences, there are a number of theoretical principles which Salmon takes for granted and also regards as being in general accepted by his Fregean opponents³; the following selection is sufficient for our purposes:

(P1) The Information content of a sentence $[\Phi^n(t_i)]$, with respect to a context of use c , is an Intensional entity called a *proposition*; the reference of $[\Phi^n(t_i)]$, $\text{Ref}[\Phi^n(t_i)]$, in c is a truth-value.

(P2) The proposition expressed by $[\Phi^n(t_i)]$ in c is composed out of the information value of the predicate Φ^n , $\text{Inf}[\Phi^n]$, in c and the information value of each term t_i , $\text{Inf}[t_i]$, in c ⁴; and the mode of composition is that

³ Cf. Salmon 1990, 234-5.

⁴ The information value of each sentence-component is just its contribution to fixing the information value of the sentence, which as a limiting case is the sentence's information content.

which can be read off from the sentence.

(P3) $\text{Inf}[\Phi^n]$ is an intensional entity called an *attribute* (a property if $n=1$); and $\text{Ref}[\Phi^n]$ is a function mapping n -tuples of objects onto truth-values.

One might agree that (P1)–(P3) represent claims which a Fregean theorist would be prepared to endorse; indeed, ignoring terminological issues, there would be no substantial disagreement over their content (she would welcome in particular the proposed analysis of sentences and predicates as having two distinct sorts of semantic value). The disputed claim, which is an essential ingredient in Salmon's Modified Naive Theory of Information Content⁵, is of course thesis (DRT); or, to be precise, the following version of (DRT):

(P4) $\text{Inf}[t_i] = \text{Ref}[t_i]$.

According to Salmon's representation, Frege's Puzzle is an argument the conclusion of which is precisely the contradictory of (P4). This conclusion is viewed as being drawn from two premisses – labelled the major and the minor – together with an additional assumption about compositionality obtained from (P2). This assumption can be stated as follows:

(P5) If propositions p and q have the same mode of composition and the same constituents, then $p = q$.

And the major premiss, (PM), of Frege's Puzzle is this:

(PM) If $p = q$ then p is informative if and only if q is informative. In the linguistic mode: If the information content expressed by a sentence $[S]$ (in c) is the same as the information content expressed by a sentence $[S']$ (in c'), then the former is informative if and only if the latter is; thus, $[S]$ is informative (in c) if and only if $[S']$ is informative (in c').

Informativeness is here taken as a property which is primarily applicable to

⁵ Salmon 1986, especially Chapter 2.

Information contents or propositions; it may also be applied to sentences, but only in a derivative sense: a sentence is said to be informative if its information content is informative. Information contents are thus cognitive contents, i.e. the proper bearers of cognitive significance. Accordingly, (PM) emerges as a logical truth, viz. a consequence of the Principle of Indiscernibility of Identicals, and hence as an unassailable premiss.

As to the minor premiss, (Pm), it consists in the construction of a pair of sentences $[S]$ and $[S']$ such that: (i)– the only difference between them is that they are composed out of (possibly) distinct, but co-referential, singular terms t_j and t_k of the envisaged kind; (ii)– they (or, better, their information contents) differ in informative value: e.g., whereas $[S]$ is (potentially) informative, $[S']$ is plainly uninformative (or vice-versa). The paradigmatic case is that of a pair of sentences of the form $[a=a]$ and $[a=b]$, where a and b are proper names, e.g. 'Hesperus is Phosphorus' and 'Hesperus is Hesperus'; but, as we have seen, identity sentences are inessential to the argument.

Now Frege's Puzzle runs as follows. Since (Pm) contradicts the consequent of (PM), one derives by *Modus Tollens* the result that $[S]$ and $[S']$ have different information contents. Then, by (P5) and *Modus Tollens* again, one concludes that, since the information contents in question have the same mode of composition, such a difference in content cannot but be a difference in information value between the constituent singular terms, i.e. one gets the result that $\text{Inf}[t_j] \neq \text{Inf}[t_k]$. As t_j and t_k are *ex hypothesi* co-referential, the information value of a singular term of the envisaged kind cannot be its referent, i.e. one gets the general result that $\text{Inf}[t_j] \neq \text{Ref}[t_j]$.

1.2 There are two main lines of reasoning that Salmon pursues in order to obtain the desired refutation of Frege's Puzzle. He also considers a variant

which turns on propositional attitudes such as belief and thus involves the notion of cognitive value; I take up such a variant of Frege's Puzzle in the next Section.

Salmon's first line of attack can be described as taking the shape of a *reductio* of the following kind. If Frege's Puzzle - subjected to a certain sort of generalization - were a sound argument, then any substantive theory about propositional value, including a Fregean theory of senses itself, would be in principle impossible (since it would be readily refuted by the generalized Puzzle). The upshot is that something is wrong with Frege's Puzzle. And, since the argument is undoubtedly valid, the flaw must lie on one of the premisses. But the major premiss is beyond dispute; and the compositionality principle seems to be compelling. Thus, the second sort of counter-argument consists in Salmon's bold claim that the minor premiss is false, in the sense that a sentence such as 'Hesperus is Phosphorus' is not informative at all. To be precise, it is contended that the minor involves a sort of *petitio principii*: it assumes that a sentence such as 'Hesperus is Phosphorus' is informative in the relevant sense, i.e. in the sense which is in fact required by the major premiss (so that it might be regarded as a logical truth); but this is by no means clear and it is exactly what would have to be shown so that the first move - the use of *Modus Tollens* - could be carried out.

I shall subsequently consider those two counter-arguments and examine them separately. Let me just point out *en passant* that I take Salmon's representation of the argument as being in general fair to the Fregean point of view; and I think that it would be wrong to dismiss his counter-arguments on the basis of some repudiation of such a representation.

Salmon's strategy consists in turning Frege's Puzzle into an argument which would *inter alia* invalidate Frege's own identification of the propositional

value of a singular term with a mode of presentation of the object referred to by the term. Hence, if Salmon is right, Frege's Puzzle might even be used to undermine the Fregean thesis (IRT). This could be apparently achieved in two stages: (i)- first, generalize the original argument in such a way that it could be applied to any account of propositional value, and not only to the particular location of propositional value in reference; (ii)- then show that singular senses cannot play the role of propositional values.

With a view to generalizing Frege's Puzzle a function f is introduced which assigns to each expression E , i.e. to each semantically significant sentence-component, the information value of E . The particular nature of f is of course left unspecified; in the Fregean argument, f is just the Reference-function Ref . (Pm) could then be rewritten by substituting f for reference; i.e., one would have, for the singular terms t_j and t_k occurring in $[S]$ and $[S']$ (e.g. 'Hesperus' and 'Phosphorus'), $f[t_j] = f[t_k]$ instead of $\text{Ref}[t_j] = \text{Ref}[t_k]$. Applying (PM) and (P5), which are left unchanged, one would get the general result that the information value of a singular term cannot be its f . According to Salmon, this kind of conclusion shows that something is irremediably wrong with Frege's Puzzle, as long as it is also shown that $[S]$ and $[S']$ may, under such circumstances, be kept informative and uninformative (respectively).

Salmon tries to discredit Frege's theory by letting f be the Sense-function and by making $[S]$ informative and $[S']$ uninformative, where $[S]$ and $[S']$ are sentences which only differ from one another in containing distinct predicates which allegedly have the same Fregean sense⁶; since the predicates in question are not co-referential, for they have different extensions, this would also undermine principle (D) (or, better, its analogue for predicative modes of presentation). Let us consider a speaker, say s , whose understanding of the

⁶ Cf. Salmon 1986, 74.

English predicates 'elm' and 'beech'⁷ is such that: (i)- s knows that they are true of certain trees, and that elm trees are in some way different from beech trees; (ii)- but s is not able to pick out any specific feature which would distinguish the species of trees in question. Hence, the purely conceptual representation that s associates with 'elm' (her concept of an elm) is the same as that which she associates with 'beech' (her concept of a beech). Therefore, in s's idiolect the predicates 'elm' and 'beech' express the very same Fregean sense. Yet, a sentence such as 'Elm wood is beech wood' would be informative to s: as she knows that elms are not beeches, it would be informative in the sense of conveying misinformation to her; while a sentence such as 'Elm wood is elm wood' would be utterly uninformative to s. Thus, applying the generalized Frege's Puzzle, it cannot be that the information value of 'elm' or 'beech' is the conceptual content or Fregean sense attached to the predicate⁸.

Now I think that, ingenious as it may be, the above argument is not quite convincing. First, it rests heavily on the claim that the Fregean sense attached by a speaker to a predicate (or, if one prefers, to a natural kind term) must be a purely conceptual representation of the predicate's extension (or of the species denoted by the term). Indeed, Salmon credits his Fregean opponent with a strictly descriptivist conception of predicative (or singular) sense; and the conclusion that 'elm' and 'beech' express the same sense in s's idiolect is drawn on that basis. Yet, as we have seen, such a conception is by no means

⁷ It is irrelevant to our discussion whether words like 'elm' and 'beech' are taken as (unary) predicates or as singular terms of a certain sort, viz. names of natural kinds.

⁸ Salmon follows Putnam's intuitions about cases such as the 'beech'/'elm' case. We are entitled by ordinary standards to ascribe to someone like s propositional attitudes such as the belief that elms are not beeches; and so the Fregean theorist is obliged to make sense of this. See Putnam's paper 'The Meaning of 'Meaning'', reprinted in Putnam 1975, 215-71.

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mandatory from a Fregean viewpoint. A proponent of thesis (IRT) might introduce instead *De Re* predicative (or singular) modes of presentation, construed as being certain informational networks - possibly including interpersonal (or borrowed) information - which have certain properties (or certain natural species) at their origin; she could then be in a position to block the result that 'elm' and 'beech' have the same Fregean sense (in s's idiolect), and hence to resist Salmon's argument. Therefore, at most, what the argument shows is that predicates (or natural kind terms) cannot have purely descriptive Fregean senses as their propositional values; in other words, one could see Salmon's argument as being merely an argument for some such thesis as (NDT).

However, I guess that even this claim is disputable. For the sake of argument, let us concede to Salmon the notion of *Sinn* (= purely conceptual content) he employs to rebut the Fregean view. Notice that the crucial idea underlying Salmon's counter-argument is this: it is possible for some competent speaker, under certain circumstances, to associate the very same conceptual content with two different predicates P and Q and at the same time to know that the extensions of P and Q do not coincide, i.e. that there is at least one object of which P is true but Q is not true (or conversely). Now it seems to me that this idea is somehow internally incoherent, in the sense that it contains ingredients which could hardly be harmonized. And such an internal tension could be exploited in two distinct directions, giving rise to two Fregean rejoinders to Salmon's argument. Thus, concerning the above sort of case, either s's putative concepts of elm and beech are so defective that they could be neither assimilated to one another nor discriminated from one another, and hence one could not correctly describe s as knowing that elms are not beeches; or this piece of knowledge is legitimately ascribable to s, and hence it would be difficult to resist the conclusion that s's concept of an elm is after all different from s's

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concept of a beech. Let me expand on these two lines of reasoning.

On the one hand, a Fregean theorist might argue in the following way. From the sort of circumstance laid down in Salmon's case it does not follow that, in *s*'s idiolect, the sense of 'elm' coincides with the sense of 'beech'. Indeed, *s*'s putative concepts of elm trees and beech trees are actually so poor that it is doubtful whether one could appropriately say that they are one and the same concept (or, for that very reason, that they are different concepts). On the classical Fregean view, a sense attached by someone to a predicate is closely connected with the sort of knowledge one has of what it is for a given object to belong to the extension of the predicate; and, in Salmon's example, the amount of knowledge displayed by *s* practically reduces to nothing, so that it would not be intelligible to credit her with something like a Fregean sense representing elm trees or beech trees. The fact that everything *s* knows about the use of the predicates 'elm' and 'beech' is that they are English words that stand for certain species of trees - which are supposed to be, in some essentially unspecifiable way, different from each other - is neither evidence that *s* associates the same sense with both predicates, nor that his concept of an elm differs from his concept of a beech. Rather, it would mean that his understanding of the predicates is so deficient, or that her grasp of the associated concepts is so imperfect, that one would not be entitled to describe her as attaching any Fregean senses to them at all. But if *s* does not possess adequate concepts of the species of trees in question then *s* cannot be attributed the sort of conceptual knowledge which seems to be required to know that elms are not beeches; that is to say, if *s* has an imperfect grasp of the concepts of elm and beech then *s* has an imperfect grasp of the extensions determined by these concepts as well. Hence, properly speaking, one could not say that *s* *knows* that elms are not beeches; maybe what one should say is that

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s knows that 'elms are not beeches' is true (In English), but does not know what it means.

On the other hand, a second Fregean rejoinder to Salmon's argument might be given along the following lines. Let us concede that our intuitions concerning cases like the 'elm'/'beech' story are to the effect that it is entirely correct to say of our speaker s that she knows that elms are not beeches (and, conversely, that beeches are not elms). Thus, given the way in which the case has been described, one might as well say that s knows that the extension of 'elm' is different from the extension of 'beech'. Hence, it appears that s knows that 'elm' and 'beech' stand for *different* species of trees. Now the pieces of knowledge which are being thus attributed to s seem to be substantive pieces of *conceptual* knowledge; and the sort of conceptual knowledge involved might be plausibly thought of as being enough to establish the result that s's conceptual representation of an elm tree is in the end different from s's conceptual representation of a beech tree, contradicting thus the initial supposition that the concepts in question are one and the same.

Even if one feels that the above rejoinders are not convincing and insists that Salmon should be granted his premiss that s's concept of elm wood is indiscernible from s's concept of beech wood, I am afraid that there is a further problem with his anti-Fregean argument. And the objection I have in mind concerns the other premiss used in that argument, viz. the claim about the informative value assigned to the envisaged sentences [S] and [S']. Notice that, unless [S] and [S'] - in the example, 'Elm wood is beech wood' and 'Elm wood is elm wood' - are construed as being informative and uninformative (respectively), there is no progress in Salmon's alleged refutation of Fregean senses. The problem I would like to tackle now concerns the putative informativeness of a false sentence like 'Elm wood is beech wood' with respect to our speaker s; that

(an utterance of) such a sentence would be Informative to *s* is something which Salmon takes for granted without further elucidation⁹. But in what sense, or under what sort of circumstances, could *s* regard 'Elm wood is beech wood' as Informative?

The only reason that Salmon seems to give for this is that false sentences can be as Informative as true ones: they may be (mis)informative in the sense that, by knowing that they are false, one may acquire pieces of knowledge not previously available. I will not dispute this claim, though I have some reservations concerning the sort of metalinguistic formulation adopted. Indeed, I take it that a false sentence [S] is informative to a subject *x* at a time *t* if [S] conveys an *interesting* piece of misinformation to *x* at *t*, i.e. if *x* does not know at *t* that not-S; and [S] is uninformative to a subject *x* at a time *t* if [S] conveys an *uninteresting* piece of misinformation to *x* at *t*, i.e. if *x* knows at *t* that not-S. Now there obviously is a distinction to be made between the (typically) factual information that not-S and the metalinguistic information that [S] is false (or that [not-S] is true); in fact, *x* may be in a position to know at *t* that [S] is false without knowing at *t* that not-S: just suppose, for instance, that [S] belongs to some language *L* which *x* does not understand at all and that a reliable speaker of *L* informs *x* that [S] is false (in *L*). But let us employ, for the sake of argument, Salmon's notion of the informativeness of false sentences. The problem is thus that of explaining how, given Salmon's assumptions about *s*'s prior knowledge, 'Elm wood is beech wood' could be Informative to *s*. Suppose that someone tells *s* that 'Elm wood is beech wood' is false; since *ex hypothesi* *s* already knows that 'elm' and 'beech' are not co-extensive predicates (in English), she already knows that that sentence is false, and so she would not thereby extend her knowledge in any conceivable way.

⁹ Salmon 1986, 74-5.

Hence, this cannot be the case intended by Salmon. On the other hand, suppose that someone, say *u*, sincerely and assertively utters a token of 'Elm wood is beech wood' in front of *s* (or suppose that *u* asserts that that sentence is true in front of *s*). Of course, *s* would be surprised at *u*'s ignorance and would perhaps try to correct her and tell her that she is wrong (incidentally, given Salmon's suppositions, it turns out that *s* would not be able to explain to *u* why she is wrong). But it does not follow that *u*'s utterance would be informative to *s*, or that the content of *u*'s utterance would in any sense extend *s*'s knowledge. (Sometimes one feels surprised when one comes across some hitherto unknown truth, but here *s*'s surprise is rather directed at *u*'s *ignorance* of a botanical truth which happens to be already known to *s*.) Hence, it is by no means clear how the sentence 'Elm wood is beech wood' could be counted as being informative to *s*. I would claim that such a sentence would be uninformative to *s* (perhaps as uninformative as 'Elm wood is elm wood'); since *s* already knows that elms are not beeches, it would convey uninteresting (or trivial) misinformation to her. Therefore, given that the anti-Fregean argument needs the premiss about informativeness to proceed, I conclude that it is not a sound argument.

1.3 Before considering Salmon's attack on the minor premiss of Frege's Puzzle, let me examine briefly a different and independent version of his argument by *reductio* towards the conclusion that the generalized Fregean strategy is flawed¹⁰. The new argument is stronger than the one just discussed, for it does not depend on any particular instantiation of the Information Value function *f*.

Take a pair of strict synonyms in English, such as (presumably) 'ketchup' and 'catsup'. As these terms have the same meaning in all respects, it seems indubitable that they have the same propositional value with respect to every

¹⁰ Salmon 1990, 220-23.

possible context of use. Now consider a speaker, Sasha, whose mother tongue is not English and who learns the meanings of 'ketchup' and 'catsup' by means of ostensive definitions in the following way, not being told at the outset that they are straightforward synonyms. Sasha acquires the words by reading the labels on the bottles in which ketchup (or catsup) is served during meals. It happens that the same condiment is regularly served to him in bottles labelled 'catsup' at breakfast, when it is eaten with eggs and hash browns, and in bottles labelled 'ketchup' at lunch, when it is eaten with hamburgers. And such a situation induces Sasha to think that he is consuming a different condiment in each case (though one which is similar in taste, colour and consistency). Therefore, whereas 'Ketchup is ketchup' is uninformative to Sasha, 'Ketchup is catsup' would be quite informative to him: his knowledge would be substantially extended if he came to know that the condiment is one and the same in both cases. Hence, by the generalized Frege's Puzzle, one would come to the conclusion that the information value of 'ketchup' (whatever it is) differs from the information value of 'catsup' (whatever it is), which clearly contradicts the obvious principle that synonymy preserves information value.

I shall now discuss three possible rejoinders to the above sort of Millian argument. To begin with, an indirect counter-argument could be adduced to the effect that Salmon's argument in turn contradicts the following equally obvious principle¹¹:

(E) Necessarily, if a speaker *x* understands two expressions *E* and *E'* in a language *L*, and *E* and *E'* are (strict) synonyms in *L*, then *x* knows that *E* and *E'* are synonyms in *L*.

Principle (E) seems to be quite plausible: having grasped the meanings of *E* and

¹¹ This principle is subscribed to by Michael Dummett; see e.g. Dummett 1981, 323-4.

E', and given that E and E' have the same meaning, one is bound to be aware of this fact. And such a principle is of course violated in Salmon's case. On the one hand, Sasha is credited with an understanding of the words 'ketchup' and 'catsup' (he is supposed to have learnt the meanings of the words). On the other, the words in question are taken to be strict synonyms in English. Yet, Sasha does not know that they are synonyms. Therefore, one should apparently conclude that either principle (E) is false or Salmon's argument is wrong.

Nonetheless, it should be noted that principle (E) is not unchallengeable¹². Consider the following parallel principle:

(E*) Necessarily, if a speaker x understands two expressions E and E' in a language L, and E and E' are *not* (strict) synonyms in L, then x knows that they are not synonyms in L.

Now (E*) turns out to be false. For instance, competent speakers of English will claim that words such as 'stop' and 'finish', or 'accident' and 'mistake', are synonymous, until they are presented with examples which make clear the non-synonymy of the words as those speakers themselves use them. And such a sort of result about (E*) might be exploited to cast some doubt upon (E). Thus, concerning a synonymous pair E and E', it might be claimed that a speaker who understands both E and E' might be inclined to count them as synonymous, but withhold belief in synonymy because her experience of counter-examples to (E*) makes her suspect that she is wrong.

Of course, this could hardly be taken as evidence that principle (E) is false. And if the above sort of dilemma were inescapable one would be naturally inclined to take the latter horn of it; indeed, principle (E) is intuitively compelling and should not be given up on *that* basis. However, as we shall see, there is just no need to argue from the truth of principle (E) to the unsound-

¹² I am very much indebted to Tim Williamson for this point.

ness of Salmon's argument, and hence our dilemma turns out to be clearly escapable. I would regard the foregoing reflection about principle (E*) as at least showing that the indirect counter-argument from principle (E) is not as persuasive as one might think, in the sense that the intuitive strength of (E) may be after all insufficient to yield a convincing refutation of the Millian argument.

A second sort of reply to Salmon's argument, which in a way complements the one just outlined, consists in what we might call the *objection from partial (or imperfect) understanding*. It might be argued that the 'ketchup'/'catsup' story does not satisfy a requirement which turns out to be crucial to the original Fregean argument about informativeness. The requirement in question is that the speaker fully understand both sentences [S] and [S'] and therefore the singular terms out of which these sentences are composed. And it is alleged that it is doubtful whether Salmon's case meets this kind of demand since, on the one hand, Sasha is not a native or fully competent speaker of English, and, on the other, his peculiar way of learning the use of the words 'ketchup' and 'catsup' might be regarded as revealing that he has only a partial (or imperfect) grasp of the meanings of these words; and a full mastery is indeed required in the Fregean argument.

Now I have doubts about the effectiveness of such a line of attack. Indeed, it seems to be vulnerable to the following sort of intuitively powerful objection. Suppose that Sasha had learned the meaning of 'ketchup' in the peculiar way described before, but without the word 'catsup' coming into the story. This would normally be quite adequate for understanding. On the other hand, also learning something about 'catsup' should not undermine that. Hence, one may say that Sasha understands 'ketchup'; and, by a parallel argument, one would say that he also understands 'catsup'. Of course, there is no reason to

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think that such an objection would be decisive; maybe some reasonable reply could be framed against it. And one might even be inclined to think that the issue whether or not a speaker like Sasha should be credited with an adequate understanding of the words 'ketchup' and 'catsup', is a moot issue; or that it is unlikely that anything like an appeal to our ordinary intuitions about understanding would enable us to settle the dispute. Anyway, I guess that we are at least entitled to conclude that, given its relative weakness and lack of intuitive support, the objection from partial understanding is far from representing a good move against the Millian argument.

Finally, let me sketch a third sort of argumentative strategy one might pursue in dealing with the 'ketchup'/'catsup' story and similar cases from a Fregean perspective. Let us begin by taking for granted the premiss about understanding employed in the Millian argument. And let us recall that Salmon's argument is intended as a *reductio*, the allegedly absurd conclusion of which is the following claim:

(*) 'ketchup' and 'catsup' have different propositional values (with respect to Sasha's story).

(As we shall see, Salmon takes the *reductio* hypothesis to be the claim that 'Ketchup is catsup' is genuinely informative to Sasha.) And the crucial premisses in the argument are these:

(●) If expressions E and E' are synonymous (in a language L) then E and E' have the same propositional value (with respect to every possible context of use).

(\$) 'Ketchup' and 'catsup' are synonymous (In English).

(*) is deemed implausible because, given (\$), it comes out as inconsistent with (●), and (●) and (\$) are both supposed to be obviously true. Now a Fregean reply could proceed in either of the following two directions.

On the one hand, one could just reject premiss (\$), while keeping (●) and endorsing (*). As a result, (*) could no longer be taken as a *reductio* of anything at all. But how could (\$) be reasonably challenged? Well, one might begin by maintaining that the notion of synonymy has no clear application to the case of proper names; indeed, ordinary proper names have no linguistic meanings, in the sense that definitional clauses like those one may find in a dictionary are not, in general, available for them. Then one might claim that words like 'ketchup' and 'catsup' may be thought of as having a semantic status which is very similar to that of proper names: they are names of substances or names of kinds of stuff. One could then apparently conclude that, strictly speaking, words of that sort have no linguistic meanings either; hence, the notion of synonymy has no straightforward application to them. However, I do not think that such an approach is convincing. First, and less important, it turns out that some authorized English dictionaries¹³ actually count the words 'ketchup' and 'catsup' as being strict synonyms, the latter being - along with 'catchup' - just a spelling variant of the former (a variant used mainly in the U.S.A.). Second, and more important, even if one happens to be reluctant to apply the notion of synonymy to names of artificial kinds, it turns out that an argument can be mounted which parallels the 'ketchup'/'catsup' argument and yet involves only colour words; and the objection from the inapplicability of the notion of synonymy would hardly make sense with respect to colour words. Thus, in Portuguese there are two different words for red, viz. 'vermelho' and 'encarnado', which have literally the same meaning; I am pretty sure that every native (or fully competent) speaker of Portuguese would promptly acknowledge such words as being strictly synonymous. Now suppose that Ronald, a

¹³ E.g. *Collins English Dictionary* and *The Oxford Encyclopedic English Dictionary*.

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monolingual speaker of English, is taught Portuguese by the direct method and learns '*vermelho*' and '*encarnado*' under the following sort of circumstances. First, he learns the meaning of '*vermelho*' by being presented with samples of a particular shade of red. Then he comes to learn '*encarnado*' by being presented with samples of what is in fact the very same shade of red. It just happens that, on the later occasion, Ronald does not remember the particular shade of red he saw when he learned '*vermelho*'; so, when he acquires the word '*encarnado*', he does not even entertain the question whether '*vermelho*' holds of the samples then seen. Let us agree that one is entitled by ordinary standards to credit Ronald with an adequate understanding of the Portuguese predicates '*vermelho*' and '*encarnado*'. Then it would be possible to draw from the above case conclusions which parallel those drawn from the 'ketchup'/'cat-sup' story, a significant difference between the two arguments being that in the '*vermelho*'/'*encarnado*' argument the premiss about synonymy seems to be incontrovertible. In particular, it would not be difficult to imagine a set of circumstances under which the Portuguese sentence '*Vermelho é (is) encarnado*' (as uttered on the later occasion) would carry non-trivial or informative information to Ronald (whereas '*Vermelho é (is) vermelho*' would be clearly uninformative to him). The objection might be raised that as soon as Ronald considered the matter, he would realize that the words in question are synonymous. Yet, a possible reply might be given as follows: Ronald may realize that '*vermelho*' and '*encarnado*' have similar meanings, but feel unable to rule out the possibility that he will one day see a shade that will strike him as *vermelho*, but not as *encarnado*.

Alternatively, and this is the kind of move I would be inclined to favour, one could just reject premiss (●), while accepting premiss (\$) and fully endorsing claim (*). Again, it would follow that (*) could no longer be taken as

a *reductio* of anything at all. But how could one reasonably reject (●)? Well, it turns out that from a Fregean standpoint, a standpoint in which information values are (at least partially) senses or modes of presentation, claim (●) is by no means compulsory. Indeed, it seems to me that a Fregean theorist might, plausibly and fruitfully, hold the view that sameness of linguistic meaning does not entail sameness of sense.

Notice that the connection holding between the notions of linguistic meaning and Fregean sense is a very loose one, at least according to the general conception of sense with which we are willing to work. The linguistic meaning conventionally correlated with a given singular term, e.g. an indexical expression, is certainly an objective feature of the term; it is something which remains necessarily constant across speakers and across occasions of use. By contrast, the Fregean senses associated with singular terms are, in many cases, non-conventional and subjective; it is always possible for singular modes of presentation to vary from speaker to speaker and/or from occasions of use to occasion of use. Thus, different speakers may be in a position to attach distinct particular senses to a given singular term token *t* (at a given time), or to tokens *t* and *t'* of the same type (at the same or at different times), even when *t* and *t'* are co-referential (in given contexts of use); i.e., they may entertain different particular ways of thinking of the object referred to. And the same speaker may be in a position to attach distinct particular senses to singular term tokens *t* and *t'* of the same type (at different times), even when *t* and *t'* are co-referential (in given contexts); i.e., she may entertain on distinct occasions different particular ways of thinking of the object referred to. However, in all such cases, it is obvious that the linguistic meaning of the singular term tokens - which is conferred upon them by the types of which they are tokens - is necessarily the same. On the other hand, for any tokens

t and t' of different types which are co-referential in contexts c and c', it is obviously not the case that if t and t' express the same particular sense in c and c' relative to a given speaker, then t and t' are synonymous (or belong to synonymous types); according to some neo-Fregean accounts, certain uses of indexicals such as 'here' and 'there', or demonstratives such as 'this' and 'that', illustrate this point.

Moreover, one may even introduce cases in which singular term tokens t and t' which are co-referential (in given contexts of use) and which belong to different but *synonymous* types are nevertheless to be seen, in the light of certain brands of Fregeanism, as having *different* senses with respect to a given subject. Thus, one may safely assume that the expression-types 'yesterday' and 'the day (just) before today' have exactly the same linguistic meaning (dictionaries usually give the latter as the meaning of the former). But consider tokens of such types as uttered by a speaker, say Jones, under the following sort of circumstances. At 11:58 pm on a day d Jones asserts 'Yesterday was mild', having thus a belief about d-1; and one hour later, looking at his watch, he comes to assert 'The day before today was not mild', apparently having thus a belief about d. Yet, Jones happens to be unaware that Summer Time ends precisely at midnight on d and that then clocks go back one hour, so that the time of his later assertion is in fact 11:58 pm on d and the associated (putative) belief a belief about d-1. Now if one thinks of the modes of presentation correlated with temporal indexicals as consisting in ways of tracking a time - or re-identifying it - throughout a period of time, then it will not be the case that Jones entertains on both occasions (or, rather, at what is conventionally the same time) the same singular sense¹⁴.

¹⁴ This is a very rough description of the case under consideration; I examine the notion of indexical sense employed here in Sections 3 and 4.

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The preceding considerations motivate a picture of the relationship between linguistic meaning and information value on which there is a considerable gap between the two notions and on which claim (●) is not, in general, true. Claim (●) is simply taken for granted in Salmon's argument; and this is so because, considered in its application to ordinary proper names and to names of (natural or artificial) kinds, it comes out as trivially true under a strict Millian account. In effect, the object or the kind referred to by any syntactically simple singular term of the above sort (in a given context) is regarded on such a view as playing a double semantic role: it is (or at least it determines) the linguistic meaning of the term; and it is also the propositional value assigned to the term (in the context). But it seems to be somehow unfair to invoke this doctrine - as a means of validating claim (●) - in the course of assessing an argument (Frege's Puzzle) whose aim is to show that such a doctrine is wrong. And once one drops the Millian conception of the information values of simple sentences as being singular propositions, which are by definition psychologically insensitive, in favour of a conception of such information values as being Fregean thoughts, which are by definition psychologically sensitive, claim (●) ceases to be compelling.

I am therefore prepared to endorse the claim that, in general, it is possible for expressions which are strict synonymous (in a given language) to have different senses in a speaker's idiolect. Concerning the 'ketchup'/'catsup' story, I would say that Sasha employs different ways of thinking of the same condiment, the 'ketchup'-way of thinking and the 'catsup'-way of thinking. He is obviously not aware that he is being presented with a single kind of stuff at breakfast and at lunch; no wonder then that the thought that ketchup is catsup is informative to him. Given their analogy with ordinary proper names,

names of natural or artificial kinds are - to use Evans's terminology¹⁵ - *information-invoking* singular terms. Accordingly, one could sketchily represent Sasha's distinct modes of presentation of ketchup as consisting in different chains of information, or in separate mental files titled 'ketchup' and 'catsup', formed on the basis of his disparate cognitive encounters with the condiment at breakfast and at lunch. And a parallel treatment might be provided to the '*vermelho*'/'*encarnado*' case, the difference being that even a Millian theorist would acknowledge that predicates are to be assigned something very akin to Fregean senses as their propositional values in possible contexts of use. Indeed, on Salmon's theory of predicative reference, in contradistinction to the case of syntactically simple singular terms, syntactically simple predicates are thought of as having two sorts of semantic value: their information values, which are taken to be certain intensional entities like n-ary attributes; and their references, which are taken to be certain extensional entities like functions from n-tuples of objects to truth-values. But Salmon would presumably treat synonymous predicates like '*vermelho*' and '*encarnado*' as invariably contributing one and the same unary attribute to the information contents of sentences in which they might occur. And this would not enable us to accommodate possible differences in cognitive significance which, *pace* Salmon, we wish to take as basic data in need of explanation, such as the potential difference in informative value - relative to Ronald and to his story - between a thought expressed with the help of '*vermelho*' and a thought expressed with the help of '*encarnado*'. Thus, I would say that Ronald employs in thought different ways of thinking of redness; or, if one prefers, he employs different ways of thinking of that function or Fregean concept which yields, for any red surface as argument, the True as value. And Ronald's case seems to motivate a *De Re* view of the kind of

¹⁵ See Evans 1982, 384-5.

senses expressed by colour terms, i.e. a view on which such senses are to be seen as being (partially) dependent upon certain perceptual relations holding between a thinker and colour samples in her environment; in effect, it is the presence of this sort of non-conceptual factors which ultimately explains why redness is presented to Ronald under distinct modes of presentation.

A consequence of the above way of countering the anti-Fregean argument is that principle (E) should be, after all, given up. We are committed to the result that e.g., though '*vermelho*' and '*encarnado*' are synonyms (in Portuguese), Ronald does not know that they are synonyms. If Ronald knew this then he would know that '*vermelho*' and '*encarnado*' are co-extensional predicates and thus that one and the same colour is presented to him on both occasions; but then a sentence such as '*Vermelho é encarnado*' would not express a thought which would be informative to him. Therefore, since we take as intuitively sound the claim about informativeness, and since we take the objection from imperfect understanding as intuitively dubious, we are forced to reject principle (E). Now I think that there is nothing essentially wrong in pursuing this train of thought. Underlying principle (E) is a certain form of cartesianism about meaning, in the sense that our knowledge about sameness of meaning is taken to be infallible. But one may have good reasons, in this and in other areas of philosophical inquiry, to be suspicious about such cartesian principles; it is very likely that linguistic meaning is not as transparent as it is claimed, and that even fully competent and reflective speakers may be mistaken about synonymy.

1.4 Let us finally consider the crux of the Millian argument, viz. the attack on the minor premiss of Frege's Puzzle.

This line of criticism is related to the one just discussed as follows. Suppose that we are to accept the claim that the Fregean strategy to block any

Identification of propositional value with reference is, in general, incorrect. Still, the Millian theorist is under the obligation of providing us with a further account of what is the particular mistake involved in the Fregean argument. Now such a mistake could not be a logical one; for Frege's Puzzle amounts, in that respect, to two correct applications of a valid rule of inference, viz. *Modus Tollens*. So we are bound to conclude that at least one of the premisses is false or can be plausibly challenged. The second line of attack consists thus in scrutinizing the Fregean premisses in order to locate the putative flaw. And, if sound, such a line of reasoning would be *per se* enough to force us to reject the Fregean argument; even if we are not persuaded by the first line of criticism, as is indeed the case, the identification of a flawed premiss would be sufficient to discredit Frege's Puzzle altogether.

Salmon's diagnosis is that the error lies in the minor premiss, i.e. in the (apparently uncontroversial) observation that two sentences of the form mentioned, e.g. 'Hesperus is Hesperus' and 'Hesperus is Phosphorus', may conspicuously differ in informativeness, e.g. relative to the ancient astronomer who did not know that Hesperus is Phosphorus. This verdict is rather surprising and counter-intuitive, since one would be naturally inclined to count the minor as a sort of empirical truth, a truth easily derived from our ordinary linguistic intuitions; and the fact that such a verdict contradicts this sort of evidence could indeed be taken as a *reductio* of the Millian argument against the minor. Yet, as we shall see, things are not that simple and, even if one should in the end argue along those lines, the anti-Fregean argument should be tackled with the utmost caution.

Salmon contends that the remaining premisses of Frege's Puzzle, viz. the major and the principle of compositionality, are unassailable. And we shall willingly follow him in this respect. As we have seen, the latter principle belongs

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to a set of shared semantical assumptions and is thus beyond dispute. Concerning the major premiss, its uncontroversial character is not immediately obvious and must be argued for. It is claimed that a proper reading of the major would turn it into a logical truth and hence into an undefeasible principle. Frege's Puzzle could then be synoptically viewed as being made up of a logical truth (the major), a semantical truth (the law of compositionality), and a controversial seemingly empirical truth (the minor).

Given that the reason for repudiating the minor is closely connected with the construal of the major as a logical truth, it is advisable to take such a construal as our starting-point. The major is the thesis that a necessary condition for sentences [S] and [S'] to have the very same information content in contexts of use c and c' is that [S] is informative in c just in case [S'] is informative in c'. According to Salmon, underlying the Fregean understanding of this thesis is the idea that the property of a sentence [S] of being informative could be further elucidated by means of an appeal to a certain class of properties which are primarily ascribed to the information content of [S]. Typical members of the envisaged class are properties such as that of being a valuable extension of our knowledge, that of being not already a "given", that of being non-trivial, etc. A sort of definition for the intuitive notion of informativeness could then be provided as follows: a sentence [S] is informative (in a context c) iff the information content of [S] (in c) has some such informative-making property. Salmon's claim is thus that the notion of a given proposition having some informative-making property should be thought of as being conceptually prior to the notion of a sentence [S] being informative; that is, [S] (or a particular utterance of [S]) being informative or uninformative rests exclusively upon [S] containing the information that it does, i.e. upon whether the information content of [S] has or lacks a certain informative-

making property.

Given this conception of informativeness, the major premiss could be restated as follows. Let $\text{Inf}[S]_c$ be the information content of a sentence $[S]$ in a context c , and 'I' a variable ranging over a domain of informative-making properties; then the following holds:

$$(PM)' \text{ Inf}[S]_c = \text{ Inf}[S']_c \leftrightarrow (\forall I)[I(\text{Inf}[S]_c) \leftrightarrow I(\text{Inf}[S']_c)].$$

Since (PM)' is easily derivable from Leibniz's Law, it has the status of a logical truth.

A Fregean theorist might take the account given so far across the board. Yet, Salmon's next move consists in assessing the minor premiss in the light of such an account and in enquiring whether the notion of informativeness as employed in the minor coincides with the notion as employed in the major. When the Fregean theorist maintains that a sentence such as 'Hesperus is Phosphorus' is potentially informative, is she using 'informative' in the *relevant* sense, i.e. in that sense which is in fact required by the major? Is she really reading 'informative' as a predicate which can only be truly ascribable to 'Hesperus is Phosphorus' in virtue of the sort of information encoded in the sentence, i.e. in virtue of its information content having a certain informative-making property? Or could it be that there are two distinct notions of informativeness in play here, so that Frege's Puzzle would suffer from the fallacy of equivocation, the same word being used with two different meanings in the premisses? It is assumed that the only possible way to safeguard the major from being challenged is to interpret it as a logical truth, which in turn requires that 'informative' should be understood in the relevant sense; therefore, it is the minor premiss that should conform to the major in that respect.

The following sort of pragmatic strategy is then used to cast doubt upon the minor premiss. A distinction is drawn between two kinds of information that

might be conveyed by a sentence [S], to which correspond in turn two different senses in which [S] might be informative. First, there is that information which is *semantically contained* in [S]; only this sort of information is adequate to determine the informative character of [S] in the relevant sense, since the informative-making properties must belong to the very information content of [S]. Second, there is also that information which may be *pragmatically imparted* by an utterance of [S]; this sort of information does not belong to the content of [S] and lacks any of the relevant informative-making properties. A typical example of information pragmatically imparted by [S] is the information that [S] is true, or that [S] expresses a truth; in general, such information is not semantically contained in [S] (though there are exceptions, e.g. Tarskian sentences such as 'This very sentence is true').

Now, concerning the 'ketchup'/'catsup' case, it is alleged that 'Ketchup is catsup' is *not* informative in the relevant sense; for, on the basis of synonymy, the information semantically contained in it is just the proposition that ketchup is ketchup, which plainly lacks any of the informative-making properties. However, an utterance of that sentence can be informative in the pragmatic sense: to someone like Sasha, it would be news to be told 'Ketchup is catsup' since he would come to know that this is a true sentence (in English) and hence, by means of some elementary semantical knowledge, he would come to know that 'ketchup' and 'catsup' are co-referential terms (in English). And cases such as the 'Hesperus'/'Phosphorus' story are dealt with in the same way. It is by no means certain that 'Hesperus is Phosphorus' is informative in the appropriate sense. One may doubt whether the apparent informativeness of such a sentence is actually semantically contained in it, whether the proposition that Hesperus is Phosphorus really has some informative-making property as an intrinsic attribute. The Fregean just assumes this without any further

Justification. But the claim that 'Hesperus is Phosphorus' is informative needs to be supported by an argument; and, since no argument is offered, Frege's Puzzle does not get off the ground and hence does not yield a straightforward refutation of the Millian doctrine encapsulated in thesis (DRT).

Moreover, the Millian argument proceeds, one has reasons to believe that the putative informativeness of 'Hesperus is Phosphorus' is entirely due to pragmatically imparted information, especially the information that the sentence is true. Indeed, by being told 'Hesperus is Phosphorus' (or some translation of it), our astronomer would learn that the names 'Hesperus' and 'Phosphorus' denote the same planet and thereby acquire a new piece of information. But this is metalinguistic information, not semantically contained in the sentence, and hence the claim is unwarranted that 'Hesperus is Phosphorus' is informative (in the required sense). The way is thus paved for the Millian theorist to hold his view that an utterance of 'Hesperus is Phosphorus' actually is as uninformative (with respect to *any* competent speaker) as an utterance of 'Hesperus is Hesperus': the information semantically contained in both sentences is just the tautologous proposition that Venus is identical to Venus. And our customary intuitions to the effect that utterances of the latter sentence may be informative are explained away on the basis of our mistaking pragmatically imparted information for semantically contained information. The upshot is that either the minor premiss is false or Frege's Puzzle begs the question (what is taken for granted in the minor is something which in fact would have to be proved).

Let us now discuss Salmon's argument. I shall try to show that the pragmatic strategy employed is dubious and leaves the problem of informative value essentially unresolved.

Salmon's criticism rests *inter alia* upon two ideas: the notion of an informative-making property as primarily attached to a proposition, which leads

to the construal of the major as logically true; and the distinction between semantically contained and pragmatically imparted information. I think that it is useless to repudiate any of these assumptions. The former appears to be constitutive of a Fregean conception of cognitive significance. As to the latter, it is clear that some such distinction is needed, even within a Fregean framework. And one should also agree that the information semantically contained in a sentence [S], i.e. the proposition that S, and the information typically pragmatically imparted by [S], i.e. the proposition that [S] is true, are different pieces of information; assuming that the (syntactically simple) singular terms in [S] are rigid designators, it is sufficient to point out that such propositions differ in modal value, the former being necessarily true (if true) and the latter being contingently true (if true)¹⁶.

What I take to be unacceptable is rather the claim that the potential informativeness of [S] is *entirely* pragmatic, typically amounting to the potential informativeness of '[S] is true', as well as the associated claim that sentences [S] and [S'] of the envisaged form, e.g. [a=a] and [a=b], are both semantically uninformative. First, one should remark that the 'ketchup'/'catsup' argument does not provide us with conclusive evidence that the pragmatic view is right; for it depends on the premiss that synonymy entails identity of information value and, as we have seen, this idea can be reasonably resisted. Second, and more important, the following general argument can be adduced against the pragmatic view¹⁷. Take a sentence of the form [a=b]. It is held that an utterance of [a=b] *seems* informative to a speaker x because an utterance of '[a=b] is true', and hence of '[a] and [b] are co-referential', would be

¹⁶ Assuming that sentences are not individuated semantically.

¹⁷ Michael Devitt argues in a similar vein in his paper 1989, 222-4.

Informative to x. Now one might ask in turn in what sense the latter sentence would be informative to x; the answer is that it must be *semantically* informative to her, otherwise one would be presumably involved in a *regressus*. But it turns out that, with respect to a competent speaker who masters the names [a] and [b], the informativeness of the piece of information semantically encoded in '[a=b] is true', and so in '[a] and [b] are co-referential', is very likely to be causally connected with the informativeness of the piece of information semantically encoded in [a=b]. Indeed, one would in the end say that x finds it informative that [a=b] is true, and hence that [a] and [b] denote the same thing, precisely *because* x finds it informative that a and b are one and the same thing; i.e., one would in the end regard the informative value (relative to x) of the proposition expressed by '[a=b] is true' (or by '[a] and [b] are co-referential') as being actually determined by the informative value (relative to x) of the proposition expressed by [a=b]. Yet, if this is right, then the claim is unwarranted that the potential informativeness of [a=b] is *exhausted* by the potential informativeness of the piece of information that it typically pragmatically imparts, and so the pragmatic account should be deemed inadequate.

Moreover, the pragmatic view runs into difficulties if one turns the tables (so as to speak) on the minor premiss and introduces cases where an instance of [a=a] is *informative* to a given speaker and an instance of [a=b] is *uninformative* to her (at the same time)¹⁸. To see this, let us go back to the second version of our story about Carnelro and his encounters with Pessoa¹⁹. We said then that, under the envisaged circumstances, the utterances in

¹⁸ In a recent article (Wettstein 1989), Howard Wettstein takes cases of this sort as militating against Fregeanism. On the contrary, I take them as being nicely accommodated within a Fregean framework and as militating against the Millian pragmatic strategy.

¹⁹ Cf. Chapter I, Section 3, 3.5.

question of the sentences

(1) *Fernando Pessoa é (is) Fernando Pessoa*

(2) *Fernando Pessoa é (is) Álvaro Campos*

would be (respectively) informative and uninformative to Carneiro; the former would convey to him the hitherto unavailable information that his colleague Pessoa and Pessoa the poet are a single person, whereas the latter would convey to him the already available information that Pessoa the poet and Campos are a single person. Now, according to the pragmatic explanation, this description is misleading. What one should say is that the alleged informativeness of (1) actually reduces to the informativeness pragmatically imparted by it, i.e. to the informativeness of

(1)' 'Fernando Pessoa é Fernando Pessoa' is true (in Portuguese), hence the referent of 'Fernando Pessoa' is the same as the referent of 'Fernando Pessoa'.

Likewise, one should say that the unformativeness of (2) actually reduces to the unformativeness pragmatically imparted by it, i.e. to the unformativeness of

(2)' 'Fernando Pessoa é Álvaro Campos' is true (in Portuguese), hence the referent of 'Fernando Pessoa' is the same as the referent of 'Álvaro Campos'.

But, as it stands, (1)' seems to contain trivial information; anyone minimally competent in Portuguese (i.e. anyone who at least knows that 'Fernando Pessoa' is a non-empty personal name and (1) a Portuguese identity sentence) and minimally competent in semantics (as couched in English) would be able to recognize at once such information as true. And, as it stands, (2)' seems to contain substantial information; linguistic and semantic expertise would not be sufficient to recognize such information as true. Of course, one should perhaps

agree that, given our characterization of Carneiro's story, there is a sense in which (1)' could be made *semantically* informative, and (2)' *semantically* uninformative, to Carneiro. I assume, for the sake of argument, that he understands the metalanguage, i.e. English, and possesses the semantic concepts involved. However, if one tried to figure out the conditions under which e.g. the piece of information encoded in (1)' might be news to Carneiro, one would be bound to bring in considerations which necessarily concern the particular content assigned to (1) in the envisaged circumstances of utterance (especially the intentions of the utterer). Thus, one could hardly account for the non-trivial character which the information semantically contained in (1)' might have for Carneiro without appealing in some way to the non-trivial character which the information semantically contained in (1) has for him. In the light of the pragmatic view, (1) is (or, better, *seems*) informative to Carneiro because (the content of) (1)' would be genuinely informative to him. Yet, if the above observations are along the right lines, one comes to the conclusion that the proposition expressed by (1)' would be informative to Carneiro because the proposition expressed by (1) is informative to him. (And parallel remarks could be made with respect to the uninformativeness of (2) and (2)').

A different sort of objection might be raised against the Millian pragmatic account of informativeness. It might be argued that there is some tension between the pragmatic strategy and certain other assumptions which seem to be constitutive of a Millian theory (or, at least, of Salmon's brand of Millianism). Consider the following pair of sentences²⁰:

(3) Phosphorus is a planet

²⁰ Incidentally, although the pragmatic strategy might still have some initial appeal as applied to identity sentences, I think it becomes clearly inadequate as a way of dismissing potential differences in informative value between pairs of atomic sentences of other kinds, such as (3) and (4).

(4) Hesperus is a planet.

Our intuition tells us that utterances of (3) and (4) (or of their translations) have contents which would be (respectively) uninformative and informative to a certain ancient astronomer, say Ptolemy. Suppose that Ptolemy correctly identifies the celestial body which appears at dawn and which he names 'Phosphorus' as a planet, but incorrectly identifies the celestial body which appears at dusk and which he names 'Hesperus' as a star. On the pragmatic view, such an intuition is apparently discarded by claiming that what Ptolemy really takes as uninformative and informative (respectively) are, not the contents of (3) and (4) (these are both alleged to be uninformative to him), but the contents of (translations of):

(3)' The referent of 'Phosphorus' is a planet

(4)' The referent of 'Hesperus' is a planet.

Now the Millian theorist would surely agree that informativeness is a matter of a given subject's knowledge at a certain time, i.e. a matter of what the subject already knows (or does not know yet) at the time. Hence, I guess that one would be entitled to say that the following reports are jointly true of Ptolemy (with respect to a time t):

(5) Ptolemy knows (at t) that the referent of 'Phosphorus' is a planet

(6) Ptolemy does not know (at t) that the referent of 'Hesperus' is a planet.

Assuming that propositions or pieces of information are the proper objects of knowledge, this would not present any problem to the Millian account. On such an account, (3)' and (4)' *do not* express the same proposition. Indeed, the propositions expressed by (3)' and (4)' are about distinct objects, viz. distinct *names*, and so they are distinct from one another; therefore, one could have both (5) and (6) as true. However, on the basis of a certain analysis of attitude-

ascriptions (In particular, knowledge-ascriptions)²¹, Salmon's account would also entail the following result. From the fact that Ptolemy knows (at t) the proposition expressed by (3) (in the given context) it follows that he knows (at t) the proposition expressed by (4) (in the context); that is, the following report would also come out as true:

(7) Ptolemy knows (at t) that Hesperus is a planet.

Roughly, the reason is that the piece of information encoded in (4) is the piece of information encoded in (3), viz. the ordered pair of Venus and Planethood, and so if Ptolemy knows the latter then he will necessarily know the former.

(7) is undoubtedly a highly counter-intuitive sort of result. One would ordinarily insist that, under the envisaged circumstances, Ptolemy *does not* know (at t) that Hesperus is a planet; and this is something which Salmon's theory could not allow us to assert, on pain of rendering the proposition expressed by (4) *informative* (to Ptolemy). But that is not our immediate concern. Our point is rather that it seems hard to harmonize the truth of report (6) with the truth of report (7). Of course, (6) is not (formally) inconsistent with (7), and so the claim is not that the Millian view is internally incoherent. A formal inconsistency could only be generated by means of the following additional reasoning. To begin with, the following would clearly hold with respect to Ptolemy's story:

(8) Ptolemy knows (at t) that Hesperus is the referent of 'Hesperus'.

Let us suppose further that Ptolemy has a good knowledge of elementary logic, which he willingly exercises whenever he is given the opportunity; In particular, he is especially keen on the rule of Identity Elimination, i.e. the rule which allows us to infer $[\phi(b)]$ from premisses $[a=b]$ and $[\phi(a)]$. Then one would be presumably entitled to derive (9) from (7) and (8):

(9) Ptolemy knows (at t) that the referent of 'Hesperus' is a planet;

²¹ I discuss such a proposal in detail in Section 2.

and (9) is (formally) inconsistent with (6). The pattern under which such a derivation falls is this: $[x \text{ knows (at } t) \text{ that } a=b], [x \text{ knows (at } t) \text{ that } \phi(a)] \vdash [x \text{ knows (at } t) \text{ that } \phi(b)]$. Now, although this schema is unreservedly taken as valid by a number of philosophers, there are a few who do not subscribe to the idea that, as a rule, propositional attitudes are necessarily closed under logical deductions made by the subject, and who would perhaps accept only some restricted version of the schema. On Salmon's Millian account, for instance, knowledge of singular propositions is taken as relativized to so-called "guises", i.e. it is seen as a ternary relation holding between a knower, a singular (neo-Russellian) proposition, and a guise or a mode of presentation under which such a proposition appears to the knower. Accordingly, the following sort of restriction would presumably be imposed upon the schema; roughly, an instance of it will be valid only if one and the same singular guise is employed throughout the inference. Yet, in our example, distinct guises occur in the premisses: Ptolemy knows of Hesperus that it is the referent of 'Hesperus' under the singular guise 'Hesperus' (or perhaps under a guise which is a function of the name 'Hesperus'); but he knows of Hesperus that it is a planet under the singular guise 'Phosphorus'. Therefore, the Millian theorist could thus be in a position to resist the above reasoning. However, this would not dissipate the tension holding between (6) and (7). One might be inclined to regard the conjunction of (6) and (7) as intuitively implausible (with respect to Ptolemy's case), and hence to see an account which clearly entails such a result as intuitively implausible.

I guess that the Millian theorist intends the pragmatic explanation as a way of mitigating the counter-intuitiveness of his claim that e.g. the contents of 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' are invariably alike in informative value, being both uninformative. But, once the pragmatic strategy

is dropped as unconvincing, such a claim emerges as conspicuously wrong. I take it that the different roles that contents of that kind may have in our cognitive lives, and in the explanation of our behaviour, strongly militate against the Millian claim (if one assumes, as I do, that accounting for such phenomena is part of the task of semantics in the broad sense). Suppose that Ptolemy worships Hesperus as the Goddess of Dusk, but is not at all awed by the appearances of Venus at dawn. Then a substantial portion of Ptolemy's religious beliefs and practise would be left unexplained if one were to ground our account on the Millian claim.

Furthermore, when the objects of knowledge are propositions expressible with the help of ordinary proper names, the dynamics of knowledge - and especially the transition from ignorance to knowledge - would turn out to be unaccountable. For instance, one might introduce a case in which at a time t Ptolemy does not know that Hesperus is a planet, but at a later time t' , after having carried out a certain amount of astronomical research, he comes to know that Hesperus is a planet. Yet, one could hardly make sense of such transitions, which seem to be perfectly intelligible, in the light of Millianism; for one would be bound to assert that our subject has *always* known that Hesperus is a planet (though perhaps under different guises on different occasions). Or take the case of doubt. I assume that there is a sense of 'doubt' in which a subject doubts that p only if she neither knows that p (she has no evidence that p holds) nor knows that $\text{not-}p$ (she has no evidence that the negation of p holds). Now we can imagine our astronomer Ptolemy, on some occasion between t and t' and in the course of his research, as doubting that Hesperus is a planet in the above sense. Again, the Millian theorist could not accommodate this sort of epistemic state: given that Ptolemy knows, at the time in question, that Hesperus is a planet, one would have to say that it is not the case that he doubts then that

Hesperus is a planet.

I guess that one would be entitled by ordinary standards to say that Ptolemy would find it informative at t that Hesperus is a planet because (10) would be true of him:

(10) Ptolemy does not know (at t) that Hesperus is a planet.

Yet, report (10) is false under Millianism (and (7) is true); for there is a guise, viz. 'Phosphorus is a planet' (or its counterpart in Ptolemy's language, assuming that translation preserves guises of some sort), under which Ptolemy would stand in the Knowledge-relation at t to the proposition that Hesperus is a planet. Hence, Millianism comes into conflict with our ordinary intuitions about informativeness. Moreover, our intuition to the effect that a report such as (10) is true could not be explained away by employing the sort of strategy devised for the case of belief (and other attitudes). As we shall see in the next Section, our intuition to the effect that e.g. 'Ptolemy does not believe that Hesperus is a planet' is true (with respect to Ptolemy's story) is accounted for by claiming that such a report is ambiguous between 'It is not the case that Ptolemy believes that Hesperus is a planet', which is construed as false, and 'Ptolemy disbelieves that Hesperus is a planet', which is construed as true; thus, when we are inclined to regard the above report as correct it is the latter reading that we have tacitly in mind. But disbelief, or belief in the negation, appears to have no clear analogue in the case of knowledge (obviously, one could not say that Ptolemy knows that Hesperus is not a planet).

Finally, I am afraid that the Millian account of informativeness would also be vulnerable to the following objection involving iterated epistemic attitudes. One might be inclined to assume that it would be essential to Millianism that the truth of the following sort of ascription be preserved (with respect to Ptolemy's story):

(11) Ptolemy does not know (at t) that he knows that Hesperus is a planet. (One might express this by saying that the content of report (7) ought to be *informative* to Ptolemy at t). However, assuming that the apparatus of guises applies to iterated attitudes as well, it can be shown that (11) comes out as false under the Millian account. In effect, there is a guise - e.g. 'I know that Phosphorus is a planet', or 'I know that that (pointing to Venus at dawn) is a planet' - under which Ptolemy would stand in the Knowledge-relation at t to the proposition that he knows that Hesperus is a planet. Therefore, the Millian theorist would be compelled to assert that Ptolemy knows (at t) that he knows that Hesperus is a planet, a result which one might see as disastrous for the Millian view.

My overall conclusion is that the Millian framework of neo-Russellian propositions, even if supplemented by propositional guises and complemented with the pragmatic strategy, is the wrong sort of theoretical framework to deal with the issue of the informativeness of thoughts expressible by means of proper names. Salmon's attack on the Fregean argument about informative value, in spite of its ingenuity, is in general unconvincing and does not provide us with solid grounds on which the Fregean claim that informative value is not reference might be rejected.

SECTION 2 – NAMING AND COGNITIVE VALUE

In this Section I intend to address the following two (closely related) questions. First, how does a Millian approach to the semantics of ordinary proper names fare with respect to the Problem of Cognitive Value? And what should one say about current claims to the effect that such a problem is indeed soluble within the framework of a direct reference theory? Secondly, how is one to assess certain arguments recently advanced by some Millian philosophers towards the conclusion that a variant of Frege's Puzzle framed in terms of the notion of cognitive value should be deemed unsound?

I begin by introducing the revised Fregean argument; and, taking once more Salmon's views as representing the Millian side, I consider his account of cognitive value - especially his account of belief and belief-ascriptions - and his alleged rebuttal of the new Frege's Puzzle. Then I discuss and eventually reject an argument recurrently adduced on the neo-Fregean side to the effect that the sort of Millian theory in question would be, in certain significant respects, totally indiscernible from a (certain version of a) Fregean theory. Finally, I argue on different grounds towards the conclusion that Millianism about cognitive value should also be taken as unacceptable.

2.1 Cognitive value is here taken as that aspect of cognitive significance which concerns the sort of propositional attitudes a subject might take towards a given proposition or information content. Confining our attention to propositions expressible by sentences containing proper names, what I have called the *Problem of Cognitive Value* is this. How is it possible that utterances of sentences [S] and [S'] of the envisaged kind - viz. [...a...] and [...b...], where [a] and [b] are co-referential names - express propositions which differ in

cognitive value (relative to given contexts of use and to a given subject)? In particular, how is it possible for some subject to believe (judge, suspect, hope, etc.) that S without at the same time believing (judging, suspecting, hoping, etc.) that S'? Naturally, it is assumed that our pre-theoretical intuitions provide us with empirical evidence that differences in cognitive value of that sort are indeed possible, and that the conceptual machinery of an adequate semantic theory ought to be such as to accommodate them in some satisfactory way.

The reformulated Frege's Puzzle is basically an argument which draws upon our ground-level intuitions about cognitive value. For our present purposes, it might be synoptically represented as follows²². The premisses of the new argument are these:

1. **The Compositionality Principle:** If the proposition expressed by a sentence [S] in a context c has the same mode of composition and the same constituents as the proposition expressed by a sentence [S'] in a context c' then they are one and the same proposition.
2. **The New Major:** If the proposition expressed by [S] in c is the same as the proposition expressed by [S'] in c' then, for any agent x and time t, x believes (judges, suspects, hopes, etc.) at t that S (relative to c) if and only if x believes (judges, suspects, hopes, etc.) at t that S' (relative to c').
3. **The New Minor:** Let [S] and [S'] be (respectively) of the form [...a...] and [...b...], where [a] and [b] are co-referential names (with respect to contexts c and c'). Then it is possible, for some agent x and time t, that x believes (judges, suspects, hopes, etc.) at t that S (relative to c) and x does not believe (judge, suspect, hope, etc.) at t that S' (relative to c').

²² This is, in essence, the version examined by Salmon; cf. Salmon 1986, 80 ff.

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Now, taken in conjunction with certain (relatively) uncontroversial general suppositions, the new major and the new minor entail the result that the proposition expressed by [S] (i.e. [...a...]) in c differs from the proposition expressed by [S'] (i.e. [...b...]) in c'. And the envisaged suppositions might be (crudely) stated as follows. Attitudes like belief, judgement, suspicion, etc., are to be regarded as being certain relations which hold between given subjects, on the one hand, and propositions, on the other, the latter being the objects of the attitudes. Accordingly, it is natural to construe attitude verbs as being two-place predicates which stand for such relations; and an attitude-ascription of the general form [x V's at t that S], where V is an attitude verb, is said to be true of a subject s (relative to a context c) if and only if s V's (believes, judges, suspects, etc.) at t the proposition expressed by [S] (in c).

Then, by means of the Compositionality Principle, one would be able to draw from the above result the conclusion that distinct co-referential names [a] and [b] occurring in [S] and [S'] cannot be assigned the same propositional value (relative to the given contexts c and c'). Therefore, the propositional value - or the semantic content - of an ordinary proper name (in a context) cannot be identified with the object referred to by the name (in the context), a consequence which is inconsistent with what we have taken to be the constitutive thesis of a Millian theory of singular reference. Thus, in general, those propositions which are typically expressed by sentences containing proper names cannot be neo-Russellian propositions, i.e. propositions whose subject-positions (so as to speak) are entirely occupied by the bearers of the names.

Concerning the Fregean argument just outlined, it is worthwhile to have the following points in mind. The Compositionality Principle is as before and will be taken for granted in the ensuing discussion. As to the New Major, it is obtained from the old one by substituting the notion of the cognitive value of

a proposition for the notion of the informative value of a proposition. Given the relational analysis of attitudes and attitude-ascriptions alluded to above, the New Major turns out to be (like its predecessor) a logical truth, viz. a consequence of Leibniz's Law by Universal Instantiation; so we shall also take it for granted in our discussion.

It should be mentioned that a different principle, also linking the notions of cognitive value and propositional content, has been sometimes employed by some Fregean philosophers²³. The principle in question is not, at least in a straightforward manner, a truth of logic; besides needing to be restricted to rational agents, it is grounded on an intuitive notion of antagonism (or conflict) as applied to pairs of propositional attitudes. Roughly, it is the claim that it is impossible for a rational subject to hold mutually antagonistic (or conflicting) propositional attitudes towards the same proposition at the same time. An alternative argument about cognitive value could then be mounted on its basis, the premisses of which are these²⁴:

1'. The Compositionality Principle

2'. The Alternative New Major: If the proposition expressed by a sentence [S] in a context c is the same as the proposition expressed by a sentence [S'] in a context c' then, for any rational agent x and time t, if x believes at t that S (relative to c) then it is not the case that x disbelieves that S' at t, or x suspends belief about S' at t, or x does not believe that S' at t (relative to c').

3'. The Alternative New Minor: Let [S] and [S'] be (respectively) of the

²³ E.g. by Gareth Evans; see his *Intuitive Criterion of Difference for Thoughts* in Evans 1982, 18-20. Such a principle is discussed, in connection with the topic of cognitive dynamics, in Chapter III.

²⁴ For convenience, I take the case of belief as paradigmatic.

form [...a...] and [...b...], where [a] and [b] are co-referential names (with respect to contexts *c* and *c'*). Then it is possible, for some rational agent *x* and time *t*, that *x* believes at *t* that *S* (relative to *c*) and *x* disbelieves that *S'* at *t*, or *x* suspends belief about *S'* at *t*, or *x* does not believe that *S'* at *t* (relative to *c'*).

It is assumed that belief and disbelief, and belief and suspension of belief, and belief and failure to believe, might be taken as forming pairs of propositional attitudes which are in some intuitive sense antagonistic to one another. Due mainly to the relative vulnerability of its major premiss (by reference to the logical status of the New Major), the alternative argument comes out as less compelling than the original one; still, I am inclined to think that it is anchored upon ideas which are in general sound, and I shall come back to it later on.

Let us resume our discussion of the new Frege's Puzzle by considering its minor premiss. This is again seen, from Salmon's viewpoint, as the crux of the Fregean argument. Since the notion of a sentence being informative is not used at all - and since, as a result, there is no *rationale* for the suspicion that some pragmatically imparted (*versus* semantically encoded) information might be conveyed by an utterance of a sentence such as e.g. 'Hesperus is Phosphorus' - it is not possible for the Millian theorist to charge (on that basis) the new Frege's Puzzle with being a *petitio principii*; and such an immunity from *petitio* is one of the reasons why it is taken as an argument which is much more difficult to resist than the original one.

Furthermore, the New Minor seems to be sanctioned by our ordinary deductive practice, in particular by some of our strongest logical intuitions about the soundness of inferences involving attitude-ascriptions. In effect, we would intuitively rate a number of inferences falling under the schema

(V) $\frac{x \text{ V's at } t \text{ that } S}{\therefore x \text{ V's at } t \text{ that } S'}$

(where [S] and [S'] are as before) as being logically invalid, in the normal sense of having true premisses and false conclusions; thus, we would be inclined to deem schema (V) unsound. For instance, we would count the belief-ascriptions

(1) Ptolemy believes that Phosphorus is a planet

(2) Ptolemy believes that Hesperus is a planet

as true and false (respectively) with respect to Ptolemy's story and to a certain time; likewise, we would count

(3) Carneiro believes that Pessoa is Pessoa

(4) Carneiro believes that Pessoa is Campos

as true and false (respectively) with respect to Carneiro's story (in its primitive version) and to a certain time. Hence, we would regard

(5) Ptolemy does not believe that Hesperus is a planet

(6) Carneiro does not believe that Pessoa is Campos

as being both true relative to the given contexts and times, assuming that (5) and (6) are negations of (2) and (4) (respectively).

The central idea underlying the New Minor is that co-referential proper names occurring in the subordinate clauses of belief-ascriptions (and other attitude-reports) are not, in general, interchangeable *salva veritate*²⁵. Thus, substituting 'Hesperus' for 'Phosphorus' in (1), or 'Campos' for the second occurrence of 'Pessoa' in (3), would lead us from a truth, viz. (1) or (3), to a falsehood, viz. (2) or (4) (with respect to the stories in question). And the moral that the Fregean theorist typically draws from this is that a proper name

²⁵ I assume that all attitude-reports we are dealing with are given their so-called *De Dicto* readings; i.e., in a report of the form [x V's that ...a...], the occurrence of the name [a] is to be taken as being in the *semantic* scope of 'that'.

occurring within the semantic scope of an attitude verb (or, more generally, in *oratio obliqua*) cannot be taken as referring (merely) to that object which is, in any extensional construction (*oratio recta*), its usual referent or bearer; otherwise we would have to face the undesirable consequence that Leibniz's law of substitutivity of identicals for identicals is not universally valid, since it would admit exceptions. On the traditional Fregean view, a proper name occurring in *oratio obliqua* is said to refer to its *customary* sense, i.e. to a certain mode of presentation of the object which is referred to by the name occurring in *oratio recta*. On some recent neo-Fregean views, reference to modes of presentation is replaced with a certain form of existential quantification over modes of presentation. In any case, the Fregean theorist is apparently able to block substitutivity of co-referential names in propositional attitude contexts and to do justice to our ground-level judgements about the correctness or incorrectness of given attitude-ascriptions.

As is well-known, the new Frege's Puzzle poses a serious problem for any form of strict Millianism about singular reference. For if the semantic content of a name is invariably identical to its bearer then, given certain general principles about attitudes and attitude-ascriptions²⁶, such a view is utterly committed to the thesis of the substitutivity, not only *salva veritate* but also *salva significatione*, of co-referential names in attitude contexts (validating thus schema (V) above). As a result, belief-reports such as (2) and (4) would be, from a Millian viewpoint, true in the envisaged stories; hence, on pain of allowing an inconsistency to be attributed to the ascriber, the Millian theorist is forced to count reports (5) and (6) as false (in those stories). It goes without saying that such verdicts clearly clash with the untutored intuitions we apparently possess

²⁶ For an excellent exposition of the principles in question, see Soames 1988, 105-6.

about the correctness or incorrectness of attitude-reports such as (2) and (5) (or (4) and (6)). So either our intuitions about cognitive value are wrong, and then some explanation must be offered of why we have them, or Millianism about cognitive value is wrong.

As to the alternative argument, it also seems to be backed up by some of our pre-theoretical judgements about cognitive value. Indeed, suppose that (1) and (3) hold. Then, assuming that Ptolemy and Carneiro are rational agents, we would count the following reports as false (with respect to the given stories and to certain times):

(7) Ptolemy disbelieves that Phosphorus is a planet

(8) Carneiro disbelieves that Pessoa is Pessoa.

On the other hand, we would regard the following ones as true:

(9) Ptolemy disbelieves that Hesperus is a planet

(10) Carneiro disbelieves that Pessoa is Campos.

Besides, one might introduce versions of the cases in question with respect to which one would intuitively rate as true the following ascriptions (relative to certain times):

(11) Ptolemy suspends belief about whether Hesperus is a planet

(12) Carneiro suspends belief about whether Pessoa is Campos.

Again, it is clear that Millianism comes into conflict with this sort of intuitive verdicts. From the truth of (9) and (10) the Millian theory would allow us to infer the truth of (7) and (8) (respectively), for it would sanction the replacement of 'Hesperus' with 'Phosphorus' in (9) and the replacement of 'Campos' with 'Pessoa' in (10). Likewise, from the truth of (11) and (12) the Millian theory would allow us to infer (respectively) the truth of

(13) Ptolemy suspends belief about whether Phosphorus is a planet

(14) Carneiro suspends belief about whether Pessoa is Pessoa,

clashing once more with our natural Inclination to count (13) and (14) as false (with respect to the above versions of our cases and to the above times). Moreover, by allowing the conjunction of reports such as (1) and (7), or (3) and (8), the Millian account allows the possibility of a *rational* subject's holding inconsistent beliefs, i.e. believing a proposition and its negation, at the same time (assuming that disbelief is construed as belief in the negation). And, by allowing the conjunction of reports such as (1) and (13), or (3) and (14), it also allows the possibility of a rational subject's believing a proposition and simultaneously suspending belief about the very same proposition.

2.2 The blatant counter-intuitiveness of the results entailed by the Millian view in the area of cognitive value might be thought of as providing us with a straightforward *reductio* of that view. Yet, again, things are not so simple. Ingenious arguments have been lately mounted on the Millian side with a view to mitigating the intuitive implausibility of such results and casting doubt upon the soundness of the Fregean argument. A case in point is Salmon's brand of Millianism about cognitive value and his attempt to discredit the new Frege's Puzzle²⁷. Donnellan has recently described Salmon's theory of belief as being that Millian proposal which comes closest to succeeding²⁸. I think that this appraisal is right, and that it is therefore of the utmost importance to undertake a careful examination of Salmon's views.

Salmon's strategy for refuting the new Frege's Puzzle is twofold. On the one hand, he argues that the seemingly unassailable New Minor premiss is in fact false: contrary to appearances, ascriptions like (2) and (4) are indeed true

²⁷ Salmon's account of belief is expounded in Salmon 1986, 103-18. See also Salmon 1990, Section IV.

²⁸ Donnellan 1990, 204.

and ascriptions like (5) and (6) indeed false (in the respective stories); and, in order to accommodate this sort of ruling, he offers an account of the Belief-relation grounded on a direct theory of reference. On the other hand, a pragmatic explanation is provided of why we think in the way we ordinarily do when we regard inferences falling under schema (V) as invalid; as Millianism collides with our raw intuitions, and these are in effect seen as mistaken, Salmon has to display the source of our allegedly misguided patterns of speech and reasoning about belief.

Schematically represented, Salmon's theory of belief consists in the following analysis of reports of the form [x believes that p] (for simplicity, reference to times is omitted):

(S) x believes that p iff $(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)]$.

Here 'x', 'p' and 'g' range (respectively) over believers, (neo-Russellian) propositions, and what Salmon calls "modes of acquaintance" with propositions, or "guises" under which they may be entertained; and 'G(x,p,g)' abbreviates 'x grasps p by means of g'. Thus, the ordinary binary relation of belief is defined in terms of the existential generalization of a ternary relation BEL whose *relata* are believers, propositions, and guises; and standing in the BEL relation to a proposition p is taken to be something like being disposed to assent mentally to p when taking p under a certain guise.

In addition, there are two constraints which Salmon imposes on his BEL relation. The first is obvious and might be expressed as follows:

(A) $\neg \Box [(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)] \rightarrow (\forall g)[G(x,p,g) \rightarrow BEL(x,p,g)]]$.

In other words, it is possible for x to stand in BEL to a given proposition p under some guise by means of which x is familiar with p without standing in BEL to p under every guise by means of which x is familiar with p; hence, it

is allowed that conditions of the form $[(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)]$ and $[(\exists g)[G(x,p,g) \ \& \ \neg BEL(x,p,g)]$ be jointly satisfied by a given believer (at a given time). The second constraint amounts to the following construal of the notion of a subject's *withholding belief* from a proposition:

(B) x withholds belief from p iff $(\exists g)[G(x,p,g) \ \& \ \neg BEL(x,p,g)]$.

A corollary of (A) and (B) is that it is possible for a subject x to believe a proposition p while at the same time withholding belief concerning p ; for the formulas $[(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)]$ and $[(\exists g)[G(x,p,g) \ \& \ \neg BEL(x,p,g)]$ are clearly not mutually inconsistent.

Furthermore, one might introduce the notion of failure to believe, separating it *in limine* from that of withholding belief, as follows:

(C) x fails to believe that p iff $\neg(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)]$;

indeed, (C) is easily obtainable from (S) by elementary logic (reading [x fails to believe that p] as [It is not the case that x believes that p]). And the notions of suspension of belief and disbelief might also be introduced in the following way:

(D) x suspends belief about p iff $(\exists g)[G(x,p,g) \ \& \ \neg[BEL(x,p,g) \vee BEL(x,\neg p,\neg g)]]$

(E) x disbelieves that p iff $(\exists g)[G(x,p,g) \ \& \ BEL(x,\neg p,g)]$.

Clearly, a subject's suspending belief about a given proposition entails (but is not entailed by) her withholding belief from that proposition; and, presumably, a rational subject's disbelieving a proposition entails (but is not entailed by) her withholding belief from that proposition.

Salmon does not say much about the third *relatum* of his BEL relation, i.e. about the nature of propositional guises. He suggests though that in most cases, but not in all, a guise might be thought of as being a binary function f which

maps each believer x and sentence $[S]$ (of x 's language) onto the way x would take the proposition expressed by $[S]$ were this proposition presented to her through the very sentence $[S]$. Thus, we could take the following claim as typically holding: for any subject x and guise g , there is a sentence $[S]$ in x 's language such that $g = f(x, [S])$, where $f(x, [S])$ is the way in which x would take the proposition encoded in $[S]$ if he were acquainted with such a proposition by means of $[S]$. And claims (S) through (E) could then be rewritten in accordance with such a construal of the notion of a guise.

Let us see how the theoretical apparatus just sketched might be employed with a view to assessing the Fregean argument. To begin with, it is crucial to notice that Salmon's general premiss here is a strict Millian criterion of identity for singular propositions, according to which singular propositions p and q are the same proposition if and only if p and q are constructed out of exactly the same objects and the same attributes by means of the same mode of composition. Hence, it is assumed that e.g. the proposition that Pessoa is Campos is in fact the same as the proposition that Pessoa is Pessoa, or as the proposition that Campos is Campos; likewise, the proposition that Phosphorus is a planet and the proposition that Hesperus is a planet are supposed to be one and the same singular proposition.

Now the New Minor premiss comes out as false under Salmon's account of belief. In effect, such an account entails the general result that, necessarily, if $[x$ believes at t that $S]$ is true of a given subject then $[x$ believes at t that $S']$ is also true of her (where $[S]$ and $[S']$ are as indicated). For if the former ascription holds, then there will be a guise g by means of which x grasps the proposition that S and under which x stands in BEL to the proposition that S at t ; but, since the proposition that S is the proposition that S' , g will also be a guise by means of which x grasps the proposition that S' and under which x

stands in the BEL relation to the proposition that S' at t; and so the latter ascription will also hold.

Accordingly, reports such as (2) and (4) turn out to be true in the light of the Millian account (with respect to the given stories). Indeed, the following conditions would obtain:

(i) BEL[Ptolemy, that Hesperus is a planet, f(Ptolemy, 'Phosphorus is a planet')]

(ii) BEL[Carneiro, that Pessoa is Campos, f(Carneiro, 'Pessoa é Pessoa')]

(where in (i) we should rather have some appropriate translation of 'Phosphorus is a planet' into Ptolemy's language); and then, by means of existential generalization and (S) (appropriately revised), one would get (2) and (4). On the other hand, if one reads [x does not believe that p] as [x fails to believe that p], then reports such as (5) and (6) come out as false under the Millian account (with respect to the given stories). Indeed, (i) and (ii) are (respectively) sufficient to render the following false:

$\neg(\exists g)[\text{Ptolemy, that Hesperus is a planet, } g]$

$\neg(\exists g)[\text{Carneiro, that Pessoa is Campos, } g];$

and so, by means of (C) and the above assumption, (5) and (6) will not be the case.

As to the alternative argument, it is its major premiss which would be deemed false from the Millian standpoint. Assuming that [S] and [S'] are (respectively) of the form [...a...] and [...b...], where [a] and [b] are co-referential names, Salmon's account entails the following general result: it is possible for pairs of ascriptions of the form [x believes at t that S] and [x disbelieves at t that S'], or [x believes at t that S] and [x suspends belief at t about S'], to be true of a rational subject s (even if the proposition that S is the same as the proposition that S'). Indeed, let p be that proposition which is *ex hypothesi* referred to both by [that S] and [that S']. Then the Millian

account allows the following conditions to be jointly satisfied by *s*

(*) $G(x,p,g) \ \& \ BEL(x,p,g)$

(**) $G(x,p,h) \ \& \ BEL(x,\neg p,h)$,

with the important proviso that $\neg(h = \neg g)$; In effect, a conjunction of the form

$BEL[x,p,f(x,[S])] \ \& \ BEL[x,\neg p,f(x,[\neg S'])]$

might turn out to be true of *s*. Hence, by means of (revised) (S) and (E), one would get from (*) and (**) (respectively) to the result that both [*x* believes at *t* that *S*] and [*x* disbelieves at *t* that *S'*] may hold of *s*. Note that the proviso $\neg(h = \neg g)$ is required in order to block the possibility of a rational subject's simultaneously believing and disbelieving the same proposition under one and the same guise, or believing contradictory propositions under a guise and its negation. (And remarks which parallel the ones made about belief and disbelief could be made with respect to belief and suspension of belief.)

Accordingly, reports such as (7) and (8) turn out to be true in the light of the Millian theory (with respect to the given stories). Indeed, the following would obtain:

(iii) $BEL[\text{Ptolemy,that Phosphorus is not a planet,f(Ptolemy,'Hesperus is not a planet)}]$

(iv) $BEL[\text{Carneiro, that Pessoa is not Pessoa, f(Carneiro,'Pessoa não é (is not) Campos')}]$

(where, again, in (iii) we should have some appropriate translation of 'Hesperus is not a planet' into Ptolemy's language); and then, by means of existential generalization and (revised) (E), one would get (7) and (8). Likewise, (13) and (14) come out as true under the Millian account (with respect to the given versions of the stories). In effect, the following would hold:

(v) $\neg BEL[\text{Ptolemy,that Phosphorus is a planet,f(Ptolemy,'Hesperus is a planet')}] \ \& \ \neg BEL[\text{Ptolemy,that Phosphorus is not a planet,$

f(Ptolemy, 'Hesperus is not a planet')

(vi) \neg BEL[Carneiro, that Pessoa is Pessoa, f(Carneiro, 'Pessoa é Campos)] &
 \neg BEL[Carneiro, that Pessoa is not Pessoa, f(Carneiro, 'Pessoa não é Campos)];

and then, by Existential Generalization and (revised) (D), one would get (13) and (14).

Finally, let me summarize the sort of account provided by Salmon about the source of our allegedly mistaken ordinary intuitions about cognitive value. Take, for instance, our Inclination to count ascription (4) as false, and hence (6) as true, with respect to Carneiro's story. Salmon's explanation²⁹ is divided into three parts. First, it is claimed that in certain cases we are disposed to see (4) as false because we have a propensity to conflate the content of (4) with the content of a different report, viz.

(15) Carneiro believes that '*Pessoa é Campos*' is true (in Portuguese); since (15) is obviously false, we would tacitly ground our intuitive verdict about (4) on (15)'s falsity. Secondly, it may also happen that we are disposed to see (4) as false because we have a propensity to infer the falsity of (4), and the truth of (6), from the fact that Carneiro would sincerely and reflectively dissent from an utterance of the sentence '*Pessoa é Campos*' (a sentence which he fully understands); on Salmon's view, such an inference is unsound: what one should conclude from the above fact is not that Carneiro does not believe the proposition that Pessoa is Campos, but that he withholds belief (in the given sense) from that proposition under the guise '*Pessoa is Campos*'. Thirdly, (4)'s appearance of falsity might also be due to the fact that our usual practise of belief-ascription would lead us to see (4) as conveying, not only the proposition

²⁹ Salmon 1990, 232-4.

believed by Carneiro, but also the *guise* under which it is believed, i.e. the way Carneiro takes that proposition in agreeing to it (which, on Salmon's view, is no part of the semantic content of (4)). That is to say, one would be tacitly and wrongly reading (4) as the following false claim (as couched in Salmon's terminology): Carneiro stands in the BEL relation to the proposition that Pessoa is Campos under the guise '*Pessoa é Campos*'.

2.3 A Fregean rejoinder to Salmon's anti-Fregean argument which suggests itself in a natural way consists in claiming that, by relying on an apparatus of guises or modes of presentation of propositions, the Millian account of belief which supports such an argument is in the end a mere terminological version of a Fregean account of belief. This sort of rejoinder is very common in recent neo-Fregean literature on the topic³⁰; one might even say that it represents the predominant way of arguing against Millianism on the part of present-day Fregean philosophers³¹.

It is to such a line of counter-argumentation, a paradigm of which is Graeme Forbes's criticism of Salmon's views about cognitive value, that I turn now my attention. In a review of *Frege's Puzzle*³² Forbes makes the central claim that Salmon's theory of belief might be seen, under certain conditions, as a notational variant of a neo-Fregean theory; and thus that the Millian account could be reduced to a neo-Fregean one simply by rewriting it in terms of Fregean vocabulary. With a view to supporting his claim Forbes offers an outline of an account of belief which, according to him, would satisfy the following

³⁰ References concerning what I shall call the neo-Fregean Notational Variance Claim are given in Section 3.

³¹ An exception is given in McDowell 1984; cf. 104, footnote 15.

³² Forbes 1987a.

conditions: (i)- it could be directly obtained from Salmon's own analysis by means of a certain set of substitutions, which presumably would not affect the essential features of Salmon's view; (ii)- it could naturally be described as Fregean, in the sense that it would preserve (at least) the spirit of Frege's original semantical doctrines, especially his fundamental intuitions about belief. Of course, the upshot is that Salmon's theory would not, at bottom, constitute a genuine Millian alternative to a Fregean semantics for belief-ascriptions.

Before considering Forbes's central claim, I would like to examine a preliminary claim he also makes to the effect that Salmon's analysis entails the possibility of our ascribing contradictory beliefs to some (rational) believer, i.e. a belief that p and simultaneously a belief that $\text{not-}p$; and that the fact that this sort of consequence is not at all derivable from a Fregean theory (indeed its negation needs to be derivable) is to be thought of as being a significant advantage of this kind of theory over the Millian theory. It seems to me that this preliminary claim is inconsistent with Forbes's central claim that the Millian account only differs from a Fregean one with respect to the sort of notation employed, so that there is no substantial divergence between them. In effect, it is reasonable to require of two theories T_1 and T_2 , which are *ex hypothesi* notational variants of each other and hence mutually translatable, that they generate exactly the same set of logical consequences. In other words, for any proposition q which may be expressed both by some sentence $[S]$ in T_1 and by its notational variant $[S^*]$ in T_2 , it is natural to require that q is deducible in T_1 if and only if q is deducible in T_2 . And if we further assume, which seems plausible under our present conditions, that T_1 and T_2 are consistent theories, then it is not the case that we could have, for some proposition r , both a derivation of r in T_1 and a derivation of $\text{not-}r$ in T_2 . Now let T_1 and T_2 be the philosophical theories of belief proposed by Salmon and by the Fregean,

respectively, and let r be the proposition that it is possible correctly to attribute contradictory beliefs to a certain believer. We would then obtain the straightforward conclusion that, contrary to Forbes's central claim, Salmon's theory cannot be a notational variant of the envisaged Fregean theory; at least if the latter is not supposed to have the mentioned unFregean consequence, and this is surely a sound assumption within a Fregean framework³³. (I have also assumed that words like 'belief', etc., mean the same in both theories.)

As we have seen, Forbes is certainly right when he says that Millianism implies that it is possible to ascribe inconsistent beliefs to some agent. But this is to be understood in a certain sense. Take Ptolemy's case. In the light of (S), the following ascriptions are both true:

(16) Ptolemy believes that Hesperus is a planet

(17) Ptolemy believes that Hesperus is not a planet.

Hence we are indeed in a position, under Salmon's analysis, to attribute contradictory beliefs to Ptolemy. Yet, this is to be taken in the sense that, whereas Ptolemy believes the proposition that Hesperus is a planet under the guise $f(\text{Ptolemy}, \text{'Phosphorus is a planet'})$, he comes to believe the contradictory of that proposition under the guise $f(\text{Ptolemy}, \text{'Hesperus is not a planet'})$; and it should be stressed that the sentence 'Hesperus is not a planet' is not the negation of the sentence 'Phosphorus is a planet'. Therefore, in this sense, we are not committed to any description of our agent as being an illogical or irrational believer. He could only be so described if we also had

BEL[Ptolemy, that Hesperus is not a planet, $f(\text{Ptolemy}, \text{'Phosphorus is not a planet'})$],

which is obviously not the case (in Ptolemy's story). Of course, these observa-

³³ Forbes's argument that the difference tells in favour of neo-Fregeanism seems to assume this.

tions do not render Salmon's theory any less counter-intuitive for it has in any case the consequence that Ptolemy believes that Hesperus is a planet *tout court* and also believes that Hesperus is not a planet *tout court*; but, apparently, they somehow mitigate the implausibility of such a consequence.

By contrast, there is no sense in which ascriptions of inconsistent beliefs such as (16) and (17) could be both obtainable in a Fregean theory, for instance the sort of theory put forward by Forbes³⁴. On the basis of the distinct (perceptual) modes of presentation of Venus attached by Ptolemy to 'Hesperus' and 'Phosphorus' (or to the counterparts of these names in his language), he can be said to stand in the belief-relation to the Fregean proposition expressed by 'Hesperus is not a planet', which is the denotation of the 'that'-clause in (17); hence (17) is true in Ptolemy's story. But (16) is not at all the case, since Ptolemy does not stand in the belief-relation to the Fregean proposition expressed by 'Hesperus is a planet', which is the denotation of the 'that'-clause in (16); although he does stand in that relation to the proposition expressed by 'Phosphorus is a planet', which is a different Fregean thought as it contains a different mode of presentation of Venus (relative to Ptolemy).

Let us now consider Forbes's central claim and his proposed neo-Fregean reconstruction of the Millian account. Forbes strategy consists in taking Salmon's crucial claim concerning belief, expressed in

(S) x believes that p iff $(\exists g)[G(x,p,g) \ \& \ BEL(x,p,g)]$,

as his starting-point and in subjecting (S) to the following set of substitutions: First, on the right-hand side of the biconditional, replace the ternary predicate 'G(x,p,g)' ('x grasps p by means of g') with the ternary predicate 'T(x,p,g)' ('x thinks of p by means of g'), where 'x', 'p' and 'g' are to be regarded as

³⁴ Forbes 1987b.

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variables ranging over believers, states of affairs and propositions (respectively). Second, still on the right-hand side, replace 'BEL(x,p,g)' by the conjunction 'B(x,p) & p = Ref(g)', where 'x','p' and 'g' are read as above, 'B' stands for the belief-relation, and 'Ref' stands for the Reference function, which in this case assigns to each proposition g some state of affairs p as its referent. Finally, substitute 'p is believed by x to obtain' for the left-hand side. The result would be the formula:

(F) p is believed by x to obtain iff $(\exists g)[T(x,p,g) \ \& \ B(x,g) \ \& \ p = \text{Ref}(g)]$.

Thus, Forbes's states of affairs replace Salmon's propositions and Salmon's guises are replaced by Forbes's propositions. The idea underlying (F) is that states of affairs are the referents of sentences; or, to be precise, the referents of the propositions expressed by these sentences. It is implicitly assumed that the relation between a proposition g and a certain state of affairs p is the relation which obtains between Fregean sense (the proposition expressed by some sentence [S]) and reference (the state of affairs referred to by [S]); and this relation is to the effect that sense determines reference, so that we can say that a sentence [S] refers to a state of affairs p only in a derivative way: primarily, it is the proposition g expressed by [S] which determines p as its referent.

Concerning the above reconstruction, Forbes advances two kinds of claim. First, (F) may be seen, in a fairly conspicuous manner, as a mere notational variant of Salmon's analysis (S), the apparent differences between (S) and (F) reducing to terminological ones. Assuming that his states of affairs coincide with Salmon's propositions - since they are conceived as displaying precisely the same sort of composition as neo-Russellian propositions, viz. objects coupled with properties - Forbes contends that Salmon's concept of a guise plays in (S) exactly the same kind of role as the concept of a Fregean proposition in (F); so

that there are reasons to suspect that Millian guises dissolve into Fregean senses. Given that a neo-Russellian proposition p is an entity structured in the way described above, every guise under which x can take p is bound to have as constituents a manner of grasping some object o and a manner of grasping some property P . But such manners of grasping, Forbes argues, are no other than the Fregean senses which together make up the proposition $\alpha\hat{\beta}$, where α and β are (respectively) modes of presentation (relative to x) of the object o and the property P (I use '^' for concatenation of senses). Therefore, just as in Forbes's neo-Fregean analysis (F) a (Fregean) proposition g is a mode of presentation of some state of affairs p , so in Salmon's Millian analysis (S) a guise g could be viewed as being, in essence, a mode of presentation of some (neo-Russellian) proposition (= state of affairs) p . (Of course, I have been assuming that we are only dealing with atomic propositions, i.e. those which may be expressed by sentences constructed out of simple unary predicates and simple singular terms.)

Forbes's subsidiary claim, which I shall take here for granted (though I think it is disputable), is simply that his reconstruction of the Millian theory may be plausibly considered as being Fregean in nature; that is, it would not represent any significant departure from the spirit of Frege's doctrines.

Now I think Forbes's central claim is not in general sound. It seems to me that the sort of indirect argument used - that of trying to undermine the Millian account by showing that it is just a version of a neo-Fregean account, so that one would not really be confronted with two different and rival theories - does not provide someone working within a Fregean argument with an adequate strategy to counter the Millian view. It would perhaps be better, and that is what I shall do later on, to concentrate a Fregean attack on certain apparently dubious and highly controversial results which are constitutive of the Millian

view, particularly the counter-intuitive character of a substantial set of consequences which follow from Salmon's theory of belief, as well as the associated revisionist stand he is forced to take towards our current patterns of speaking about belief.

Although I think that Forbes's considerations show that there must be *some* sense in which Salmon's account could be seen as invoking the same kind of conceptual machinery as the neo-Fregean theory, I shall argue that Forbes's "notational variance" claim cannot be accepted; and if I am right, guises cannot be assimilated, at least on that basis, to Fregean senses. I shall resume to the effect a line of reasoning already introduced, which can be synoptically represented as follows. If Salmon's analysis (S) is to be regarded as a notational variant of its neo-Fregean counterpart (F), then (F) itself is bound to have the same consequences as (S); in particular, (F) is bound to yield exactly the same verdicts on the truth-values of given belief-ascriptions. But either this is not the case, and then Forbes is wrong in claiming that Salmon's account is a notational variant of (F) and that guises are "disguised" Fregean senses; or it is the case, but then (F) would at once disqualify itself as Fregean in spirit (for obvious reasons). I shall now try to show that the first branch of this disjunction holds.

Having in mind Ptolemy's case, one would *prima facie* reach the conclusion that Forbes's analysis (F) implies that it is possible correctly to ascribe inconsistent beliefs to Ptolemy (displaying thus the same sort of behaviour as (S) in this respect). Applying (F) so as to try to settle the question whether it allows us to assert that Ptolemy believes that Hesperus is a planet, one would obtain the following (for convenience, I abbreviate 'the state of affairs that p' to '/p/')

/Hesperus is a planet/ is believed by Ptolemy to obtain iff $(\exists g)[T(\text{Pto}$

lemy, /Hesperus is a planet/,g) & B(Ptolemy,g) & /Hesperus is a planet/ = Ref(g)].

Let g be the Fregean proposition [^sPhosphorus is a planet^s]³⁵, so that this proposition is a mode of presentation of /Hesperus is a planet/ for Ptolemy, it is clearly believed by Ptolemy in his story, and its referent is obviously /Hesperus is a planet/. Thus, we come to the conclusion that

(18) The state of affairs that Hesperus is a planet is believed by Ptolemy to obtain.

On the other hand, let g be [^sHesperus is not a planet^s]. Then the following holds:

($\exists g$)[T(Ptolemy, /Hesperus is not a planet/,g) & B(Ptolemy,g) & /Hesperus is not a planet/ = Ref(g)].

Hence, by (F), we are also in a position to assert:

(19) The state of affairs that Hesperus is not a planet is believed by Ptolemy to obtain.

So the conjunction of (18) and (19) implies at least that Ptolemy believes of inconsistent states of affairs that they both obtain. But is there any sense in which this could amount to ascribing contradictory beliefs to Ptolemy?

In order to answer this question we have to determine whether or not (18) and (19) might receive (respectively) the readings:

(20) Ptolemy believes that the state of affairs that Hesperus is a planet obtains.

(21) Ptolemy believes that the state of affairs that Hesperus is not a planet obtains.

If so, I would argue on Fregean grounds that (20) and (21), and hence (18) and

³⁵ I use '[^s , ^s]' as sense-quotes, i.e. the result of writing a given expression within such symbols is a name of the Fregean sense of the expression.

(19), are respectively the same as (16) and (17), in which case (F) would indeed entail the possibility of our correctly attributing inconsistent beliefs to Ptolemy. Taking (20) as an example, I would argue as follows. According to the Fregean account, the occurrence of the singular term 'the state of affairs that Hesperus is a planet' in (20) must have as its reference, not its customary reference (*ex hypothesi* a certain state of affairs, e.g. the reference of the sentence 'Phosphorus is a planet'), but that which is its customary sense; and, using Forbes's assumptions, this sense is a concept of that state of affairs, viz. the Fregean proposition [^sHesperus is a planet^s] (which might be expressed by the sentence 'Hesperus is a planet' occurring by itself)³⁶. Thus, the Fregean regimentation for (20) is

B(Ptolemy, [^sHesperus is a planet^s] ^ [^sobtains^s]),

which may presumably be abbreviated to

B(Ptolemy, [^sHesperus is a planet^s]),

which in turn is the Fregean regimentation for (16). (And a similar argument could be applied to (21)).

However, there is a strong reason to think that Forbes would not allow (18) and (19) to have, respectively, the readings (20) and (21) (in the sense of their forming pairs of logically equivalent belief-ascriptions). The reason is that e.g. (18) would rather receive the overtly *De Re* reading (or, in Forbes's terminology, the "external form" reading)

(18)' The state of affairs that Hesperus is a planet is something Ptolemy believes to obtain,

where the occurrence of the singular term 'the state of affairs that Hesperus

³⁶ Actually, it could be that the description [the state of affairs that S] might express a slightly different (perhaps more intimate) way of thinking of a state of affairs than that which is expressed by the sentence [S]; but I ignore the complication here.

is a planet' is an external occurrence and has as its reference the customary reference of the term (the state of affairs itself), being thus open to replacement *salva veritate* by any co-referential singular term (e.g. 'the state of affairs that Venus is a planet'). By contrast, in (20) the occurrence of the same term is internal and (20) is itself an *internal* form (in classical terminology, a *De Dicto* ascription, although the *De Re/De Dicto* distinction does not fully coincide with Forbes's external form/internal form distinction).

Now the logical relations which are seen to hold between external forms and the corresponding internal forms are such that the former ascriptions can always be inferred from the latter ones, while the converse inference is not valid in Forbes's Fregean theory; that is, whereas a belief-ascription of the general form

(a) a is something x believes to be F,

whose regimentation is

$(\exists m)[T(x,a,m) \ \& \ B(x, m \wedge \text{'is F'})]$

(where 'm' ranges over modes of presentation of objects), is entailed by a belief-ascription of the form

(b) x believes that a is F,

whose regimentation is

$B(x, \text{'a'} \wedge \text{'is F'})$,

the converse deduction is not allowed. It follows that (18) (read as (18)'), which has the form (a), does not entail (20), which has the form (b). Thus, (18) cannot have the reading (20), and the same would apply to (19) and (21).

Our general conclusion is that, under such circumstances, Forbes's analysis (F) does not yield the same consequences, concerning the truth-values of belief-ascriptions such as (16) and (17), as Salmon's analysis (S); for instance, whereas (S) implies that (16) is true (in Ptolemy's story), (F) would entail the

falsity of (16) (and it would be in this sense genuinely Fregean). This is sufficient to establish the result that, *pace* Forbes, Salmon's theory is not a notational variant of a neo-Fregean account (as represented in (F)). Nevertheless, and independently of translation considerations, Forbes's reconstruction has the merit of enabling us to see Salmon's theory, from a Fregean point of view, as misinterpreting belief-ascriptions by treating states of affairs as the objects of belief.

2.4 Let me close this Section with a brief mention of a number of aspects which are constitutive of the Millian account of cognitive value and which I take to be irremediably defective. The aspects in question relate mainly to the failure of the Millian theory to accommodate certain fundamental features of our ordinary practice of attitude-ascription. I assume that our definitive method of assessment of a given semantical theory consists in checking out whether or not the theory is able to accommodate our pre-theoretical linguistic intuitions. To use Donnellan's phrase³⁷, such intuitions are the bottom line in philosophical argumentation about language. And I think that the Millian appeal to guises as external to the singular contents believed, judged, etc., as well as the associated pragmatic strategy employed to discard our ground-floor judgements, are insufficient to palliate the manifest implausibility of a number of Millian descriptions of our propositional attitudes. Maybe, as Kripke has claimed³⁸, our intuitions about belief are not, in general, as solid as one might expect, and maybe there are cases concerning which they are likely to break down. But there are also clear-cut cases, cases concerning which our intuitions are perfectly in order; and it is against such cases that I think one should test the

³⁷ Donnellan 1990, 204.

³⁸ S.Kripke 1979.

Millian view and eventually reject it. It is true that a neo-Fregean account of belief has problems of its own; but, by treating a belief-ascription containing a simple singular term as conveying information, not only about the object the belief is about, but also about some mode of presentation under which the believer takes the object, such an account has at least the significant advantage of blocking from the outset any counter-intuitive descriptions of the envisaged sort.

Let me then delineate what I take to be the most serious drawbacks to the Millian view of cognitive value. To begin with, a necessary consequence of such a view is that an ascription such as

(22) Carneiro believes that Campos is not Campos

would be entirely in order (with respect to Carneiro's case). Now it seems to me that this kind of result can hardly be accepted. I doubt whether the pragmatic strategy, backed up by a framework of guises, would succeed in dispelling in a satisfactory way our strongly entrenched intuition to the effect that (22) is utterly incorrect. And if one switches from belief-ascriptions to reports of sayings then, assuming that the Millian account also applies to the latter, the intuitive implausibility of the Millian verdicts becomes even more apparent. Suppose that Carneiro, in the context of his story, comes to utter a token of 'Pessoa is not Campos' (or rather '*Pessoa não é Campos*'). Then Millianism would allow us to report this in indirect discourse as follows:

(23) Carneiro said that Campos is not Campos;

and (23) seems to be wholly inappropriate in the light of our ordinary standards.

By entailing the truth of attributions like (22), the Millian theory entails the possibility of our attributing to an *ex hypothesi* fully rational and logical subject a belief in a self-contradiction (or, better, a belief in a logical

Impossibility, viz. the negation of a logical truth). Now such a consequence would not be completely unreasonable, one might concede, only if the subject could not be in a position to be aware of the fact that she believes a self-contradictory proposition. The problem is that it seems that (Salmon's brand of) Millianism also entails that it is possible for a rational subject who is described as believing a self-contradiction to realize that she believes the self-contradiction in question. Indeed, assuming that Carneiro is minimally competent in attributing beliefs (to others and to himself), the following would be true of him under the Millian account:

(24) Carneiro knows that he believes that Campos is not Campos.

The reason is that Carneiro would stand in the epistemic analogue of the BEL relation, which one might call the KNOW relation, to the neo-Russellian proposition that Carneiro believes that Campos is not Campos; for there would be a guise, e.g. $f(\text{Carneiro, that Carneiro believes that Campos is not Campos, 'Eu acredito que Pessoa não é Campos' ('I believe that Pessoa is not Campos')})$, by means of which he would be familiar with that proposition and under which he would stand in KNOW to it. (Incidentally, I guess that Millianism would even entitle us to assert that Carneiro knows (24).)

On the other hand, suppose that Carneiro has some expertise in elementary logic and semantics; and, in particular, that he has the concept of a self-inconsistent proposition. Then Millianism allows us to assert that Carneiro knows that the proposition he believes, viz. the proposition that Campos is not Campos, is self-inconsistent; in effect, there would be a guise, e.g. $f(\text{Carneiro, the proposition that Campos is not Campos is self-inconsistent, 'A proposição que Campos não é Campos é auto-inconsistente' ('The proposition that Campos is not Campos is self-inconsistent')})$, by means of which he is *ex hypothesi* familiar with that proposition and under which he stands in the KNOW relation to it. And the

existence of such a guise would also warrant the claim that Carneiro knows that the proposition that Campos is not Pessoa is a self-Inconsistent proposition! True, what Carneiro is ignorant of is the metalinguistic proposition that the sentence '*Pessoa não é Campos*' expresses (in Portuguese) a self-inconsistent proposition; and this happens to be the sentence used to specify the guise under which he believes, and knows that he believes, the self-Inconsistency that Campos is not Campos. Still, I think that the preceding results strongly militate against the intuitive tenability of the Millian account. Furthermore, one might take the following principle as imposing a plausible constraint on the notion of rationality: if *x* is rational then, if *x* knows that *x* believes a proposition *p* and *x* knows that *p* is self-inconsistent, then *x* will cease to believe *p*. Now it seems that this principle is violated by the Millian theory. Indeed, letting *p* be the proposition that Campos is not Campos, all the conditions stated in the antecedent are apparently fulfilled in Carneiro's case. Yet, according to Millianism, Carneiro continues to believe that Campos is not Campos. True, he also withholds belief from the proposition in question, and disbelieves it as well; but this is something which he has done all along.

Another sort of counter-intuitive consequence of the Millian account of cognitive value is that it licenses attributions of beliefs whose contents are specified by using proper names which are not available in the repertoire of the believer, or which are not the counterparts of any names in the believer's idiolect (if the language of the ascriber differs from the language of the believer)³⁹. Thus, for instance, Millianism entitles us to ascribe to Ptolemy a number of beliefs expressed using *our* name for both Hesperus and Phosphorus, viz. the name 'Venus', a name whose introduction into the language was

³⁹ This has been noticed by Donnellan in his article 1990, 204, footnote 4.

presumably a result of the astronomical discovery that the Evening Star and the Morning Star are one and the same planet. In effect, the following would come out as a correct belief-attribution on the Millian view:

(25) Ptolemy believes that Venus is a planet;

for Ptolemy would be disposed to agree to the proposition that Venus is a planet if such a proposition were presented to him in a guise specified in terms of (some suitable translation of) the sentence 'Phosphorus is a planet'. Yet, it seems to be intuitively implausible that any belief-ascription of such a sort, containing 'Venus' in the 'that'-clause, could be true of Ptolemy. Rather, we would be inclined to take reports such as (25) as incorrect and hence to take reports such as

(26) Ptolemy fails to believe that Venus is a planet;

as correct; but, as we have seen, (26) would be deemed false by the Millian theorist.

To take a different kind of case, suppose that Carneiro is not at all familiar with the name 'Ricardo Reis', this being another heteronym employed by Pessoa. Likewise, we would be nevertheless entitled by Millianism to attribute to Carneiro a number of beliefs expressed using 'Ricardo Reis', a name which *ex hypothesi* he does not even understand. For instance, the Millian account would allow us to assert the following:

(27) Carneiro believes that Fernando Pessoa is Ricardo Reis

(28) Carneiro believes that Ricardo Reis is a poet;

for Carneiro would be disposed to accept the propositions that Pessoa is Reis and that Reis is a poet when taking them (respectively) under guises such as e.g. '*Campos é Campos*' and '*Campos é um poeta*'. Again, this appears to be highly dubious in the light of our ordinary standards. What we would be intuitively prepared to assert concerning this sort of situation is that Carneiro

fails to believe that Fernando Pessoa is Ricardo Reis and that he fails to believe that Ricardo Reis is a poet, assertions whose contents come out as false under Millianism.

Finally, let me point out very briefly that there are important aspects of our psychological and cognitive lives, namely aspects involving the dynamics of belief (and other attitudes) and the functional role of belief (and other attitudes), that a Millian account of cognitive value would be unable to accommodate in a satisfactory way⁴⁰.

As to the former aspects, it turns out that a number of perfectly admissible transitions from old doxastic states to new doxastic states, taking place in a given subject throughout a certain period of time, would be left unexplained in the light of Millianism. For instance, one could introduce a situation in which Carneiro, on the basis of new evidence, changes his mind at a time t' about his belief, held at an earlier time t , that Pessoa is not Campos; at t' he might come to suspend judgement about whether Pessoa is Campos, or he might come to disbelieve that Pessoa is not Campos (i.e. to believe that Pessoa and Campos are after all one and the same person). Yet, one could not make sense of these and other possible transitions on the basis of the Millian theory. For such a theory would yield the consequence that Carneiro has *always*, i.e. at any time between t and t' , suspended judgement about the proposition that Pessoa is Campos, as well as the consequence that Carneiro has always disbelieved the proposition that Pessoa is not Campos.

As to the latter aspects, it is also very unlikely that the Millian theory could adequately account for the functional role of mental states whose contents are specifiable with the help of proper names (or other syntactically simple

⁴⁰ The inadequacy of the Millian theory to cope with the phenomena in question is shown in L.R. Baker 1982.

singular terms). The functional role of a particular belief consists in its relations to other mental states, as well as to environmental input and to behaviour (including linguistic behaviour). Now there are good reasons to suppose that, for instance, the functional role played in Carnelro's life by the belief that Pessoa is Campos would be substantially different from the one played in his life by the belief that Pessoa is Pessoa (the latter would be very meagre indeed). And this might be thought of as providing us with a basis on which to discriminate between the particular contents of those beliefs. However, on the Millian view, such a difference in functional role would remain unaccountable; for the beliefs in question would be assigned the same neo-Russellian proposition as their particular content. Maybe this sort of difficulty could be overcome by bringing ways of believing, or propositional guises, into the picture and by using them to account in some way for functional role. But then, assuming that such a manoeuvre could be successfully carried out, the intuitive connection which presumably holds between the content of a particular belief and its functional role would be lost; for ways of believing or guises are, by definition, external to content.

SECTION 3 - THE CASE AGAINST INDEXICAL *SINN*

3.1 On the neo-Fregean side⁴¹, the charge has often been made against Millian theories of singular reference that they necessarily end up with the admission of theoretical entities which are apparently indistinguishable from Fregean senses. Such a countenance of sense-like entities is normally taken by the neo-Fregean theorist as an almost inevitable result of any attempt on the part of the Millian theorist to deal with certain aspects of the problem of singular reference. The aspects in question consist mainly in issues about the cognitive significance of our use of sentences containing syntactically simple and unquoted singular terms. In trying to accommodate such problems within a directly referential approach, the Millian theorist is apparently led to introduce a conceptual apparatus which, according to his Fregean opponent, would not significantly differ from a framework of modes of presentation.

The general upshot of the Fregean criticism is that one could hardly expect to be offered a satisfactory account of singular reference which would qualify as being purely *Millian*, i.e. an account on which the propositional value of a singular term (in a certain context) is exhausted by its referent (in the context). Putative genuinely Millian theories, it is claimed, do not provide us with a real alternative to Fregeanism since a careful analysis will reveal them to be mere terminological variants of an essentially Fregean account. Indeed, the sense-like entities that such theories are allegedly forced to posit - e.g. Salmon's singular guises or Perry's ways of apprehending individuals - would in some way or other play an intermediate semantic role between the singular

⁴¹ For example, Evans argues that John Perry's account of indexical belief might be seen as a notational variant of a Fregean account, Perry's ways of apprehending objects being equated with Fregean indexical senses; see Evans 1981, 317-8. More recently, Forbes makes a similar claim in his article 1989b, 474-5.

terms, on the one hand, and their referents, on the other; and this would presumably preclude the theories in question from being *purely* Millian (in the above sense).

3.2 More surprising is the fact that the converse claim has also been advanced, though perhaps not so often, on the Millian side. In effect, the view has been put forward⁴² that certain versions of a Fregean account of singular reference, especially those versions whose distinctive feature is a *De Re* construal of singular *Sinne*, might in the end be counted as being mere terminological variants of a direct reference theory.

A typical pattern of reasoning used by the Millian theorist to reach such a conclusion might be synoptically described as follows. Once subjected to a close scrutiny, putative *De Re* senses attached by speakers to singular terms in the language, besides being obscure or ill-defined, turn out to be spurious or redundant. And the general reason usually adduced to establish this redundancy is that every substantive semantic role which could be reasonably assigned to the postulated singular senses could apparently be entirely carried out by, or naturally passed on to, either the referents of the singular terms or other theoretical entities available in the conceptual machinery of a direct reference theory (e.g. Kaplan's characters or Perry's belief states). Hence, by applying Ockam's razor, it seems that one would be in a position to eliminate *De Re Sinne* from the ontology of a neo-Fregean theory of reference, in which case such a (reconstructed) theory would indeed dissolve into a Millian theory. Therefore, if the arguments given for the eliminability of *De Re* singular senses on the basis of their alleged semantic vacuity were sound, then neo-Fregean accounts resting upon them would not constitute a serious alternative to Millianism.

⁴² E.g. by Scott Soames; see Soames 1989, 153-6.

I shall label as follows the two conflicting general views, both grounded on "notational variance" considerations, sketched above. I shall call the view that certain forms of Millianism are (in the sense mentioned) notational variants of a Fregean theory of reference, the *Fregean Notational Variance Claim*, and I shall call the view that certain forms of Fregeanism are (in the sense mentioned) notational variants of a direct reference theory, the *Millian Notational Variance Claim*. To sum up, while the former claim rests on the supposition that a direct reference theory could be easily turned into a particular version of a neo-Fregean one by showing that it is bound to acknowledge certain sense-like entities, the latter claim is based upon the supposition that a neo-Fregean theory could be easily turned into a particular version of a Millian one by showing that *De Re* senses are theoretically superfluous and hence eliminable.

3.3 Now the question how many accounts of singular reference are we confronted with here - Two different (and mutually antagonistic) theories? Or just two versions of what is in essence the same theory? - is surely of importance to anyone interested in the topic. And this question should be answered by means of a careful assessment of the soundness of each of the above claims. Before trying to adjudicate between the two accounts one would naturally want to know whether or not there are indeed two substantially disparate accounts. *Grosso modo*, if the Fregean Claim were sound then we would have a single general conception of singular reference to deal with, viz. Fregeanism; likewise, if the Millian Claim were sound we would be facing a single general conception of singular reference, viz. Millianism. And, while not intending to neglect other reference theories - even those theories about the impossibility, in principle, of setting up a systematic account of singular reference (perhaps following a Wittgensteinian model or the model of Schiffer's "No-Theory Theory

of Meaning"⁴³) - it appears that the contemporary dispute in the field turns mainly around the two sorts of approach under consideration.

My view is that both the Fregean Notational Variance Claim and its Millian counterpart are wrong, though naturally on different grounds. I think that they are clearly wrong if one takes them literally; notice that, in this case, they are very strong claims indeed since they involve very strong assumptions concerning the two theories, e.g. their full inter-translatability and the strict identity of their logical consequences. Moreover, I am inclined to think that they are also wrong if one weakens them in a certain way and construes them as claims which are only approximately true (in a sense to be introduced when particular proposals are considered).

On the other hand, such negative results about the two notational variance claims have to be independently established. For, at least given the way in which they have been represented, it is clear that the unsoundness of either of them would not entail either the unsoundness of the other (this one might still hold) or its soundness (they might both be false). Indeed, what we seem to have here are two claims each having the following conjunctive form. The Fregean claim is to the effect that the Millian theory - subjected to certain modifications which would not affect it in a substantial way - is a notational variant of a neo-Fregean account, and that the equivalent theories should eventually be regarded as two-level theories of semantic (singular) content. And the Millian claim is to the effect that the neo-Fregean theory - subjected to certain modifications which would not affect it in a substantial way - is a notational variant of a directly referential account, and that the equivalent theories should eventually be regarded as one-level theories of semantic (singular) content.

⁴³ S.Schiffer 1989.

I have already argued that the Fregean Notational Variance Claim - considered in its application to the semantics of propositional-attitude reports involving proper names - is unsound. I intend now to supplement such a result by trying to show that the Millian Claim - taken in its application to the semantics of indexical expressions - should also be rated as incorrect. I focus on a certain line of reasoning for the Millian Claim, a line of reasoning which I take as adequately representing the general outlook of the Millian theorist with respect to neo-Fregeanism about indexicals.

One might summarize as follows the main sort of criticism developed by the Millian theorist. It is argued that neo-Fregean theories about *De Re* senses for indexical expressions are bound to face the following dilemma. Either they can be reconstructed as notational variants of direct reference theories, *De Re* indexical senses having no clear explanatory function and being thus wholly dispensable in favour of a Millian semantics for indexicals; or they yield results which are unacceptable in the light of our intuitions about the use of indexicals in the ascription of attitudes. In what follows, my concern is basically with the first horn of the above putative dilemma.

3.4 For convenience, I take the target of the Millian notational variance arguments to be some such neo-Fregean account of indexicality as the one expounded by Evans⁴⁴; although the arguments in question are such that they apply to virtually any Fregean theory using the notion of a *De Re* indexical mode of presentation, e.g. Peacocke's account⁴⁵.

It is a curious thing to notice that Evans draws on translation considerations to attack John Perry's directly referential account of indexicals, which he

⁴⁴ G. Evans 1981.

⁴⁵ C. Peacocke 1981.

charges with being a terminological variant of a Fregean theory. Furthermore, the sort of argumentative strategy employed is *prima facie* very similar to the one used by the Millian theorist; indeed, the general pattern of reasoning seems to consist in trying, in both cases, to establish the following kind of disjunction (taken as constituting an inescapable dilemma for the rival account): the opposite view is shown either to conflict with some aspects of our ordinary practice of attitude-ascription (e.g. Perry's "P-Thoughts" - i.e. sequences of objects and senses of predicative expressions - are taken by Evans as utterly inadequate to serve as the objects of propositional attitudes), or to be a mere notational variant of the favoured approach.

As noticed, the direct reference theorist is likely to argue from the dispensability of indexical senses to the Millian Notational Variance Claim. And there is no immediate reason to think that such a move might not be a valid one, provided that it is at the same time shown that the conceptual machinery of a direct reference theory for indexicals is able to do everything which the allegedly superfluous senses were supposed to do. Let me then outline the central arguments which could be mounted in order to support the premiss of the above move. The Millian strategy might be characterized as follows. First, we are given some enumeration of certain fundamental semantic roles which are standardly assigned to singular senses, such roles being normally regarded by the Fregean theorist as providing us with conclusive reasons for the introduction of *Sinne*. Then it is claimed that either *De Re* indexical senses are not really needed to carry out any of the listed semantic functions - these could be arguably transferred to theoretical entities already available within a Millian framework - or they turn out to be simply inadequate to fulfil the semantic roles in question (or both).

3.5 I select that semantic role of senses which links them to cognitive value as the one which is most relevant for our discussion of the Millian notational variance claim. Such a role is given in the property indexical senses supposedly possess of accounting for possible failures of substitutivity of co-referential indexicals in attitude-attributions, as well as blocking other apparently problematic results involving attitudes, particularly the possibility of a rational subject's having contradictory indexical beliefs at a given time (or, without changing her mind, at different times). Indeed, a difference in (customary) sense between Indexicals i and i' in contexts c and c' (where one might have $c=c'$, as well as $i=i'$) is usually postulated to block in general inferences from ascriptions of the form $[x V's \text{ that } S(i)]$ to ascriptions of the form $[x V's \text{ that } S(i')]$; here 'V' stands for a propositional-attitude verb, the (customary) referents of i and i' in contexts c and c' coincide, and the ascriptions are to be given their *De Dicto* readings. A familiar example is given in the pair of sentences 'He is being attacked' and 'I am being attacked' taken in a context in which I assertively utter the former intending to refer to someone else, while what actually happens is that I do not recognize myself as the person whom I see - in a mirror I take to be a glass - being attacked; thus, I would vehemently dissent from the latter sentence. The invalidity of the move from 'I believe that he is being attacked' to 'I believe that I am being attacked' - taken with respect to such a sort of circumstance - would be explained in terms of a difference in the modes of presentation of myself referred to by the occurrences of the indexicals 'he' and 'I' within the 'that'-clauses; there would be a difference between the types of ways of thinking of myself which I employ in thought - the third-person type *versus* the first-person type - and which I attach to the tokens of 'he' and 'I' in the envisaged situation. And when, under those circumstances, I believe both that he (the man in question) is being attacked and that I am not being

attacked, I cannot be described as holding at the same time mutually contradictory indexical beliefs about myself; for, according to the neo-Fregean account, the contents of my beliefs are a certain Fregean thought and the negation of a *distinct* Fregean thought.

Now the Millian theorist might argue with a view to establishing the following claim about the semantic redundancy of indexical modes of presentation: *De Re* senses are not needed to explain apparent failures of substitutivity of co-referential indexicals in attitude-ascriptions, or to block certain apparently problematic results involving attitudes⁴⁶. If sound this claim would constitute a serious objection to any Fregean account of indexicality, since what is taken to be the privileged role of senses, and what is often proposed as the crucial *rationale* for their introduction, consists precisely in their status as theoretical entities postulated to explain why co-referential singular terms are not in general interchangeable *salva veritate* when occurring in the embedded sentences of propositional-attitude constructions.

The anti-Fregean argument for the above claim runs as follows. Clearly, a necessary condition for inferences falling under the general pattern $[x V's \text{ that } S(i)], [i=i'] \therefore [x V's \text{ that } S(i')]$ to be rated as invalid by the proponent of a Fregean theory is that such a theory must provide us with a criterion for sameness of indexical sense; that is, it should state clearly under what conditions an indexical *i* used in a context *c* has the same sense as an indexical *i'* used in a context *c'*. And, since sameness of reference is thought of as being necessary for sameness of sense, one should expect such a test to be given in particular for the case in which the referent of *i* in *c* is identical with the referent of *i'* in *c'*. Yet, the Fregean theory does not contain a uniform criterion

⁴⁶ See Soames 1989, 154-5. Although Soames's arguments are mainly directed against Evans's particular version of Fregeanism, they could be easily generalized to other neo-Fregean approaches.

for the sameness of Indexical sense, i.e. a means of decision capable of being applied to the different categories of indexicals, such as personal pronouns like 'I' and 'he', demonstratives like 'this' and 'that', temporal Indexicals like 'now' and 'today', etc. Therefore, it is in general unclear how an appeal to senses might even account for failures of substitutivity (assuming for the sake of argument the anti-Millian thesis that co-referential indexicals are not interchangeable *salva veritate* in attitude contexts).

The Millian critic would discern a certain tension in the neo-Fregean account, a tension which reflects the alleged absence of a clear and uniform means of individuating indexical senses. On the one hand, the Fregean treatment of temporal indexicals, spatial indexicals, and perceptual demonstratives allows utterances of sentences containing different but co-referential indexicals of these kinds, as used in distinct contexts, to express the same (token) Fregean thought; hence, it allows the possibility of the same particular mode of presentation being associated with different indexicals in different contexts of use. As a result, substitutivity and other problematic results about attitude-ascriptions would apparently be forthcoming in a neo-Fregean account of such categories of indexicals. On the other hand, the Fregean treatment of personal pronouns precludes utterances of sentences containing distinct but co-referential indexicals (used in possibly different contexts) from expressing the same (token) Fregean thought; hence, it disallows the possibility of the same particular sense being attached to different indexicals of that sort (in possibly different contexts). As a result, substitutivity and other problematic results about attitude-ascriptions would be blocked in a neo-Fregean account of such a category of indexicals.

The consequences the Millian theorist urges us to draw from the adoption of such allegedly disparate verdicts on sameness of indexical sense are as

follows. If indexical expressions are treated along the lines suggested above for temporal indexicals, etc., then the resulting theory will no longer be Fregean in nature; it will be simply a notational variant of a direct reference theory, redundant *De Re* indexical senses being eliminable and the referents of indexicals in given contexts doing all the relevant semantic work. If, on the other hand, indexicals are to be treated on the model of personal pronouns, then the resulting theory, though presumably Fregean in nature, will be implausible since some of its consequences are incompatible with the way we intuitively use indexicals in attitude-ascriptions. The implication is, of course, that we should generalize in the former direction, i.e. from temporal indexicals to other indexicals, in which case the Millian Notational Variance Claim would be warranted.

3.6 In the next Section I shall examine in some detail the Millian claim about the dispensability of *De Re Sinne*. And I shall focus my attention on the former categories of indexicals, since they are clearly more relevant to the issue of notational variance.

But, before doing that, let me point out at once that if one restricts the Millian claim to substitutivity results involving temporal indexicals, spatial indexicals, and perceptual demonstratives, then such a claim seems to be misplaced; for the simple reason that, as far as I can see, one could hardly find any cases of genuine interchangeability *salva veritate* of indexicals of those sorts in attitude-attributions (assuming that these are given their *De Dicto* readings).

Take the case of temporal indexicals. Consider the sentence-type

(1) Today is fine,

as uttered on a particular day, say *d*, and the sentence-type

(2) Yesterday was fine,

as uttered on $d+1$, so that the referents of 'today' on d and 'yesterday' on $d+1$ coincide. Evans and other neo-Fregean theorists, following Frege, hold that under certain conditions the particular Fregean thought expressed by (1) on d may be the same as the one expressed by (2) on $d+1$; hence, the sense a speaker may attach to 'today' on d , i.e. the particular way of thinking of d she entertains on d , is allowed to be identical with the sense attached to 'yesterday' on $d+1$, i.e. the particular way of thinking of d she entertains on $d+1$. Thus, here we have different indexicals, same reference, different contexts of use (the times are distinct), and (possibly) the same sense.

The Millian theorist would typically claim that this amounts to admitting that the referents of 'today' and 'yesterday' on d , $d+1$ fully determine the senses these indexicals may express on these occasions, in the sense that sameness of reference seems to be employed to individuate and equate the senses in question, determining the thoughts expressed as being one and the same on both occasions. It apparently follows that the putative *De Re* senses associated with the indexicals are entirely irrelevant for the semantic purpose of fixing the propositional contents of utterances of (1) and (2); the referents of 'today' and 'yesterday' on d , $d+1$ - taken as fixed by their associated characters - are clearly sufficient to the effect.

Furthermore, it is held that an appeal to indexical senses to block substitutivity results would be useless here, since the neo-Fregean account would be in fact committed to such results. Yet, this appears to be wrong; for it turns out that the envisaged cases are *not* cases of substitutivity at all. Suppose that, on the 28th October 1989, Jones sincerely and reflectively assents to (an utterance) of (1). Thus, the belief-ascription

(3) Jones believes that today is fine,

as uttered on that day, would naturally be counted as true. Yet, in the light of neo-Fregeanism, the belief-report

(4) Jones believes that yesterday was fine,
as uttered on the 29th October 1989, might also - under certain conditions⁴⁷ - be counted as true (provided that meanwhile Jones has not changed his beliefs about the weather on the previous day); indeed, *ex hypothesi*, the embedded sentences in (3) and (4) may denote the same proposition: under certain circumstances, Jones could not believe the Fregean thought referred to by the 'that'-clause in (3) without believing the Fregean thought referred to by the 'that'-clause in (4).

However, transitions such as the one from (3) to (4) - which are indeed licensed by the neo-Fregean account (as well as, on different grounds, by any Millian account) - are obviously not instances of substitutivity *salva veritate* of co-referential indexicals within the subordinate clauses of attitude-ascriptions; because the times of Jones's believings in (3) and (4) are clearly different. And it is very likely that one come across the same sort of situation in dealing with spatial indexicals and perceptual demonstratives (where the times at which the attitudes are held are relevant in a similar way). Therefore, one should deem wrong the Millian claim that, since in this area of indexicality there are no failures of substitutivity for senses to explain (substitutivity being in fact licensed by neo-Fregeanism), senses would not be needed to explain failures of substitutivity; in effect, it simply turns out that no substitutivity results of the intended kind are forthcoming in the area.

3.7 Let me finish the exposition of what I take to be the Millian argument for the redundancy of indexical modes of presentation by briefly contrasting the

⁴⁷ Such conditions for belief-retention are discussed in Chapter III, Section 5.

foregoing account of temporal indexicals, etc., with the standard Fregean view on personal pronouns. Consider the sentence-type

(5) I am ugly,

as uttered by Jones at a time t , and the sentence-type

(6) You are ugly,

as uttered at t' (possibly $t=t'$) by someone, say Ralph, addressing Jones. Thus, given such contexts of use, the referent of 'I' in (5) is the same as the referent of 'you' in (6), viz. Jones. Now Evans and other Fregean theorists, again following Frege, hold that the thought expressed by Jones when he utters (5) is *necessarily* distinct from the thought expressed by Ralph when he utters (6). Accordingly, the senses attached by Jones and Ralph to 'I' and 'you' must diverge, i.e. the particular way of thinking of himself Jones entertains in (5) is necessarily different from the particular way of thinking of him entertained by Ralph in (6). Hence, what we have here is the mentioned asymmetry between the treatment given to temporal indexicals, etc., and the treatment given to personal pronouns; with respect to the latter case, and in contrast with what happens in the former case, it is impossible for tokens of distinct personal pronouns used in contexts in which they are co-referential to express the same particular sense.

The Millian theorist would take the reason for such an asymmetry to lie mainly in the Fregean doctrine that each person attaches a sense to 'I' which is not entertainable or graspable by anyone else. Thus, only Jones is in a position to think of himself by employing the first-person way of thinking, and such thoughts are only accessible to him. Ralph can only think of Jones by employing the second-person (or the third-person) way of thinking, and he might do this by uttering a sentence such as (6). According to Millianism, this conception of logically private modes of presentation is incompatible with our

current practices in ascribing propositional-attitudes. For instance, it is said to imply that only I could be in a position to report e.g. the belief that I am ugly: it would be impossible for someone else to report it by saying about me 'He believes that he is ugly', for the ascriber would have to entertain my particular way of thinking about myself (which *ex hypothesi* cannot be the case). In addition to this, I could not be in a position to report propositional attitudes someone else, e.g. Ralph, takes about me; for example, it would be impossible for me to report one by saying 'Ralph believes that I am ugly' for I would have to suppose that my particular way of thinking about myself is accessible to Ralph (which again cannot be the case). Again, the upshot is that, given the apparent implausibility of such consequences, the Fregean should treat personal pronouns on the model proposed for temporal indexicals, etc.; but then the resulting semantic theory could allegedly be shown to be a notational variant of a directly referential account.

Having in mind our general purpose, I will not tackle the first-person issue here. But let me just mention that the Millian criticism might be countered by appealing to the distinction between *using* a sense in thought and *mentioning* a sense⁴⁸. Roughly, the idea is that in order for a thinker to grasp or entertain a thought containing a certain mode of presentation it is surely necessary that she be able to *refer to*, or to think of, that mode of presentation; but it is not at all necessary that she be able to *employ* in thought the mode of presentation in question, or to think the thought in question herself. Hence, it is certainly possible for someone else to refer to e.g. the thought that I am ugly; for when Jones thinks about me 'He thinks that he is ugly', he is not employing in thought my first-person way of thinking, or thinking the thought that I am ugly himself: he is referring to my first-person way of thinking. Likewise, it is

⁴⁸ See C. Peacocke 1981, 191-3.

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certainly possible for me to report e.g. Ralph's thought that I am ugly: from the fact that Ralph cannot think thoughts containing my first-person way of thinking it does not follow that such thoughts are inaccessible to him, or that he is prevented from referring to my first-person way of thinking.

SECTION 4 - INDEXICALITY AND COGNITIVE VALUE

4.1 According to the brand of neo-Fregeanism we have been considering, the following kind of result holds with respect to Indexical expressions such as perceptual demonstratives and temporal and spatial indexicals. There are circumstances in which two (syntactically simple) indexicals *i* and *i'* of those types, taken as used in distinct contexts *c* and *c'* where they turn out to be co-referential, are to be seen as expressing the same particular sense, or as being associated in *c*, *c'* with the same particular way of thinking of their common denotation. As a result, sentences [*S(i)*] and [*S(i')*] uttered in *c*, *c'* are assigned the same propositional content, i.e. the same Fregean thought, with respect to *c*, *c'*.

Take the case of spatial indexicals. Suppose that on a certain occasion I am at a certain place *p*, e.g. a certain corner of my living-room, and that I utter a token of the sentence

(7) It is cold here.

I then move to a different place *p'*, e.g. the opposite corner of my living-room, and utter a token of the sentence

(8) It is cold there

(while pointing to *p*). Then, on the neo-Fregean view, the co-referential indexicals 'here' and 'there' in (7) and (8) have the same sense with respect to the contexts in question: in both cases I am entertaining the same way of thinking of a place (viz. *p*); and with my utterances of (7) and (8) I am expressing the very same Fregean thought⁴⁹.

Or take the case of perceptual demonstratives. Suppose that I am faced with a set of briefcases. I hold one of them and assert

⁴⁹ I ignore the difference in time of 'it is'.

(9) This briefcase is heavy.

A few moments later, having managed in some way to track the briefcase in question, I point at it from a distance and assert

(10) That briefcase is heavy.

Again, according to the neo-Fregean account, I attach to the demonstratives 'this' and 'that' in (9) and (10) the same mode of presentation of an object; in spite of there being superficial differences between the tactual way of thinking of it I employ in (9) and the visual way of thinking of it I employ in (10), I am expressing the same particular Fregean thought on both occasions.

Now the anti-Fregean claim is that there would be no substantive way by means of which one would be able to distinguish the above sort of account from a direct reference theory of indexicals. It is alleged that results which are quite similar to the ones outlined are forthcoming in such a theory, and that the differences between the two kinds of account might be counted as being minor (simply terminological) ones. In effect, given the same set of starting assumptions about indexicals *i* and *i'* in contexts *c* and *c'*, and given that (syntactically simple) indexicals are construed as directly referential expressions, it follows that *i* and *i'* in *c*, *c'* make exactly the same contribution to propositional content; indeed, on the Millian view, they just contribute their common denotation with respect to the given contexts *c*, *c'*. Hence, assuming compositionality, the propositions expressed by sentences [S(*i*)] and [S(*i'*)] in *c*, *c'* are one and the same, viz. a certain neo-Russellian proposition. Thus, in our examples, the tokens of 'here' and 'there' in (7) and (8) (respectively the tokens of 'this' and 'that' in (9) and (10)) make the same contribution to propositional content with respect to the contexts in question: they contribute *p* (respectively the briefcase referred to); and with my utterances of (7) and (8) (respectively (9) and (10)) I am expressing the same proposition, viz. the ordered pair of *p* and Coldness

(respectively the ordered pair of the briefcase and the property of being heavy).

4.2 Before dealing with the arguments about attitude-ascriptions involving indexicals, let us consider the Millian criticism that, therefore, it looks as if on the neo-Fregean view it is the identity of the referents of the indexicals *i*, *i'* in *c*, *c'* which is actually determining the identity of the singular senses they allegedly express in these contexts; and that it seems that it is the *De Re* nature attributed to such senses which makes them entirely dependent upon the objects they present, these doing all the relevant semantic job.

I think that such a criticism is unwarranted. Briefly stated, my main objection is that it involves the following sort of *non sequitur*. From the supposition that indexicals *i* and *i'* (of the envisaged types) - taken as referring to the same object, say *o*, in contexts *c* and *c'* - may be assigned the same singular sense in *c*, *c'* it does not follow that it is the identity of their common denotation *o* which determines their senses as being identical in *c*, *c'*; surely, a different sort of consideration might be used by the neo-Fregean theorist, and is actually used (see below), to argue for such a sameness of sense. Although there is a sense in which, in general, a *De Re* mode of presentation *m* of an object *o* depends upon the very existence of *o*, viz. the sense in which *m* would not be available to be employed if *o* did not exist, this does not by itself allow us to say that the indexical modes of presentation attached to *i*, *i'* in *c*, *c'* are identical *because* they are both ways of thinking of the same object *o*.

Indeed, consider Evans's account of indexical reference, for instance. Evans establishes certain results about identity of sense between co-referential indexicals *i*, *i'* in contexts *c*, *c'*, not from considerations about identity of reference (though this is surely a necessary condition for sameness of sense),

but from considerations arising out of a substantive elucidation of the notion of an indexical way of thinking of an object. Roughly stated, Evans's proposal⁵⁰ consists in explaining this notion in terms of the notion of an account of the conditions under which a subject's indexical thought is about the object it is about; and this involves in turn giving an account of how the subject knows which object is in question. Thus, in certain cases the sense of *I* in *c* is the same as the sense of *i*' in *c*' because the account of the conditions under which the subject's indexical thought in *c* is about *o* is taken to be the same as the account of the conditions under which the subject's thought in *c*' is about *o*. And, in general, this is so when the subject is in the same epistemic state in *c* and *c*', i.e. when she exercises in *c* and *c*' the same ability to think of the object *o*. In the case of temporal indexicals such as 'today' and 'yesterday' - as employed e.g. in (1) and (2) - the ability in question will be the ability to keep track of a time (a day) as time passes by. In the case of spatial indexicals such as 'here' and 'there' - as employed e.g. in (7) and (8) - it will be the ability to keep track of a place as one moves about. And in the case of perceptual demonstratives such as 'this' and 'that' - as employed e.g. in (9) and (10) - it will be the ability to keep track of a spatio-temporal particular from sensory modality (e.g. touch) to sensory modality (e.g. sight).

Thus, on such a view, indexical modes of presentation are individuated, not (or, better, not only) in terms of the identity of the particular objects referred to in given contexts, but in terms of certain ways of keeping track of such objects a thinker may employ. Of course, none of the above abilities could be exercised by a thinker in the absence of a particular object to which the

⁵⁰ See Evans 1981, 294, 303. Evans's ways of thinking of objects are governed by what he calls *Russell's Principle*: in order to make a judgement about an object one must know which object is in question. See also Evans 1982, 65.

thinker stands in a certain suitable (possibly causal) relation. But this is tantamount to saying that the indexical and demonstrative senses grounded on such abilities are *De Re* in nature; it surely does not mean that the presented *Res* is doing all the job involved in the individuation of indexical content. I conclude that there seems to be no sense in which neo-Fregean accounts of the kind discussed might be construed as implicitly arguing from sameness of indexical reference to sameness of indexical sense, and hence to sameness of indexical content (with respect to those cases where sameness of indexical content is indeed acknowledged by the neo-Fregean theorist, e.g. cases like (7) and (8) or (9) and (10) taken in the envisaged contexts of use).

4.3 Furthermore, it may be conclusively shown that the impression of similarity between the Millian account and the neo-Fregean one is nothing but deceptive (relative to the sort of semantic treatment given to utterances containing indexicals of the kinds under consideration). In effect, whereas the former kind of account *invariably* yields the result that indexicals *i* and *i'*, used in contexts *c* and *c'* where they are co-referential, have the same semantic content with respect to *c*, *c'*, the same cannot be said of the latter kind of account. The reason is that the neo-Fregean approach makes room for the existence of a certain range of cases concerning which one obtains precisely the opposite sort of result; in such cases indexicals *i* and *i'* which are co-referential in contexts *c*, *c'* are assigned *different* Fregean senses, and hence *different* semantic contents with respect to *c*, *c'*.

To appreciate this, consider the following situation involving spatial indexicals. Suppose that I am at a certain place *p* in the middle of a desert and I assert 'It is hot here'. Suddenly there is a sand storm, I get lost and it happens that (unbeknownst to me) I am driven to the same place, viz. *p*.

Suppose that then I assert again 'It is hot here'. On the Millian view, the distinct tokens of 'here' I use on those occasions are presumably assigned the same propositional value, viz. p , and my utterances are presumably assigned the same semantic content (*modulo* a difference in the times of the utterances, which I ignore for the present purposes). Yet, on the neo-Fregean view, given the proposed individuation of indexical senses in terms of keeping track of things, the result is not forthcoming that I entertain the same way of thinking of a place on both occasions, or that I attach to the distinct tokens of 'here' the same sense. Indeed, on such a view, either I am described as attaching no sense at all to the token of 'here' I use on the latter occasion, and hence as not really expressing then any proposition at all; or I am described as entertaining a different sense, and hence as expressing a different proposition. At any rate, it is not the case that the tokens of 'here' I employ have the same propositional value with respect to the contexts in question, though they are certainly co-referential in such contexts (if they have senses at all).

And the above case has the following sort of temporal analogue. Suppose that on a certain day d , during the afternoon, someone (say John) assertively utters the sentence

(1) Today is fine,

and I agree with him. Then I take a nap, a "nap" which in fact lasts for 24 hours. When I wake up in the afternoon of $d+1$, wrongly thinking that I have slept for a short period, I hear John assertively uttering the sentence

(2) Yesterday was fine;

and I also agree to this (on the basis of what the weather was like on $d-1$). Suppose further that, unlike me, John has correctly kept track of the days from d to $d+1$. On the Millian view, with his utterances of (1) and (2) in the above contexts, the speaker (John) expresses and believes the same neo-Russellian

proposition at different times (though under different characters). As to the hearer (myself), such a view would probably describe him as *unknowingly* entertaining and believing the same neo-Russellian proposition at different times (under different characters as well).

I take such a sort of description as intuitively implausible, this being a consequence of the general semantic insensitivity to the cognitive aspects of language use displayed by Millian accounts; but that is irrelevant for my immediate concerns. What really matters is that there is a conspicuous dissimilarity between the above account and the way a neo-Fregean theory would treat the same sort of case. On this view, speaker and hearer would be described as diverging with respect to the indexical contents they associate with (1) and (2) in the contexts in question. As already noted, John would be regarded as attaching the same particular sense to the given tokens of 'today' and 'yesterday', or as thinking of *d* in the same way on both occasions, and hence as expressing and believing the same Fregean thought at different times. Yet, I would be in no position to grasp, and thus to believe, that Fregean thought, at least as it is expressed by John when he utters (2) on *d+1*. In effect, according to such a form of neo-Fregeanism, I attach to John's use of 'yesterday' in (2) a sense which is different from the one he employs, and then (given the circumstances) I am unable to entertain *this* sense; or, more likely, I do not attach any sense to it at all - I am only under the illusion that I am then employing a way of thinking about a particular day - and thus I am actually unable to grasp the Fregean thought expressed by John on *d+1*.

4.4 As a parenthetical remark, it should be noticed at this point that I am not necessarily endorsing the particular neo-Fregean account of temporal indexicals we have been discussing; maybe results of the above sort are also in a sense

contrary to our intuitions. Our current focus on such a view is mainly due to the fact that it is the sort of neo-Fregean view to which the Millian notational variance arguments are *par excellence* applicable. But there are other possible neo-Fregean accounts of temporal indexicality which would be from the outset immune to such arguments. For instance, one might hold the view⁵¹ that there are *no* circumstances under which any given tokens of 'today' and 'yesterday' might be assigned the same Fregean sense, even in contexts in which they have the same reference and in which the speaker does not mistrack time. And such a view, which in the above respects departs significantly from Frege's original doctrine, might still preserve the principle that indexical sense is not constant across contexts; in the sense that e.g. tokens of 'today' uttered on different days necessarily express different particular senses, though they might be assigned the same *type* of sense. That principle is in fact an instance of the general Fregean principle that sense determines reference, construed as the claim that the sort of correspondence obtaining between reference and senses is necessarily one-to-many⁵². Thus, one could take the sense of a particular token of 'today' - uttered on a certain occasion - as being that of the (impure) description 'the day of *this* utterance', where the demonstrative refers to that very utterance of 'today'. Likewise, one could take the sense of a particular token of 'yesterday' - uttered on a certain occasion - as being that of the description 'the day immediately before the day of *this* utterance', where the demonstrative refers to that very utterance of 'yesterday'. This would not necessarily force us to regard the description giving the sense of each temporal

⁵¹ This is the sort of view adopted by John Searle in his book 1983, 218-30.

⁵² Such a principle is explicitly rejected in the account of indexical modes of presentation developed in Colin McGinn's book 1983, Chapter 5. On such an account, indexical senses - such as those associated with 'today' or 'I' - are constant across contexts: they always present their (possibly different) referents in the same way.

indexical as providing us with a *definition* of the indexical in question, i.e. as being analytically equivalent to it. Indeed, on the one hand, the proposition expressed e.g. by an utterance on a particular day *d* of the sentence

(11) Today is the day of this utterance

(where 'this utterance' is self-referential), seems to be *a priori* with respect to a fully competent speaker of English (the negation of (11) would be epistemically impossible for her). Yet, on the other hand, such a proposition should be regarded, not as (metaphysically) necessary, but as contingent; for the day *d* might exist without any utterance of (11) having been made on *d*, in which case the proposition expressed by 'Today might not have been the day of this utterance' would be counted as true.

If the above suggestion were along the right lines then one should regard tokens of 'today' and 'yesterday' used in contexts where they have the same reference (e.g. (1) and (2) as uttered by John) as containing different modes of presentation of the same day, and hence the Fregean thoughts expressed in such contexts could not be one and the same. And such a difference in sense might be seen as a difference in the conceptual ingredients making up the descriptions associated with the indexicals (assuming that sense is, in general, what is expressed); 'yesterday' would thus be conceptually dependent upon 'today', since its associated description contains the sense of 'today' as a component part⁵³.

4.5 Having finished such an *excursus*, I turn now to the Millian arguments concerning attitude-attributions. Recall that one of the claims here is that neo-

⁵³ The sort of account just outlined could perhaps be generalized to other temporal indexicals, such as e.g. 'tomorrow' and 'now'; but I doubt that it could be also plausibly applied to spatial indexicals or perceptual demonstratives.

Fregeanism of the sort described earlier on would entail the *prima facie* unFregean consequence that certain transitions (see below) between attitude-reports containing occurrences of co-referential indexicals (of the envisaged kinds) within the 'that'-clauses are to be rated as legitimate; thus, in this respect there would be again no difference between such a Fregean theory and a Millian one, from which the consequence in question is in general acknowledged to be derivable. And a different (but related) kind of claim is that the neo-Fregean would apparently put a Fregean believer in the same sort of position as Salmon's Millian believer Elmer⁵⁴, who believes - at a given time or, without changing his mind, on different occasions - a pair of mutually inconsistent propositions while failing to recognize the same proposition in both cases and hence without being illogical; thus, likewise, there would allegedly be Fregean thoughts which are not completely transparent to their thinkers.

Let us once more focus on temporal indexicals (having in mind that the results obtained might easily be made to apply to spatial indexicals and perceptual demonstratives). Suppose that Jones, a logical thinker and a fully competent speaker of English, sincerely and reflectively assents at a certain time t on a certain day d to a token of the sentence-type (1). Accordingly, one would expect the belief-ascription

(3) Jones believes that today is fine,

as uttered by someone (say Ralph) at a certain time t' on d , to be true of Jones (here $t' \geq t$, and if $t' > t$ one would have also to suppose that Jones does not change his mind about the weather on d at any time between t and t'). Now the sort of neo-Fregean account subscribed to e.g. by Evans would entail, given certain additional assumptions, the consequence that the belief-report

(4) Jones believes that yesterday was fine,

⁵⁴ Salmon 1986, 92 ff.

as uttered by Ralph at a certain time t'' on $d+1$, is also true of Jones. And the assumptions in question are: (i)- that Jones keeps track of the days from d to $d+1$ (and one would have also to assume that the ascriber, i.e. Ralph, does not mistrack time either, otherwise there might be a possible divergence between the senses attached by him and by Jones to 'yesterday'); and (ii)- that on $d+1$ Jones has not changed his beliefs about the weather on d .

Therefore, it seems that the neo-Fregean theory validates transitions such as the one from (3) to (4). In general, such transitions might be characterized as consisting in carrying out the following two steps: (i)- Interchanging certain pairs of co-referential indexicals within the (semantic) scope of psychological verbs in propositional-attitude constructions, e.g. replacing in (3) 'today' by 'yesterday'; and (ii)- readjusting in an appropriate way the times at which the attitudes are held, e.g. changing the time t' (or the day d) of Jones's belief in (3) to t'' (or to $d+1$). As already noticed, in virtue of step (ii), the transitions in question are obviously not cases of substitutivity *salva veritate*; thus, there is a clear contrast between moves of the above sort and moves such as e.g. the one from 'I believe at t that I am ugly' to 'I believe at t that he is ugly', which, assuming that I am the male demonstrated at t , is a valid move according to a Millian theory of indexical belief (but an invalid one on a Fregean view).

However, contrary to the Millian claim, the sort of consideration employed by the neo-Fregean theorist to ensure the legitimacy of a transition such as the one from (3) to (4) (under the given circumstances) has nothing to do with a mere identity of indexical reference. Indeed, according to his proposed individuation of temporal modes of presentation in terms of ways of tracking times, the neo-Fregean theorist is appealing rather to identity of indexical sense here. The sense referred to by 'today' in (3) is judged to be the same as the sense referred to by 'yesterday' in (4), the same particular way of keeping

track of a day (viz. *d*) being employed by Jones on both occasions. Hence, denoting such a common mode of presentation of *d* by 'MP_{*d*}', the belief-reports (3) and (4) might be (respectively) given, with respect to the contexts in question, the following sort of representations under the envisaged neo-Fregean account:

(3)' B_{*t*} [Jones, < MP_{*d*}, Fineness >]

(4)' B_{*t*} [Jones, < MP_{*d*}, Fineness >]

(the Fregean thoughts believed by Jones at different times being thus one and the same); here 'B_{*t*}' stands for the binary Belief-relation as relativized to a certain time *t*⁵⁵.

4.6 I want now to argue with a view to establishing the following two points, which taken together provide us with a refutation of the Millian arguments for the dispensability of *De Re* Indexical senses. First, on the above sort of neo-Fregean view, it turns out that transitions of the form mentioned earlier on *may* fail to obtain; and such a possibility, which is presumably unavailable under a Millian account, is also explained by means of an appeal to indexical senses. Secondly, contrary to appearances, the Millian critic is definitely wrong when he holds that in the end one would not be able to differentiate between Fregean thinkers and Millian thinkers in respect to the possibility of unknowingly believing contradictory thoughts. The upshot of my discussion is that the main *rationale* for the introduction of senses in a semantic theory, viz. that of blocking problematic results involving attitudes, is still available in this area of indexicality.

As to the first point, it is indeed a feature of the neo-Fregean account,

⁵⁵ I employ the usual notation of ordered pairs only for reasons of simplicity; in fact, it sounds strange to say that believing a Fregean thought is something like standing in a certain relation to a set.

a feature which is not usually displayed by a Millian semantics for e.g. ascriptions of temporal beliefs, that transitions sharing the form of the one from (3) to (4) are not always legitimate under it; i.e., there are circumstances in which, although such an account would count a token of a sentence sharing the form of (3) (used on *d*) as holding, it would not count a token of a sentence sharing the form of (4) (used on *d+1*) as holding at all. In effect, consider the case (introduced before) in which, after assenting on *d* to a token of (1) uttered by John, I take a 24-hour "nap" and unknowingly lose track of the days. Thus, John's belief-ascription on *d*

(12) He believes that today is fine

(where 'he' refers to me) would be true. Yet, my assenting on *d+1* to a token of (2) uttered by John does not put him in a position to make on *d+1* the following belief-ascription:

(13) He believes that yesterday was fine.

Assume that John reports all his beliefs according to the neo-Fregean theory, that he keeps track of the days correctly, that he remembers the weather on the previous day, and that he is aware of my situation. Then, since when I give my assent to (2) I am not actually entertaining any way of thinking of *d*, I am not entertaining then any Fregean thought about *d*, and hence I am not having any belief whatsoever about *d*⁵⁶. Therefore, (13) does not come out as true under the neo-Fregean account (with respect to the given context), but rather as a false belief-ascription. Hence, the following report

(14) He lacks the belief that yesterday was fine

(as uttered by John on *d+1*) would come out as true (assuming that (14) is the

⁵⁶ Here one would have to rule out the possibility that (13) is true because of some mode of presentation of *d* under which I have the belief and which I do not associate with the word 'yesterday', e.g. a memory-based mode of presentation of *d*.

negation of (13))⁵⁷.

Obviously, this kind of result would not constitute any problem for neo-Fregeanism since the thought expressed by (14) would not be inconsistent with the one expressed by (12); and hence the ascriber (John) would not be contradicting himself, the Fregean regimentations for such belief-reports being:

(12)' B_i [J.B., < MP_i , Fineness >]

(14)' $\neg B_{i+1}$ [J.B., < MP_i , Fineness >].

At most, the neo-Fregean account would allow a thinker to hold *at different times* conflicting attitudes towards the same proposition.

From the preceding reflection I think that one is entitled to draw the conclusion that, from the standpoint of the neo-Fregean account of indexicality, there are in fact illegitimate transitions involving co-referential indexicals of the envisaged types in attitude-ascriptions, and that it is in terms of indexical *Sinne* that such an illegitimacy is to be accounted for.

It could be replied that there is a sense in which the transitions in question might also be deemed illegitimate on a Millian view. Suppose that one supplements a directly referential account of temporal indexicals, spatial indexicals and perceptual demonstratives with some epistemic notion of tracking an object over time and/or space. And suppose that it is possible to do it in

⁵⁷ Note that in place of (14) one might have used
 (15) He does not believe that yesterday was fine
 (which is - at least syntactically - a straightforward negation of (13)). The problem with a report such as (15) - and the reason why I avoid employing it - is that it is ambiguous between (14) and

(16) He disbelieves that yesterday was fine,

or

(17) He believes that yesterday was not fine
 (which I construe as having the same meaning as (16)). If (15) were read in the sense of (16) (or of (17)), then it would surely come out as false with respect to the case discussed; thus, a confusion between (15) and (16) (or (17)) would help generate the wrong conclusion that (15) is false and hence that (13) is true in our story (by means of the wrong premise that (15) - assimilated to (16) (or to (17)) - is the negation of (13)).

such a way that the following sort of general condition would obtain: there exists a guise (or other suitable Millian construction) under which a given subject stands in the Belief-relation to a neo-Russellian proposition containing an indexically presented time, or place, or spatio-temporal item, only if the subject is somehow able to track the time, or the place, or the spatio-temporal item, in question. Then Millianism could presumably be made to yield the same verdicts as neo-Fregeanism on the truth-values of certain belief-ascriptions containing indexicals of the above kinds. For instance, reports like (12) and (14) would both come out as true, and (13) as false, under the extended Millian account (relative to the given contexts); so there are after all moves of the sort discussed which would not be validated by Millianism either. However, assuming that such a notion of tracking could be harmoniously incorporated into a Millian theory, it is obvious that it would have to be located at the *pre-semantic* level. As a result, the Millian and neo-Fregean analyses of belief-ascriptions of that kind, in spite of being materially equivalent, would not be logically equivalent to each other; a report like (14), for example, would be in each case assigned substantially different truth-conditions and meanings. And this would provide us with sufficient grounds on which to reject the Millian claim about notational variance. On the other hand, if a notion of tracking is to be in the end acknowledged as theoretically relevant, then one might always raise the question concerning the overall advantages, for explanatory purposes, of taking it as semantically relevant as well. Furthermore, cases might be introduced where the same object is tracked separately by hand and eye by a given subject and where she does not know that the touched object is the seen object. Concerning such cases, it is very likely that even the extended Millian account would yield different verdicts as the neo-Fregean account on the truth-values of belief-reports such as e.g. 'She believes that *that* (the touched object) is F' and 'She

believes that *that* (the seen object) is F'.

4.7 As to the Issue about the possibility of a (rational) subject's believing contradictory Fregean thoughts, consider the following sort of case⁵⁸. Suppose now that Jones sincerely and reflectively assents to a token of (1) on d at 11:58 p.m., so that (3) is then true of him; and that, without taking the trouble to look at his watch, three minutes later (i.e. at 00:01 a.m. on d+1) he sincerely and reflectively dissents from a token of (2) (thinking, of course, that he is referring to d-1). Assume further that the ascriber is as before, i.e. that he does not mistrack time, that he is aware of Jones's situation, etc. And one might also assume that, on the later occasion, Jones has not changed his mind about his previous belief (he remembers what the weather was like on d).

The question I want to take up, and to which I shall eventually give a negative answer, is this. Does it follow that the ascription

(6) Jones believes that yesterday was not fine,

taken as uttered on d+1, holds of Jones? If so then a consequence of the neo-Fregean account would be that Jones, *ex hypothesi* a rational thinker, comes to believe a pair of contradictory thoughts on different occasions without apparently having meanwhile changed his mind (I think it would be manifestly implausible to construe (6) as implying that a change of mind has taken place). In effect, the thoughts referred to by the 'that'-clauses in (3) and (6) would clearly contradict each other, the regimentations for (3) and (6) being:

(3)" B_{11:58 p.m.,d} [Jones, < MP_d, Fineness>]

⁵⁸ This happens to be the kind of case used by Soames in support of his notational variance arguments against neo-Fregeanism; cf. Soames 1989, 154-5.

(6)' $B_{00:01 \text{ a.m.}, d+1}$ [Jones, $\langle MP_d, \neg \text{Fineness} \rangle$]⁵⁹.

A positive answer to the above question would thus give us the result that neo-Fregeanism is committed to reporting Jones's doxastic states in a way which is strikingly similar to the way in which a Millian theorist would report them. And an additional problem for neo-Fregeanism would be that it does not seem to contain a notion designed to fulfill a role similar to that of the Millian notion of a guise or appearance under which one may be acquainted with a proposition (such a role being mainly that of rendering given propositions opaque to the thinker's awareness, so that in some cases one may be prevented from re-identifying a proposition previously entertained). Take Salmon's Millian believers, for instance. They may find themselves in a situation in which they believe inconsistent propositions, at the same or at different times, but (if rational) they would necessarily do it under different guises; thus, Salmon's analyses for (3) and (6) (taken with respect to the given contexts) would be as follows:

(3)'' $(\exists g)[G_{11:58 \text{ p.m.}, d}(\text{Jones}, w, g) \ \& \ \text{BEL}_{11:58 \text{ p.m.}, d}(\text{Jones}, w, g)]$

(6)'' $(\exists h)[G_{00:01 \text{ a.m.}, d+1}(\text{Jones}, w, h) \ \& \ \text{BEL}_{00:01 \text{ a.m.}, d+1}(\text{Jones}, \neg w, h)]$

(where 'w' stands for the Russellian proposition $\langle d, \text{Fineness} \rangle$ and the guises g and h are obviously such that $\neg(g=h)$). On the other hand, Fregean believers - who allegedly may also find themselves in a situation in which they believe contradictory thoughts (at different times) - do not seem to be credited with any sort of psychological device by means of which given thoughts could be concealed from them (so as to speak); modes of presentation will not do for on a Fregean view they are taken as constituent parts of thoughts. Indeed, unlike neo-Russellian propositions, Fregean thoughts are seemingly supposed to be com-

⁵⁹ It is assumed that the negation of a thought consisting of a certain mode of presentation of an object and a property is the thought consisting of that mode of presentation and the negation of that property.

pletely transparent to their thinkers. Hence, the Millian critic might claim that Fregean believers have the disadvantage of being prevented from not recognizing that it is one and the same proposition which is believed and disbelieved by them on different occasions (Jones's putative situation when he assents to (1) and later on dissents from (2)).

However, such a move is doubtful. For its supporting premise, viz. the claim that neo-Fregeanism entails the problematic result under consideration, can be shown to be false. Indeed, given that Fregean indexical thoughts of the envisaged types are (partially) individuated in terms of abilities to track the objects thought about, a belief-report such as (6) - taken as made on $d+1$ - would have to be counted as false (with respect to Jones's story); whereas, as assumed, ascription (3) - taken as uttered on d - holds of Jones. Thus, supposing that this sort of result may be extended to spatial indexicals and perceptual demonstratives, whose senses in given contexts are individuated along the same lines, the consequence is not in general derivable from the neo-Fregean account that it is possible for a subject (unknowingly) to believe, on different occasions but without having meanwhile changed her mind, mutually inconsistent thoughts.

If ascription (6) is false under neo-Fregeanism, then the following report

(18) Jones lacks the belief that yesterday was not fine,

taken as made on $d+1$ at 00:01 a.m., will come out as true under such an account (with respect to Jones's story). Thus, using

(18)' $\neg B_{00:01 \text{ a.m.}, d+1}$ [Jones, $\langle MP_d, \neg \text{Fineness} \rangle$]

(i.e. the negation of (6)') as the Fregean regimentation for (18), and (3)'' as the Fregean regimentation for (3), one might describe in general Jones's doxastic states by saying that on a certain occasion he believes a certain thought and on a later occasion he fails to believe the negation of that thought. Hence, the

sort of case under discussion is definitely not a case in which someone holds at different times antagonistic attitudes, e.g. belief and disbelief, towards the same thought.

A different way of establishing with respect to Jones's case the falsity of (6), and hence the truth of (14), might be given as follows. I take it that, according to neo-Fregeanism, the following result is true of Jones at 00:01 a.m. on $d+1$:

$$(18)'' \neg(\exists a)[T_{00:01_{am}, d+1}(Jones, d, a) \ \& \ B_{00:01_{am}, d+1}[Jones, \langle a, \neg Fineness \rangle]];$$

here 'a' ranges over temporal modes of presentation based on abilities to track days over time, and 'T' stands for that relation which holds, at a given time, between a subject x , an object o , and a singular mode of presentation β if and only if, at that time, x thinks of o under β . On the other hand, I also take it that such a theory rates as being in general valid inferences from given *De Dicto* belief-ascriptions to the corresponding *De Re* ones; that is, propositions of the general form

$$(*) B_t [x, \langle MP_o, \Phi \rangle],$$

where 'MP_o' and 'Φ' stand for a mode of presentation of an object o and a property (respectively), entail propositions of the form

$$(**) (\exists \beta)[T_t(x, o, \beta) \ \& \ B_t[x, \langle \beta, \Phi \rangle]].$$

(For convenience, I have only considered the case of beliefs in thoughts of the simplest predicative form.) Now the proposition which is the scope of the negation symbol in (18)'' clearly displays the general form (**). Hence, since *ex hypothesi* (18)'' is true in Jones's story, it follows that that proposition is false in his story. Therefore, the corresponding proposition of the form (*), which turns out to be (6)', is necessarily false in Jones's story. But (6)' is the Fregean regimentation for belief-ascription (6). Therefore, (6) comes out as false with respect to Jones's story.

It is instructive to compare the above neo-Fregean results with the results a Millian theorist dealing with the same sort of case would usually obtain. Thus, under Salmon's account, a belief-report such as (6) would turn out to be true with respect to Jones's story; for its Millian regimentation is given in (6)'' and this proposition holds with respect to Jones's case (just let 'g' in (6)'' be 'Yesterday was fine'). Yet, Salmon's theory would rule out a belief-report such as (18) as false with respect to Jones's story. Indeed, the Millian regimentation for (18) would be given in

$$(18)''' \neg(\exists h)[G_{00:01_{\text{am}},d+1}(\text{Jones},w,h) \ \& \ \text{BEL}_{00:01_{\text{am}},d+1}(\text{Jones},\neg w,h)]$$

(where 'w' is to be read as before); and (18)''' is simply the negation of (6)''.

It should be apparent by now that the verdicts standardly given by the Millian theorist on the truth-values of attitude-ascriptions such as (6) and (18) taken in the envisaged contexts, respectively true and false, are strictly inconsistent with the verdicts given on them by the Fregean theorist, respectively false and true. Again, this would be enough to rebut the Millian Notational Variance Claim as applied to temporal and spatial indexicals and perceptual demonstratives. On the other hand, such a claim would be unsound even if the Millian theorist were to be credited with a pre-semantic notion of tracking in the way sketched earlier on: presumably, one would have the same assignments of truth-values; but one would not have the same assignments of truth-conditions.

4.8 Concerning the principle that Fregean thoughts are necessarily transparent to their thinkers, it is clear that such a principle is not threatened by the Millian arguments and that it is consistent with the preceding sort of Fregean results (though one might perhaps have independent reasons for rejecting it, even from a Fregean standpoint). Indeed, the relevant form of the Transparency principle might be given as follows:

(T) If a rational subject x believes that p at t and disbelieves that q at t' and the thought that $p =$ the thought that q , then x knows at t' that the thought that $p =$ the thought that q (with $t' \geq t$).

Now if $t'=t$ then a Fregean theorist would take (T) as being a trivially true claim for its antecedent should have to be counted as false: it is simply inconsistent with the Intuitive Criterion of Difference for thoughts. On the other hand, if $t' > t$ - and this is the interesting assumption - then cases of the sort discussed before would not constitute any counter-example to claim (T). In effect, an instantiation of the principle to Jones's case would turn out to be (again) trivially true since its antecedent would turn out to be false; for the second conjunct in the antecedent of (T) would not hold: it is not the case that Jones disbelieves at 00:01 a.m. on $d+1$ a thought to the effect that the preceding day was fine. Moreover, the envisaged version of the Transparency principle - strengthened in a certain way, viz. as in (T)* below - might even be argued to be in general (trivially) true from a Fregean viewpoint. Thus, consider the following claim:

(T)* If a rational subject x believes that p at t and disbelieves that q at t' and the thought that $p =$ the thought that q and x retains his belief that p from t to t' , then x knows at t' that the thought that $p =$ the thought that q (with $t' \geq t$).

One might argue that the antecedent of (T)* does not hold in general on the basis that it would be inconsistent with a certain diachronic generalization of the Intuitive Criterion of Difference for thoughts. In the next Chapter I try to put forward what I take to be a plausible formulation of such an extended

principle; and if my attempt is successful then (T)* should be seen as a trivial truth. (It is interesting to notice that (T), as well as (T)*, would presumably hold under a Millian account of thoughts and attitude-attributions).

Of course, it does not follow that the neo-Fregean theorist should be seen as subscribing in general to the idea that thoughts are transparent to their thinkers. On the contrary, there are several senses in which Fregean thoughts are opaque to their thinkers. Indeed, there are several versions of the Transparency principle that would be regarded as false under a neo-Fregean account of indexicality. Thus, take the following sort of claim:

(I) If x entertains at t the thought that p and x entertains at t' the thought that q and the thought that $p \neq$ the thought that q , then x knows at t' that the thought that $p \neq$ the thought that q .

This claim would be unacceptable in the light of neo-Fregeanism. Suppose that at t Ralph, looking at a certain object o , judges 'That is nice'. Meanwhile someone replaces o with a distinct (but rather similar) object o' without Ralph noticing it. Later on, at t' , looking at what is in fact o' , Ralph comes to wonder whether the object perceptually presented to him is nice. Assume that Ralph is a self-reflective Fregean thinker who is agnostic at t' about whether the thought he is then entertaining is the same as the thought he entertained at t . Such thoughts are surely different from one another for they are about distinct objects. But, since the thinker is unsure whether he has successfully tracked the object thought about at t from t to t' , he cannot be in a position to know at t' that the thoughts in question are different.

It is interesting to ascertain whether the following variant of claim (I) would be consistent with neo-Fregeanism (it would presumably be consistent with

Millianism):

(I)* If x entertains at t the thought that p and x entertains at t' the thought that q and the thought that p = the thought that q, then x knows at t' that the thought that p = the thought that q.

Suppose that Ralph's case is described as before except that this time nobody replaces o between t and t', while Ralph thinks that a switch has taken place. Yet, he comes to judge at t' 'That is nice'. Thus, he wrongly thinks at t' that he is then entertaining a distinct thought.

This sort of cases seem to provide us with *prima facie* straightforward counter-examples to claim (I)*. Indeed, if the subject thinks that the thoughts he entertains on different occasions are distinct, and if such thoughts are in fact one and the same, then it follows that it will not be the case that he knows that they are identical. The problem is that, on the neo-Fregean view, the second premise of such an inference cannot be taken for granted (with respect to cases like the one above). In effect, perceptual singular modes of presentation are supposed to be based on abilities to keep track of objects over time and/or space, as well as from sensory modality to sensory modality. Hence, it is at least arguable that the Fregean thoughts entertained by Ralph at t and t' are not to be counted as being identical; indeed, one might claim that it would not make much sense to say, with respect to the above sort of circumstances, that Ralph has in fact tracked the object o from t to t'. It sounds in a sense weird to say that someone has unknowingly kept track of an object, though it surely makes sense to say that someone has unknowingly mistracked an object. Thus, one might reason as follows with a view to showing that claim (I)* is, in general, not inconsistent with the brand of neo-Fregeanism under consideration. Restricting

our attention to indexical thoughts of the envisaged types, it seems that on such a view the only way in which particular thoughts p and q - both about a given object o - could be taken as identical is that the thinker who entertains them (on different occasions and/or at different places, etc.) keeps track of o . But if the above suggestion is correct then, in general, it does not make sense to say of a thinker that he unknowingly has kept track of an object. Therefore, the thinker could not be in a position to think that p and q are distinct thoughts; and hence the conclusion would apparently be blocked that she does not know that p and q are one and the same thought. Having our present concerns in mind, I shall not try to assess such an argument and settle the issue here; I prefer to leave it open (though I shall come back to certain aspects of it in Chapter III). But one might at least conclude that, on the neo-Fregean account, a claim such as (I)* cannot be conclusively shown to be false on the basis of the sort of cases discussed.

CHAPTER III

COGNITIVE DYNAMICS

AND

COGNITIVE SIGNIFICANCE

INTRODUCTION

In *The Varieties of Reference*¹ Gareth Evans urges us to notice that the principle labelled by him the **Intuitive Criterion of Difference for Thoughts** - roughly, the proposition that it is not possible coherently to take different (or conflicting) propositional attitudes towards the same thought - should be construed as having its range of application limited in the following two respects. On the one hand, the principle is not meant to settle questions about the identity or difference of thoughts entertained by different subjects (either at a single time or at different times). On the other hand, and of greater importance to our immediate concerns, the principle is not meant to settle questions about the identity or difference of thoughts held by a single subject at different times.

Thus, according to Evans, the Intuitive Criterion is to be taken as being applicable only to the case of thoughts entertained by the same thinker at the same time. Although a certain minimal constraint seems to be in this way laid upon possible acceptable verdicts on the sameness or distinctness of given thoughts, it follows that different sorts of consideration must be brought to bear on decisions which are intended to cut across agents or across times. And it is worthwhile to observe that the synchronic character of the Intuitive Criterion (as well as its restriction to a single agent) appears to have been, in general, preserved in more recent neo-Fregean literature².

In this Chapter I argue to the effect that there is a sense in which the second sort of restriction to the Intuitive Criterion mentioned above, i.e. its synchronic dimension, might be reasonably (partially) lifted. Hence, the central

¹ Evans 1982, 21.

² See, for instance, Forbes 1989a, 118.

INTRODUCTION

aim I intend to attain here is to put forward a plausible diachronic extension of the Intuitive Criterion. Such a principle is meant to have the following two crucial features. First, it is grounded on the fundamental idea of Cognitive Dynamics, the idea that it is a constitutive trait of propositional attitudes that they may persist over time, i.e. that they are capable of being retained by their agents throughout certain periods of time (an idea which follows the spirit and the letter of Evans's proposals). A preliminary step towards our goal of getting a diachronic principle off the ground will be to give an admissible account of the notion of a *token* propositional attitude (or a *particular* propositional attitude). The need for such a step becomes apparent once we notice that it is natural to construe the objects of retention as being *token attitudes* taken together with their *particular contents*. Token attitudes are construed as concrete mental states formed on certain occasions and in which agents may be for certain periods of time, states which have complete propositions as their contents and which belong to certain psychological modes or types. Of course, the study of attitude-retention is important in so far as it enables us to investigate the dynamics of mental content, i.e. the conditions under which particular thoughts entertained on certain occasions may persist over time and be entertained on later occasions. Secondly, our envisaged principle involves in an essential way a pre-theoretical notion of *antagonism* as applied to (types of) propositional attitudes. So it rests heavily upon certain untutored intuitions we have about the correctness or incorrectness of certain attitude-ascriptions and about the mutual compatibility or incompatibility of certain pairs of attitude-types; thus, we will follow here the general policy adopted in Chapter II: such ground-floor intuitions are to be viewed as perfectly sound and taken for

granted³.

The structure of this Chapter is as follows. In Section 1, the nature and status of the standard (synchronic) Intuitive Criterion are examined; and a particular formulation of the principle, a formulation which turns out to be violated by Millian accounts of singular content, is taken as the basis for our intended generalization. Section 2 is devoted to a sketch of a minimal account of token attitudes; and, in Section 3, I use such a framework to formulate what I regard as a satisfactory diachronic extension of the Intuitive Criterion. In Section 4, I give an intuitive elucidation of the sort of notion of attitude-retention one needs in connection with the diachronic principle by introducing a number of constraints that such a notion should satisfy. I focus my attention upon the case of demonstrative and indexical content, resuming thus the discussion held in Chapter II; and I try to display some relations which hold between the notion of attitude-retention and certain other notions in the same conceptual family, such as the notions of change of mind, preservation of attitude-content, and tracking an object over time and/or space. Finally, Section 5 contains an outline of a solution to the central problem of Cognitive Dynamics, viz. the issue about the conditions under which a thinker is able to re-express on later occasions certain token attitudes, e.g. particular temporal beliefs, she previously held.

³ As we shall see, such a reliance on intuitive judgements about the possibility of combining given attitude-types is something which is already involved in that construal of the unextended Intuitive Criterion which I shall take as providing us with the right sort of basis for the intended diachronic generalization.

SECTION 1 - THE SYNCHRONIC INTUITIVE CRITERION

1.1 Let us take the following formulation of the Intuitive Criterion as our starting-point (actually, it is the sort of formulation which is standard in Fregean literature):

Thoughts are identical only if, necessarily, every propositional attitude that a rational thinker, who grasps them, takes at a given time to one is an attitude that she takes at that time to the other.

One could then formalize this principle in the following way:

(SIC) $(p = q) \rightarrow \Box(\forall A)(\forall x)(\forall t)[[G(x,p,t) \ \& \ G(x,q,t)] \rightarrow [A(x,p,t) \equiv A(x,q,t)]]$.

(SIC) is to be interpreted as follows: (i)- the variables 'p','q' range over thoughts (or propositions)⁴; (ii)- 'x' and 't' range over rational thinkers and times (respectively); (iii)- 'A' ranges over types of propositional attitudes, such as e.g. belief, desire and hope, so that the ternary predicate 'A(x,p,t)' should

⁴ Are these to be taken as thought-tokens or thought-types? Well, it depends on the sort of classification one wants to adopt. Suppose that one distinguishes between thought-tokens and thought-types by analogy with the usual distinction between sentence-tokens and sentence-types. Then one would be led to something like an *occurrent thought* or an *episodic thought*, i.e. a thought individuated in terms of its thinker and the time at which it is entertained. Thus, for instance, if at a time *t* I assert 'All whales are mammals' and at *t* you assert the same sentence-type, then at *t* we are entertaining distinct thought-tokens, but the same thought-type; and if at *t* I assert 'All whales are mammals' and at some other time *t'* I assert the same sentence-type, then on these occasions I am entertaining distinct thought-tokens, but the same thought-type. Now if the values of 'p' and 'q' in (SIC) were construed as being thought-tokens in that sense, then (SIC) would not be a logical truth; since '=' would not stand for the relation of identity, but for the relation of sameness of type. And this would give us an Intuitive Criterion which, interesting as it might be, is surely different from the one we intend here. Thus, I shall assume that in (SIC), and in the subsequent reformulations of the principle, the variables 'p' and 'q' range over thought-types in the above sense, so that (SIC) will be a logical truth.

be read 'x takes propositional attitude A towards p at t' (or simply 'x A's that p at t'); and (iv)- 'G(x,p,t)' is to be read 'x grasps p at t'⁵.

Assuming a plausible Principle of Compositionality for thoughts - roughly, the principle that thoughts are complex entities with a certain structure and mode of composition - one could derive from (SIC) a corresponding Intuitive Criterion of Difference for thought-constituents as follows. Let us use the notation 'p(γ)' to represent the fact that a given thought p has a certain thought-constituent γ (e.g. a predicative, relational, or singular element) as a component part. Then the Principle of Compositionality might be given thus:

(PC) Let p(γ) and p'(γ') be thoughts (with the same structure and mode of composition) which differ only in the fact that p' contains γ' where p contains γ . Then if p \neq p' then $\gamma \neq \gamma'$.

And (SIC), taken in conjunction with (PC), would yield the following principle of individuation for thought-constituents:

(Γ) ($\gamma = \gamma'$) \rightarrow $\Box(\forall A)(\forall x)(\forall p)(\forall t)[G(x,p,t) \rightarrow [A(x,p(\gamma),t) \equiv A(x,p(\gamma'),t)]]$.

1.2 Now the first thing to notice about the Intuitive Criterion - as represented in (SIC) - is that, technically speaking, it is a logical truth; and hence it has the truistic nature normally assigned (perhaps wrongly) to any logical

⁵ I will not make any particular assumptions about the notion of a subject's grasping a thought involved here. One might have at least the following two construals of the notion. On the one hand, we might say that a subject grasps a thought p at a time t if she is in some sense able to think p at t or to entertain p at t, which would presumably require that she has the concepts involved in p. On the other hand, and this is a stronger notion, we might say that a subject grasps a thought p at t if she knows which thought it is, in the sense that she possesses the concepts involved in p and she knows at least the minimum necessary to identify p's truth-value (which does not mean that she knows the truth-value that p actually has); notice that, on certain views about concepts, the first conjunct might be seen as entailing the second. The latter notion is basically the one introduced by Dummett 1981, 126 ff. One could also claim that a subject's taking a propositional attitude towards a thought p at a time t entails her grasping p at t, in which case one might drop as redundant the assumption about the Grasping-relation in the principle (SIC).

truth. Indeed, (SIC) is clearly a consequence of a theorem of the Logic of Identity, namely that which is given in the schema

$$(\forall x)(\forall y)[x = y \rightarrow (\forall \phi)[\phi(x) \equiv \phi(y)]]$$

(known as Leibniz's Law). And this is so provided that one takes for granted the assumption, which is in any case implicit in the notation used to formulate (SIC), that thoughts are the appropriate bearers of cognitive significance (or cognitive value), i.e. that they are the sort of things which can be believed, judged, desired, and so forth.

Another feature of (SIC) I would like to isolate is that its status as a logical truth would be preserved even if we dropped both the assumption about the Grasping-relation, i.e. the antecedent of the subordinate conditional, and the restriction to rational subjects; in other words, the principle would still hold with respect to agents who are not necessarily rational thinkers and do not necessarily grasp the thoughts p and q .

I shall not explore here the consequences of such a possibility. And I shall not examine in detail either the question whether or not the main arrow in (SIC) might be reversed, an affirmative answer to which would be tantamount to claiming that the notion of sameness of thought is to be taken as being exhausted by the notion of sameness of cognitive significance (this notion being given in the consequent of (SIC)). Some neo-Fregean philosophers⁶ argue that such notions should be kept apart on the following grounds. Thoughts which possess the same cognitive significance, e.g. the thought I express by uttering 'I am hot' on a certain occasion and the thought I would express were I to utter 'The subject of these conscious experiences is hot' on that occasion (where the demonstrative would refer to my experiences at the time), might nevertheless be counted as distinct on the basis that the latter thought possesses a different

⁶ See e.g. Forbes 1989a, 124-125.

structure: It contains in the subject-position an internally complex constituent, viz. the mixed descriptive-demonstrative element the subject of these conscious experiences, which is entirely absent from the former thought; and the general assumption implicitly used here is that *sense* is what is *expressed* or *grasped*.

But a simpler, and perhaps less theoretically committed, argument might be given towards the conclusion that sameness of cognitive significance does not entail sameness of thought. Thus, take the following pair of (true) arithmetical sentences, for instance: '1038+3456 = 4494' and '(1039-1)+3456 = 4494'. One might apparently assume that the thoughts expressed by these sentences have the same cognitive significance; indeed, it seems that anyone who would grasp them and judge, believe, etc., either to be true would be bound to judge, believe, etc., the other to be true. Yet, one might still be able to discriminate between the thoughts in question on the basis of their displaying distinct structures; using Frege's terminology, one could represent this fact by saying that the binary functional expressions ' $\xi + \zeta$ ' and ' $(S(\xi)-1) + \zeta$ ' - from which the left-hand sides of the above identity sentences might be seen as being (respectively) built up - contain distinct modes of presentation of the same function in extension.

1.3 However, the seemingly trivial character of the Intuitive Criterion does not prevent it from imposing a tight constraint on the acceptability of possible theories of content¹; and the constraint in question might be expressed as

¹ Consider a principle such as e.g. the principle that if $p=q$ then if p has been entertained by a citizen of Lisbon, so has q . This is also a consequence of Leibniz's Law, and it also imposes a constraint on possible theories of content. Yet, it seems to be a rather uninteresting principle about thoughts. So one might ask where does the significance of (SIC) lies (by comparison with principles such as the one above). I guess the answer is that (SIC) mentions factors which are in some sense relevant to discriminating between thoughts; it points to cognitive significance as that property of thoughts which is relevant to their individuation. But this does not necessarily mean that such factors are

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follows: a necessary condition for a given theory of content *T* to be acceptable is that *T* conforms to (SIC). (SIC) is then a principle which should be viewed as being neutral between different, and even conflicting, theories of content which nevertheless share the general assumption that thoughts or propositions are the objects of propositional attitudes (provided that they also take laws of logic such as the Principle of Indiscernibility of Identicals as indisputable); thus, it seems that there is nothing distinctively Fregean to the Intuitive Criterion, or at least to the formulation of it we have been discussing.

In particular, our principle should be taken as being neutral between a neo-Russellian and a neo-Fregean account of singular thought, in the sense that both accounts should satisfy such a condition as (SIC) (if they are to be regarded as adequate); that is to say, they should not generate verdicts on the identity or distinctness of given singular contents which might be counted as counter-examples to (SIC). Hence, it seems that (SIC) would be accepted, though on obviously different grounds, as a sort of minimal test for the individuation of thoughts both by a neo-Fregean theorist and by his neo-Russellian opponent.

Given its logical status, it is no surprise that even certain more radical forms of neo-Russellianism, e.g. the Millian view advanced by Salmon, are (implicitly) committed to the Intuitive Criterion as represented in (SIC). Therefore, any argument to the effect that Millianism is to be rejected on the basis that it violates the Intuitive Criterion should be deemed unsound; for this premiss turns out to be false if one gives the Intuitive Criterion the reading

to be regarded as *constitutive*, in the sense that what would *make* thoughts *p* and *q* distinct is the possibility of simultaneously taking different attitudes to them. Indeed, one might see (SIC) as an important principle, a sort of minimal test of adequacy for *given* theories of content, and still hold the view that it is the distinctness of thoughts *p* and *q* - as established by certain independent considerations about content - that allows for the possibility of a subject's simultaneously taking different attitudes to *p* and *q*.

(SIC). Indeed, let us in (SIC) instantiate 'p' and 'q' (respectively) to the thought that Hesperus is Hesperus and the thought that Hesperus is Phosphorus (these being one and the same Millian thought). Now such thoughts would be bound to be distinct in the light of (SIC) - by means of an application of *Modus Tollens* - if it were possible for the following condition to obtain:

(*) $(\exists A)(\exists x)(\exists t)[G(x, \underline{H=H}, t) \ \& \ G(x, \underline{H=P}, t) \ \& \ A(x, \underline{H=H}, t) \ \& \ \neg A(x, \underline{H=P}, t)]$

(where 'H=H' and 'H=P' stand for, respectively, the thought that Hesperus is Hesperus and the thought that Hesperus is Phosphorus). Let 'A' stand for the attitude of belief, 'x' stand for the famous Babylonian astronomer - call him 'Hammurabi' - who was unaware that Hesperus is Phosphorus, and 't' stand for a certain time during the lifetime of Hammurabi (I shall also assume that he grasps both thoughts). Obviously, in the light of Salmon's apparatus of guises, it will not be the case that Hammurabi believes that Hesperus is Hesperus (at t) but does not believe that Hesperus is Phosphorus (at t). As we have seen, Salmon construes the general form $[\neg A(x, p, t)]$, or [x does not A that p at t], as meaning that *there is no guise under which x would take the attitude A towards p at t* (negation being thus given its widest scope). Therefore, there seems to be no possible way in which a condition such as (*) might hold in Salmon's Millian theory; and hence, in general, such a theory seems to conform to (SIC). Thus, again, the conclusion follows that there is nothing distinctively Fregean to (SIC).

To formulate the same point in slightly different terms, recall that a Millian theorist would take the reports

(1) Hammurabi believes that Hesperus is Hesperus

(2) Hammurabi does not believe that Hesperus is Phosphorus

as being (respectively) true and false with respect to Hammurabi's story and to

the time t^1 . On Salmon's style of account, one would not be allowed to infer the truth of (2) from the fact that Hammurabi sincerely and reflectively dissents (at t) from an utterance of the sentence 'Hesperus is Phosphorus' (or rather its Babylonian counterpart). Accordingly, the negation of the consequent of (SIC) would not hold with respect to Hammurabi's story and *Modus Tollens* could not be applied to reach the conclusion (manifestly inconsistent with Millianism) that the thoughts under consideration are not the same. On the other hand, consider Hammurabi's possible doxastic states towards singular thoughts such as the thought that Hesperus is the star which appears at dusk in the Eastern sky and the thought that Hesperus is the star which appears at dawn in the Western sky (thoughts which only differ from one another in that they involve distinct, but co-referential, descriptive elements). The Millian theorist would presumably count the reports

(3) Hammurabi believes that Hesperus is the star which appears at dusk
in the Eastern sky

(4) Hammurabi does not believe that Hesperus is the star which appears
at dawn in the Western sky

as being *both* true⁸. Hence, by (SIC), the above thoughts are bound to be taken

⁸ I should mention that there are direct reference theorists who would rather count (2) as true; see e.g. Perry and Crimmins 1989 and M. Richard 1990. But the accounts in question are not genuinely Millian, since names and other simple singular terms are seen as contributing not just their referents to the thoughts expressed by sentences in which they may appear.

⁹ The reason why reports such as (4) are to be counted as true according to the Millian theory (and with respect to our story) is that there is no guise under which our Babylonian subject would be disposed to agree to the thought that Hesperus is the star which appears at dawn in the Western sky; indeed, the best candidate for such a role, viz. the guise 'Hesperus is the star which appears at dawn in the Eastern sky', is not - on the Millian view - a guise which would present (so as to speak) that thought. In general, thoughts expressed by pairs of sentences of the form [a is the ϕ] and [a is the ψ] - where 'a' is a syntactically simple singular term and the descriptions are co-referential - are taken by the Millian theorist as being *distinct* general thoughts.

as being distinct from one another (as one should expect, even from a Millian viewpoint).

As to the Fregean theorist, she would agree to this latter conclusion but would vehemently disagree with the former sort of verdict given on reports such as (2). Following what appears to be our natural intuition she would count (2) as being true (in Hammurabi's story), and would then use (SIC) to establish the result that the thought that Hesperus is Hesperus must be distinct from the thought that Hesperus is Phosphorus, a result which she might subsequently explain in terms of the idea that the thoughts in question contain different modes of presentation of the same planet; or, alternatively, she might have some prior explanation available for such a difference in thought (in terms of distinct *Sinne*) and then proceed to test it against (SIC)¹⁰.

1.4 Nevertheless, there is a formulation of the Intuitive Criterion, one which is not captured by the formalization (SIC), that would not be satisfied by a Millian theory of singular content; thus, if the emerging principle is taken as plausible then perhaps Millianism should be rejected as an implausible doctrine on its basis.

Such a formulation appeals to the intuitive notion of a (type of) propositional attitude being *antagonistic* to another (type of) propositional attitude, in the sense in which e.g. belief conflicts with disbelief and judgement is incompatible with suspension of judgement or agnosticism (when such attitudes have the same content), and might be given the following sort of formalization¹¹:

¹⁰ See footnote 8.

¹¹ With a view to rendering the exposition more intuitive, I have used the proposition obtained from (SIC) by contraposition as a basis to formulate (SIC)*.

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$$(SIC)* \quad \Diamond(\exists A)(\exists B)(\exists x)(\exists t)[[G(x,p,t) \ \& \ G(x,q,t)] \ \& \\ [A(x,p,t) \ \& \ B(x,q,t)] \ \& \ a(A,B)] \rightarrow \neg(p = q) .$$

Here the variables 'A','B' range over types of propositional attitude and the binary predicate 'a' stands for the Antagonistic-relation, a relation which holds between attitude-types A and B just in case A is antagonistic to B (such a relation being irreflexive, symmetric and non-transitive¹²). As an illustration, consider the case of belief, i.e. the attitude-ascription form [x believes that p at t]. Then one might perhaps count the following as attitude-types which are (in some sense) antagonistic to belief: (i)- Failure to believe, i.e. [x fails to believe that p at t] (or simply [x does not believe that p at t]); (ii)- Disbelief, i.e. [x disbelieves that p at t] (which one might take as meaning [x believes that not-p at t]); (iii)- Suspension of belief, i.e. [x suspends belief about p at t] (which one might take as meaning [It is not the case that either x believes that p at t or x believes that not-p at t]); and so forth.

1.5 The features of (SIC)* that I would like to single out are the following ones. First, it is obviously not a straightforward logical truth; although it might (perhaps) be turned into one by means of some analysis of the binary predicate 'a'¹³. Notice that (SIC)* is a principle which is considerably stronger than (SIC);

¹² In the sense in which the relation of non-identity is non-transitive, i.e. from $a(A,B)$ and $a(B,A)$ one cannot infer $a(A,A)$.

¹³ Yet I have doubts about the possibility of such an analysis. For instance, our account would be clearly circular if we explained the antagonism between attitude-types in terms of the impossibility of taking them simultaneously towards the same propositional content; though there might be a sense in which such a circle could be seen as an informative one. In any case, I would rather regard the Antagonistic-relation as primitive and as anchored on our pre-theoretical intuitions. Of course, problematic cases are likely to appear. For instance, it seems silly to say that a subject believes that p at t, but also hopes that p at t or suspects that p at t; yet, we would not intuitively count hope and suspicion as antagonistic to belief, at least in the sense which seems

Indeed, one could obtain the latter from the former by instantiating the Antagonistic-relation $\alpha(A,B)$ to the Negation-relation, i.e. to A is the negation of B (assuming that this is a particular species of antagonism between A and B).

Secondly, Millianism - at least as represented in Salmon's doctrines and in other similar accounts - turns out to be inconsistent with (SIC)*. To see this it is sufficient to observe that the following attitude-ascriptions

(1) Hammurabi believes that Hesperus is Hesperus (at t)

(5) Hammurabi disbelieves that Hesperus is Hesperus (at t)

would *both* come out as true under Millianism (relative to Hammurabi's story).

And if we were to apply principle (SIC)* to this case then we would be led to the absurd conclusion that the thought that Hesperus is Hesperus is not the same as itself; and the Millian theorist would presumably take such a result as a *reductio* of (SIC)*¹⁴.

Thirdly, as already remarked, (SIC)* is intended as a principle which is anchored upon our pre-theoretical (and untutored) intuitions about the correctness or incorrectness of given attitude-attributions, as well as on our ground-floor judgements about antagonism between pairs of attitude-types. Thus, for example, we would be naturally inclined to count reports such as

to be required by principle (SIC)*.

¹⁴ Of course, Salmon would not take e.g. belief and disbelief, or belief and suspension of belief, as mutually conflicting attitude-types; but that seems to go against our ordinary intuitions, and would constitute another way of expressing his rejection of a principle such as (SIC)*. On the other hand, one might perhaps represent Salmon's position by saying that antagonism only makes sense relativized to a guise; i.e., attitudes A and B taken towards a certain content p are said to be antagonistic only if p is in both cases presented through the *same* guise. But this would be tantamount to seeing Salmon as perhaps accepting, not (SIC)*, but a different principle, a principle which would need to be backed up by a certain conceptual apparatus and in which the intuitive appeal of (SIC)* would be, in my opinion, lost. In Section 4 I discuss, in connection with the individuation of indexical content, the question whether a Millian account satisfies a counterpart of (SIC)* relativized to guises (or to other Millian constructions, e.g. Kaplanesque characters).

(6) Hammurabi disbelieves that Hesperus is Phosphorus (at t)

(2) Hammurabi does not believe that Hesperus is Phosphorus (at t) as being both true, and (5) above as false; hence, Salmon's verdicts on the truth-values of ascriptions such as (2) and (5) might be taken as a *reductio* of his Millian theory of singular content. Therefore, if (SIC)* is indeed acceptable as a sort of minimal test for the individuation of content then any satisfactory theory of singular thought should count such thoughts as e.g. the thought that Hesperus is Hesperus and the thought that Hesperus is Phosphorus as distinct; for (SIC)*, applied to (1) and (6) (or to (1) and (2)), would clearly yield such a result.

1.6 A further move I am now willing to make consists in trying to generalize our principle (SIC)* to the diachronic case, partially lifting thus the restriction about synchronicity in attitude-taking. Of course, such a generalization would preserve all the properties we have just assigned to (SIC)*; in particular, the resulting diachronic principle would still be incompatible with Millianism about singular thought.

Now in order to obtain the desired extension of (SIC)* one surely needs to replace quantification over attitude-types, which was assumed both in (SIC) and (SIC)*, with quantification over token (or particular) attitudes belonging to given types. As pointed out before, the *rationale* for such an intermediate stage is that the diachronic principle we are aiming at is likely to rest on the basic notions of Cognitive Dynamics, the notions of **attitude-retention** and **persistence of content** as applied to *token* attitudes.

Accordingly, I shall subsequently sketch what I take to be an adequate framework for token propositional attitudes; such an account will be minimal in the sense that the set of general principles and assumptions employed are those

which are strictly needed for the purpose of getting a diachronic Intuitive Criterion off the ground.

SECTION 2 - A MINIMAL ACCOUNT OF TOKEN ATTITUDES

2.1 Let me begin by making some general remarks about the notion of a token propositional attitude that I want to introduce here.

I shall take token attitudes to be particular mental states which, as such, belong necessarily to their subjects and always have a certain duration. They are thus construed as displaying some of the properties that Frege assigned to his notion of Ideas (*Vorstellungen*)¹⁵. In particular, token attitudes are private or specific to their owners, in the sense that the possibility of different subjects having (numerically) the same token attitude, either at a single time or at different times, will not be allowed in our account¹⁶; although different agents may obviously have token attitudes of the same general type and with the same particular content. Yet, unlike other sorts of *Vorstellungen*, such as e.g. particular pains and mental pictures, they are not mental events - or episodic occurrences in the mind - but rather mental *states*. Hence, and this is a feature which is central to our account, token attitudes are in principle capable of being retained by their agents for considerably long periods of time; in some cases, such as presumably the case of my belief that the Earth is round, such periods almost amount to the span of life of their subjects. And, again unlike other sorts of *Vorstellungen*, they also have certain contents, which are not themselves necessarily mental in nature. And such contents - complete propositions with unrelativized truth-values and with a certain internal structure - are attached to them in an essential way; that is to say, it is not

¹⁵ Frege 1967.

¹⁶ I should remark that token propositional attitudes are not necessarily *private* in the sense employed by Ludwig Wittgenstein in his book 1985 (see e.g. no. 246).

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the case that a token attitude (had by some agent at a certain time) might not have had the particular content it in fact has. In addition to this, token attitudes are said to belong to certain types (or psychological modes), e.g. the Belief-type, the Desire-type, the Suspicion-type, etc., and such types are also regarded as being essential to their tokens; that is to say, it is not the case that token attitudes might not have belonged to the types to which they actually belong.

2.2 Accordingly, the notion of a token attitude I take to be sufficient for the purpose we have in mind is one which will have the property of satisfying the set of assumptions 1-5 stated below. I intend such assumptions to be relatively uncontroversial and intuitively plausible. Thus, if this *desideratum* is fulfilled then the emerging account will presumably be compatible with a wide range of views on the nature of propositional attitudes; in particular, the kind of account I put forward is not committed to any particular theory of content for propositional attitudes, or to any particular doctrine about their ontological status¹⁷.

I shall now formulate the envisaged assumptions and then make a few comments on them.

ASSUMPTION 1: There is a basic 5-place relation

$$T(x,a,m,p,t)$$

which holds between a subject x , a token attitude a , a type of attitude m , a content p , and a time t just in case x takes a ,

¹⁷ The account offered here is in some respects similar to the account proposed in Perry and Crimmins 1989. However, unlike them - who suppose that e.g. particular singular beliefs are themselves *structured* mental entities, consisting of so-called *conceptions* of objects and properties - I do not make any particular assumptions about the (metaphysical) nature of token attitudes.

belonging to m , towards p at t (or x is in the a -state, belonging to m , towards p at t)¹⁸.

ASSUMPTION 2: The Essentialist Principle

Token propositional attitudes have their agents, types and contents essentially; i.e., the following result holds:

$$T(x,a,m,p,t) \rightarrow \Box(\forall t')[a \text{ exists at } t' \equiv T(x,a,m,p,t')].$$

ASSUMPTION 3: Functionality of Subjects

The relation T is functional in its first *relatum*: there is a function which maps every token attitude a existing at a time t onto the subject x of a at t ; i.e., the following result holds:

$$[T(x,a,m,p,t) \ \& \ T(y,a,n,q,t)] \rightarrow (x = y)^{19}.$$

ASSUMPTION 4: Functionality of Contents²⁰

The relation T is functional in its fourth *relatum*: there is a function which maps every token attitude a existing at a time t onto the content p of a at t ; i.e., the following result holds:

¹⁸ Alternatively, one might think of a token attitude as being identical to the taking of its type, in which case we would not have both a variable for the token and a predicate for the Taking-relation. Thus, instead of the 5-place predicate adopted in our notation, one might have a 4-place predicate ' $T(x, \blacksquare, p, t)$ ', read as ' x takes an attitude-type \blacksquare towards p at t ', thereby yielding a token attitude of type \blacksquare . Yet, for convenience of exposition, I have preferred the style of notation used in the text.

¹⁹ The absence of any quantifiers and modal operators in all these formulae is a convenience which may be explained as follows: their assertion can always be replaced by assertion of their closures, these being those formulae (containing no free variables) which are obtained by prefixing universal quantifiers and necessity signs, in any order, to them. See Kripke 1963, 69.

²⁰ Uniqueness of content is here, and will be henceforth, taken as being always relative to a given type.

$$[T(x,a,m,p,t) \ \& \ T(x,a,m,q,t)] \rightarrow (p = q).$$

ASSUMPTION 5: Existence of Types

For every token attitude *a* existing at a time *t* there is a type *m* to which *a* belongs at *t*; i.e., the following result holds:

$$a \text{ exists at } t \rightarrow (\exists m)(\exists x)(\exists p)T(x,a,m,p,t).$$

2.3 Assumption 1 introduces what is surely the most primitive fact about propositional attitudes, namely the fact that agents simply *have* (or *take*) token attitudes (e.g. particular beliefs, desires or fears) at certain instants of time, such attitudes having certain contents and belonging to certain types. Token attitudes are supposed to be concrete mental states: they are formed in a particular mind, they endure for a certain period of time, and eventually go out of existence (sometimes this only happens when their agents - people who certainly have a very rigid cognitive structure - go out of existence). And one might capture the idea that token attitudes are mental particulars with a certain *duration* by means of the following proposition:

$$(D) \ T(x,a,m,p,t) \rightarrow (\exists t_0)(\exists t_n)[t_0 \leq t \leq t_n \ \& \ t_0 < t_n \ \& \\ (\forall t_i)[t_0 < t_i < t_n \rightarrow T(x,a,m,p,t_i)]]].$$

Thus, a conspicuous consequence of our conception of token attitudes as mental states, rather than mental acts or events, is that they have the important property of being capable of being retained by their agents as time goes by (I shall come back to the notion of retention later on).

2.4 Assumption 2, the Essentialist Principle, states that a token attitude's having (at a given time) the subject that it has, the content that it has, and a type of which it is a token, are all to be taken as necessary properties of the

token attitude in question; in other words, they are properties such that it would not be possible for such a token attitude to lack them (at any time at which it might exist)²¹. Token attitudes are in this way individuated in terms of the following three intrinsic (or essential) features: their subjects, their contents and their types.

2.5 Concerning Assumption 3, one might say that it is intended to express the Principle of Privacy of Ownership for mental entities as applied to the particular case of token attitudes. Indeed, it conveys the idea that only the subject (or "owner") of a particular attitude - of a given type and content, and which she has at a certain time - can have that attitude (on the same or on a different occasion): no one else can have it (or share it with her). Moreover, Assumption 5 entails the following two results, which taken together give us a sense in which token attitudes are private mental particulars.

Proposition 3.1: There are no token attitudes that subjects do not have;

i.e., the following holds:

$$\neg \Diamond (\exists a)(\exists t)[a \text{ exists at } t \ \& \ (\forall x)(\forall m)(\forall p)\neg T(x,a,m,p,t)].$$

Proposition 3.2: No two subjects can have the same token attitude; i.e., the

following holds:

$$[T(x,a,m,p,t) \ \& \ T(y,b,n,q,t') \ \& \ \neg(x = y)] \rightarrow \neg(a = b).$$

In order to be able to derive 3.1 from 5 one would need certain extra-

²¹ I am aware that the Essentialist Principle, taken as applied to contents, would be possibly rejected on those views which individuate contents by reference to a certain sort of mental acts (and not mental states), such as Evans's episodic thoughts; and the same could be said about Assumption 4 (Functionality of Contents).

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assumptions, in particular the following (rather plausible) one:

$$(P) \quad \Box(\forall a)(\exists x)(\exists m)(\exists p)(\exists t)T(x,a,m,p,t).$$

As to Proposition 3.2, it is a consequence of Assumption 5 taken in conjunction with the following (seemingly obvious) premiss:

$$(E) \quad \Box(\forall a)(\exists t)(a \text{ exists at } t).$$

Let me illustrate briefly the above sort of result. Suppose that at a certain time, e.g. as a result of reading an article on present European politics in a newspaper, the particular belief is formed in my mind that German reunification constitutes a threat to peace in Europe. And suppose that, at the same or at a different time, you sincerely and assertively utter a token of the sentence 'German reunification constitutes a threat to peace in Europe'. There is obviously a sense in which the attitudes we have are similar (or qualitatively identical) to one another; and this is the sense in which they might be said to belong to the same type (the Belief-type) and to have the same particular content, viz. the proposition *that German reunification constitutes a threat to peace in Europe* (whatever such a proposition might be, taken with respect to the time of the context in question). Yet, according to the foregoing account, it is not the case that we have the same token belief, or that we are in the same particular belief-state (on that occasion): our particular beliefs must be counted as being (numerically) distinct on the basis that they simply belong to different agents. Of course, nothing in our account precludes the possibility of my having (numerically) the same token belief at some later time; such a possibility is indeed entailed by our characterization of particular attitudes as mental states.

To take another example, suppose that I assertively utter a token of the sentence 'I am hot' on a certain occasion, and that you assertively utter a token of the same sentence-type at the same time. Again, it might be said that we have the same sort of attitude for our mental states are of the same type and their

contents presumably belong to the same type of thought (though under any reasonable theory of indexical content the particular thoughts believed by you and me are distinct from each other); nevertheless, we do not have the same token belief (according to Assumption 3).

2.6 Let us now turn to Assumption 4. It states that every token attitude existing at a certain time is to be assigned a unique content (at that time and with respect to a given psychological mode). And Assumption 5 entails with respect to contents results which are analogous to those expressed by Propositions 3.1 and 3.2 with respect to agents, namely the following ones:

Proposition 4.1: There are no token attitudes without a content.

(This proposition is utterly captured by the formalization given for Proposition 3.1, but it is worth stating).

Proposition 4.2: No two contents can be attached to the same token attitude; i.e., the following holds:

$[T(x,a,m,p,t) \ \& \ T(y,b,m,q,t') \ \& \ \neg(p = q)] \rightarrow \neg(a = b).$

(And observations which parallel those made with respect to the derivability of 3.1 and 3.2 apply to Propositions 4.1 and 4.2).

Let me illustrate Proposition 4.2. Suppose that at a time t , pointing at a particular object o in my visual field, I sincerely assert 'That is red'. And that at a later time t' , pointing at a numerically different (but qualitatively identical) object o' from the same angle, I assert a token of the same sentence-type. Then, given certain plausible assumptions about content, at t' I am not in the same particular mental state as I was at t : my token beliefs are distinct in virtue of

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the fact that they have different particular propositions as their contents.

As to Proposition 4.1, one might think that it would be vulnerable to the following sort of apparent counter-example. Suppose that on a certain occasion a child sincerely and assertively utters a token of the sentence 'Santa Claus is short and fat', seemingly giving thus voice to a particular belief. Yet, according to a certain range of views on singular content, it follows that there is just no complete thought or proposition that could be assigned to her mental state as its content at that time. It would then seem that Proposition 4.1 does not hold at all. However, such an impression is wrong. Let us grant, for the sake of argument, that the views in question are along the right lines. Then what one would say is not that there is no content available to be assigned to the putative belief entertained by the child (as if such a belief were a pre-existent thing, waiting for a content to be attached to it), but rather that there is no token belief for such a putative content to be assigned to (the child's utterance not being counted as expressing any particular belief).

An interesting issue, which is somehow related to the one just discussed, is whether Assumption 4 would be vulnerable to so-called Twin-Earth arguments. Suppose that at a certain time I assert 'This is water' (pointing at a sample of Earth's water) and that, at the same time, my counterpart on Twin-Earth - who is *ex hypothesi* physically and psychologically indistinguishable from me - asserts the same thing (pointing at a sample of Twin-Earth's water). Then it seems that I and my counterpart on Twin-Earth have exactly the same token-belief on that occasion. Yet, assuming that the differences between Twin-Earth and Earth are as in Putnam's famous thought-experiment, one could claim - on the basis of certain suppositions about content - that the specific content of my belief is different from the specific content of his belief: my token belief is about H₂O while his token belief is about XYZ. Therefore, it appears that

different contents might after all be assigned to one and the same token attitude (taken at a certain time), and hence it seems that Assumption 4 is simply false. However, such a conclusion could be resisted by means of the following (possible) reply. Even granting the assumptions about content used in the argument, one could still refuse to concede its main premiss and thus insist that my token-belief is not (numerically) the same as my counterpart's token-belief because they are had by *different* subjects; location in space would suffice here as a means of individuation for subjects: I am located somewhere on Earth while he is hypothetically located somewhere on Twin-Earth.

I will not make any further assumptions about content. Having our general purpose in mind, it is sufficient to say that every token attitude, had by a certain agent at a certain time, is to be assigned a single complete proposition as its content at that time (relative to a given attitude-type); and that complete propositions are supposed to have the standard role ascribed to them, viz. that of being the proper bearers of (unrelativized) truth-values.

2.7 Let us finally turn our attention to Assumption 5. What is important to observe about this principle is that, unlike its counterparts 3 and 4, it only assumes existence, and not uniqueness, of types (where these are taken as being relative to a fixed content). That is to say, it states that every token attitude, taken by a subject at a certain time and having a *certain content*, must belong to *some* type; hence the possibility is allowed that a given attitude with a particular content, had by an agent on a certain occasion, belongs to *distinct* attitude-types.

I think it is instructive to see why one should not require uniqueness of types (relative to given contents). First, I shall take here for granted any acceptable system of classification of token attitudes, to which certain contents

are assumed to be attached, into types or psychological modes (such as e.g. the one outlined by John Searle²²). Now suppose that we assume (content-relative) functionality of types. Then it follows that our envisaged taxonomy of attitude-types, say taxonomy M , must be into *disjoint* psychological modes; that is, M must be such that, for any attitude types m_j and m_k in M , if $m_j \neq m_k$ then it is not the case that the following holds

$$T(x,a,m_j,p,t) \ \& \ T(x,a,m_k,p,t)^{23}.$$

There are some consequences of such an assumption about (content-relative) functionality of attitude-types that I would like to single out as being clearly undesirable from the point of view of our envisaged diachronic principle of individuation for contents.

To begin with, an immediate consequence of the above supposition is that, for instance, the Hope-type and the Desire-type would not be both allowed to belong to our taxonomy M of attitude-types. To appreciate this, suppose that the following obtains

$$T(x,a,m_j,p,t),$$

and that m_j is the Hope-type. Then, since Hope presumably entails Desire with respect to a fixed propositional content (i.e. [x hopes that p at t] logically implies [x desires that p at t]), it follows that

$$T(x,a,m_k,p,t),$$

where m_k is the Desire-type. Therefore our uniqueness requirement on M would be violated, for $m_j \neq m_k$; and hence we would have to make do with Hope only (dispensing with Desire in M), which I take to be a rather unwelcome result. And

²² See Searle 1983 (especially Chapter 3).

²³ One could also formulate the uniqueness requirement for attitude-types (with respect to fixed contents) in set-theoretical terms as follows. If \mathbf{m}_j and \mathbf{m}_k are any attitude-types in M then what is required is that $\mathbf{m}_j \cap \mathbf{m}_k = \emptyset$, where \mathbf{m}_j (respectively \mathbf{m}_k) is the set of possible ordered quadruples $\langle x,a,p,t \rangle$ such that $T(x,a,\mathbf{m}_j,p,t)$ (respectively $T(x,a,\mathbf{m}_k,p,t)$).

similar results would also obtain for other attitude-types between which there are likely to be relations of entailment (when the tokens of the types in question have the same particular content, of course).

In addition to this, I shall now try to show that another sort of undesirable consequence of the assumption about uniqueness of types is that certain pairs of attitude-types which one would clearly count as being intuitively antagonistic to one another would not be both allowed to belong to our taxonomy *M*.

Let us consider some unproblematic cases in the first place. Thus, even if uniqueness of types were required, our taxonomy *M* would still contain some instances of what might be taken as mutually conflicting attitude-types. For example, Belief and Disbelief would still both belong to *M*. Although Disbelief that *p* presumably entails (and is entailed by) Belief that not-*p*, this would not violate the uniqueness requirement, which we construed as being necessarily relative to a *fixed content*. In effect, from

$$T(x,a,m_j,p,t),$$

where m_j is the Disbelief-type, one could infer

$$T(x,a,m_k,-p,t),$$

where m_k is the Belief-type (and the converse inference would also be valid); but this would hardly be inconsistent with that requirement.

Now one might wish to know whether the same sort of (unproblematic) result could be generalized to other cases of intuitively antagonistic attitude-types, whether these belong to the same constellation (so as to speak) of types, such as e.g. the pairs Belief/Failure to Believe, Belief/Suspension of Belief, etc., or not, such as e.g. the pair Disbelief/Judgement.

Well, the latter cases do not seem to present any special problems. Yet, the former ones are likely to give rise to certain difficulties (if content-relative

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uniqueness of types is assumed, of course). Take, for instance, Judgement and Suspension of Judgement (or Agnosticism) concerning a given propositional content, say p . Assuming that [x suspends judgement about p at t] is to be analysed as [It is not the case either that x judges that p at t or that x judges that not- p at t], one would obtain in our notation the following pair:

$$T(x,a,m_j,p,t)$$

and (possibly)

$$\neg T(x,a,m_j,p,t) \ \& \ \neg T(x,a,m_j,\neg p,t),$$

where m_j is the Judgement-type. So far so good. But suppose that we also want a notion of Failure to Judge that p , which might be given by the schema [x does not judge that p at t] (or [It is not the case that x judges that p at t]) and which would surely be (intuitively) antagonistic to Judgement that p (as represented in the schema [x judges that p at t]). Then it follows that Suspension of Judgement about p entails (but is not entailed by) Failure to Judge that p , provided that the latter notion - i.e. [x does not judge that p at t] - is represented in our notation as

$$\neg T(x,a,m_j,p,t),$$

where m_j is the Judgement-type; notice that the notation $T(x,a,m_k,p,t)$, where m_k is taken to be the complement of the Judgement-type, would be definitely wrong. Hence, it seems that Suspension of Judgement and Failure to Judge would not be both allowed to enter into our envisaged taxonomy of attitude-types, the former notion being a proper part of the latter. Therefore, one could not be in a position to count Suspension of Judgement and Judgement (with respect to a certain content) as being antagonistic attitude-types. And, by parity of reasoning, the same would hold with respect to Suspension of Belief/Belief and so forth. However, such attitude-types are clearly instances of types which are intuitively antagonistic to one another (with regard to a fixed content).

Needless to say, I take the above results as unacceptable consequences of the supposition about (content-relative) functionality of types, and hence as providing us with a *rationale* for not adopting it in our account of token attitudes.

SECTION 3 - THE DIACHRONIC INTUITIVE CRITERION

I think that we are now in a position to use the framework for token propositional attitudes just introduced and attain the central aim set for the present Chapter, namely to sketch an acceptable formulation of a diachronic extension of the Intuitive Criterion of Difference for thoughts.

3.1 As a preliminary step, let us go back to our formula (SIC)* - the synchronic Intuitive Criterion - and let us rewrite it in accordance with the sort of account of token attitudes outlined in Section 2. One would obtain the following principle:

$$(SIC)** \quad \diamond(\exists x)(\exists a)(\exists b)(\exists m)(\exists n)(\exists t)[[G(x,p,t) \ \& \ G(x,q,t)] \ \& \\ [T(x,a,m,p,t) \ \& \ T(x,b,n,q,t)] \ \& \ a(m,n)] \rightarrow \neg(p = q).$$

(SIC)** should then be interpreted as follows: (i)- the ranges of values of the individual variables 'p', 'q', 'x', 't' are as in (SIC)*; (ii)- the predicate-letters 'G' and 'a' are also interpreted as before; (iii)- the individual variables 'a', 'b' range over token propositional attitudes; (iv)- the individual variables 'm', 'n' range over attitude-types in our envisaged taxonomy (recall that these are not necessarily disjoint types); and (v)- the predicate-letter 'T' stands for the 5-place Taking-relation, a relation which holds between (rational) agents, token attitudes, attitude-types, thoughts and times. Thus, (SIC)** could be assigned the following informal reading:

A sufficient condition for thoughts to be distinct is that it is possible for a rational subject who grasps them to take token propositional attitudes of antagonistic types towards them at the same time.

One should remark that the assumption about the Grasping-relation in the antecedent of (SIC)** could be dropped if we supposed that a subject's taking a token attitude, of a given type, towards a certain proposition at a certain time entails her grasping (in some sense) the proposition in question at that time²⁴; and such a supposition does not appear to be much problematic.

3.2 Now in order to obtain an admissible generalization of our principle (SIC)** in the intended sense one needs basically to take the following two steps.

First, and more obvious, one needs to allow diachronicity in attitude-taking, i.e. one needs to make room for the possibility that the token attitudes (of certain types) our subject *x* takes towards the thoughts *p* and *q* occur at different instants of time.

Secondly, and a little less obvious, one needs then to assume that the token attitude (of a certain type) taken by the subject at a certain time, say *t*, towards thought *p* *has been retained* by her at the later time, say *t'*, at which she takes her token attitude (of a certain type) towards thought *q*. In other words, one must suppose that our subject's original token attitude, together with its particular content, persists throughout the period of time which goes from the instant *t* at which such an attitude was taken to the instant *t'* at which she takes a token attitude whose type is possibly in conflict with the type of the first one. Therefore, one needs to appeal to some such notion of retention for token attitudes as the one which was alluded to in Section 2; moreover, since token attitudes are assumed to have their contents essentially, one also needs to appeal to some notion of persistence of mental content over time.

²⁴ See footnote 5 (Section 1).

The *rationale* for introducing the above supposition about retention of token attitudes is simply that if it were to be dropped then the diachronic principle we are seeking would turn out to be highly implausible (or even blatantly false). Indeed, dispensing with the assumption about attitude-retention would be tantamount to allowing the possibility of, for instance, our subject's changing her mind at some time between the time t at which she takes her original token attitude towards thought p and the time t' at which she has a certain token attitude towards thought q . And if such a change of mind, which would surely be a change of mind concerning *the content* p of her former token attitude, were allowed then the conclusion would be utterly unwarranted that the thoughts entertained p and q are distinct on the basis that the token attitudes our subject takes towards them at t and t' belong to antagonistic types (such a conclusion being thus reached by means of a diachronic principle from which the requirement about retention would be *ex hypothesi* absent); and this would be so for the simple reason that a change of mind would have the effect of somehow cancelling the former token attitude, and then there would not be any attitude-types which one could count as being antagonistic to one another. It is certainly possible for a (rational) subject to have on a certain occasion, say, a particular belief with content p and, having meanwhile been confronted with some sort of new evidence, to come to change her mind on a later occasion about p and, say, to believe the negation of p , or to suspend belief about p , on that occasion.

Let me illustrate the above sort of consideration. Suppose that, at a time t , I look at someone and judge 'He is ugly', when I am in fact looking at my own image reflected in a mirror and I am unaware of this. And suppose that, at a later time t' , I judge 'I am not ugly'. Now am I judging (at different times) a certain thought and its negation, or rather a certain thought and the negation

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of *another* thought? In order to apply our envisaged diachronic principle of Individuation so as to get an affirmative answer to the latter alternative one would have to assume that at t' I have in some sense retained the particular judgement I made at t . For suppose that I have changed my mind concerning the thought I judged at t at some time between t and t' . Imagine, for instance, that at such a time I have decided to reconsider my previous judgement, and that I come to think that after all the man is not that ugly (being still unaware of the fact that I am the man in question). Then it seems that I thereby withdraw my former token attitude and it makes no sense to say that its type is antagonistic to the type of the token attitude I take at t' ; hence, the consequence would not be forthcoming in the light of our diachronic principle that the thought I judge to be the case at t is different from the thought I judge not to be the case at t' . (I shall take up the issue about what sort of connection should be seen as obtaining between the notions of *attitude-retention* and *change of mind* in Section 4.)

3.3 Assuming that the foregoing remarks are along the right lines, one could tentatively put forward the following formulation of a diachronic Intuitive Criterion of Difference for thoughts:

$$(DIC) \quad \diamond (\exists x)(\exists a)(\exists b)(\exists m)(\exists n)(\exists t_0)(\exists t_1)(t_1 \geq t_0) \quad [[G(x,p,t_0) \ \& \ G(x,q,t_1)] \ \& \ [T(x,a,m,p,t_0) \ \& \ T(x,b,n,q,t_1)] \ \& \ a(m,n) \ \& \ Ret(x,a,m,p,t_0,t_1)] \ \rightarrow \ \neg(p = q).$$

In (DIC), and besides the stipulations already adopted, the variables ' t_0 ', ' t_1 ' are to be interpreted as ranging over times, and the 6-place predicate-letter '*Ret*' is to be interpreted as standing for the Retention-relation, a relation which

holds between an agent x , a token attitude a , an attitude-type m , a content p , and times t_0, t_1 (with $t_1 \geq t_0$) if and only if x retains a , of type m and with content p , from t_0 to t_1 . Of course, if $t_1 = t_0$ then the assumption about retention in the antecedent of (DIC) would turn out to be redundant and one would obtain the synchronic Intuitive Criterion (SIC)** from (DIC).

Accordingly, our principle (DIC) could be given the following informal reading:

A sufficient condition for thoughts to be distinct is that it is possible for a rational subject who grasps them to take, at (possibly) different times, token propositional attitudes of antagonistic types towards them, provided that she retains at later times the token attitudes previously held.

3.4 I would like now to make some brief remarks on the notion of attitude-retention to be employed in (DIC); in the next two Sections I discuss such a notion, as well as the associated notion of persistence of content, in some detail. As already pointed out, with regard to the other crucial notion involved in our diachronic Criterion, viz. the notion of antagonism between attitude-types, I would like to keep it at a purely pre-theoretical level and I would thus regard its application as being mainly guided by our ordinary intuitions about attitude-ascription.

A definition of the notion of retention which suggests itself in a rather natural way might be given as follows:

(R) $(\forall t_0)(\exists t_1)(\exists t_i)(t_0 \leq t_i \leq t_1)[\text{Ret}(x, a, m, p, t_0, t_1) \text{ iff } a \text{ exists at } t_i]$.

Although definition (R) captures the most basic fact about retention of token attitudes throughout given periods of time, it does not throw much light

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on the conditions under which retention is secured, i.e. on the conditions under which a given token attitude might be said to exist at every time in a given interval. So what else could one say about attitude-retention? Well, by way of a preliminary tackling of the problem, one might naturally impose the following two kinds of requirement on the notion of attitude-retention (I shall expand on this later on).

A first minimal requirement, suggested by our preceding considerations, is this. One might say that in order to retain a token attitude a , of type m and content p , from a time t_0 to a time t_1 , a subject x must not change her mind about p at any time t_i between t_0 and t_1 . Indeed, the retention of a token attitude is a continued relation to a certain propositional content, and any change of mind concerning that content would have the effect of interrupting (so as to speak) such a relation; thus, the token attitude in question would cease to exist from the moment at which such a change of mind takes place. Accordingly, and assuming that our subject x is a *rational* agent, one could perhaps state the intended condition by means of the following principle:

$$(C) \quad (\forall t_i)(\exists t_0)(\exists t_1)(t_0 \leq t_i \leq t_1)[T(x, a, m, p, t_0) \rightarrow \\ [Ret(x, a, m, p, t_0, t_1) \rightarrow \neg(\exists c)(\exists o)[T(x, c, o, p, t_i) \ \& \ a(o, m)]]].$$

(where 'c' and 'o' range over, respectively, token attitudes and attitude-types).

However, there seem to be two kinds of shortcoming to some such requirement as (C). On the one hand, attitude-retention is restricted to rational subjects; for it is clear that principle (C) would only hold with respect to them. Yet, it is obvious that they are not the only ones to be able to retain token attitudes throughout time. But, since our principle (DIC), as well as its synchronic counterpart (SIC)**, is also subjected to that sort of restriction, one

could always say that the notion of attitude-retention which is relevant to (DIC) is one which would satisfy (C). On the other hand, the notion of change of mind employed in (C) is formulated in terms of the notion of antagonism between attitude-types; and this might appear to be somehow circular. But, since in (C) the notion of retention is not taken as being exhausted by the notion of an absence of change of mind, and since the notion of antagonism is in general to be taken as primitive, we do not seem to have a genuine shortcoming here. (Notice further that the notion of change of mind introduced in claim (C) also relies on some notion of persistence of content over time.)

Another requirement which turns out to be crucial for attitude-retention has to do with memory, in particular propositional memory or *memory that*. Indeed, memory is - or at least involves - storage or preservation of (already available) information, in contradistinction to acquisition of new information. And, since attitude-retention seems to require, in general, preservation of attitude-content, I think that the following kind of claim could be reasonably advanced: a subject x retains a token attitude a , of type m and content p , from a time t_0 to a time t_n provided that at any time t_i in the interval she *remembers that* p . Accordingly, one could formalize as follows this second sort of condition on attitude-retention:

$$(M) \quad (\forall t_i)(\exists t_0)(\exists t_n)(t_0 \leq t_i \leq t_n)[T(x, a, m, p, t_0) \rightarrow [x \text{ remembers that } p \text{ at } t_i \rightarrow \text{Ret}(x, a, m, p, t_0, t_n)]]$$

It is worth pointing out that the condition stated in the consequent of principle (M) could not be plausibly turned into a biconditional. In effect, if propositional memory were also to be regarded as a necessary condition for attitude-retention then a subject could not be in a position to retain e.g. *false*

beliefs (in the sense of beliefs whose contents happen to be false); for [x remembers that p] clearly entails [p], and hence the retention of a token attitude with content p would entail the truth of p. But it is obviously possible to retain false beliefs: the ancient astronomers, for instance, certainly believed for a long time that the Earth is flat and that the planetary orbits are circular.

The conjunction of principles (C) and (M) entails the following result. If a subject x takes a token attitude a, of type m and with content p, at a time t_0 , then x remembers that p at any time t_1 in an interval from t_0 to t_1 only if x does not change her mind about p at t_1 . Now one might be inclined to think that this result does not hold. Indeed, at first sight, it would be possible for some agent to be in a position to remember that p at t_1 and at the same time to change her mind about p at t_1 (where p is the content of a certain token attitude previously taken). However, such an impression is erroneous. In effect, principle (C) assumes rationality, and hence such an assumption must be preserved in the above result. Now suppose that our subject has on a certain occasion (say) a particular belief that p, and that on a later occasion she remembers that p. Then, taking for granted that memory is a form of knowledge, it follows that our subject knows that p is the case; thus, her changing her mind about p on that occasion - e.g. by being agnostic concerning p - would apparently constitute a violation of our requirement that our agent be a rational subject.

3.5 Let me finish this Section by considering the following apparent difficulty for our diachronic principle (DIC). The problem is that perhaps there is a sense in which, by using Definition (R) above in conjunction with certain other additional suppositions, (DIC) could be derived from its synchronic counterpart (SIC)**. This would not be a straightforward derivation. Indeed, in order to

carry it out one would also have, for instance, to drop the assumption about the Grasping-relation from both principles; for, according to (DIC), the grasping of thoughts may occur on distinct occasions. However, even if such a move could be plausibly made, I would not take the emerging result as being necessarily a bad thing. In effect, it could be seen as merely capturing the fact that (DIC) is an *extension* of (SIC)**, approximately in the same sense in which some mathematical results are said to be extensions of certain other results; that is to say, it would only mean that some information about diachronic cases could already be extracted from (SIC)**, or would already be potentially contained in (SIC)**. Thus, it would encapsulate the idea that one could hardly make sense of synchronic cases without tacitly appealing to diachronicity.

SECTION 4 - RETENTION AND DEMONSTRATIVE THOUGHT

In this Section I outline the leading ideas of an explanation of the notion of attitude-retention involved in the diachronic principle (DIC). Some principles are introduced which impose a number of constraints upon the relevant notion of attitude-retention, and in which this notion is explained by reference to a certain set of other notions. Our discussion is centred upon the case of persistence of attitudes with demonstrative contents; for this is undoubtedly the most interesting and challenging case. I examine some consequences of the diachronic principle and I test its adequacy against some of our ordinary intuitions about the identity or distinctness of given demonstrative thoughts.

4.1 The first thing I think it is important to emphasise is that with the help of our diachronic principle one is actually able to discriminate between certain singular thoughts which would remain indiscriminable on the basis of the standard Intuitive Criterion; and I believe that the intuition that such thoughts should be counted as distinct from each other is as appealing as the intuition that thoughts discriminable in the light of the usual synchronic principle are distinct from each other.

To take a familiar example, consider the following situation. Suppose that, on a certain occasion t at dawn and on the basis of his visual perception of a certain celestial body in the eastern sky, Jones sincerely and reflectively asserts 'That is a planet' (pointing to the celestial body in question). And suppose that, on a certain occasion t' at dusk (on the same day), and on the basis of his visual perception of a certain celestial body in the western sky, Jones sincerely and reflectively asserts 'That is not a planet' (pointing to that celestial body, which he takes to be a star). Of course, unbeknownst to Jones,

the celestial bodies seen by him on both occasions are in fact one and the same, viz. the planet Venus.

Now, the standard Intuitive Criterion does not allow us to draw the conclusion that the particular thought believed by Jones at dawn is different from the particular thought disbelieved by him at dusk; the fact that he takes such mutually conflicting attitudes at different times t and t' prevents us from obtaining such a consequence. On the other hand, one could indeed discriminate between the thoughts in question by means of our extended Intuitive Criterion. Naturally, in order to do this one would have to assume that at dusk Jones continues to hold his particular belief that the celestial body he saw at dawn is a planet; that is to say, one would have to assume that Jones retains that particular belief throughout the day. But, on my view, this seems to be a plausible assumption to make with respect to Jones's story (and analogous cases). In particular, one might reasonably suppose that throughout the day Jones does not change his mind concerning the particular content of the belief he formed at t , that since dawn he has not been confronted with any sort of new evidence which might cause him to withdraw his former belief.

I am aware that, on certain views, such a sort of supposition about retention would be regarded with suspicion. For instance, Sidney Shoemaker²⁵ seems to reject the possibility of a subject's having something like a *memory demonstration* of an object perceived in the past, about which she had then a certain belief. Thus, with respect to our example, Shoemaker would perhaps claim that the perceptual demonstrative 'that' which Jones uses at t to express his belief about Venus would necessarily give way to some sort of *description*, e.g. 'The thing I was pointing to at dawn', if he tried to re-express at t' that belief on the basis of memory. And this would not secure retention of belief (in our

²⁵ See his paper 1968, 559.

sense); for 'That is a star' and 'The thing I was pointing to at dawn is a star' would presumably differ in content, and hence whereas at t Jones would be seen as having a certain singular belief about Venus, at t' he would be seen as having a different, descriptive (and maybe general), belief about Venus. In the present essay I endorse the view, a development of which is given in Section 5 in connection with temporal beliefs, that the idea of a memory-based genuinely demonstrative mode of presentation of an object is a plausible one. Hence, it seems to me that there is certainly a sense in which one might intuitively say that the particular belief formed in Jones's mind at t is *still there* at t' ; and that he might be able to re-express it then by thinking 'That was a planet', where 'that' is associated with a memory-based, and non-descriptive, way of thinking of Venus²⁶.

Assuming thus that it is correct to say of Jones that he retains the particular belief he had at dawn throughout the period of time which goes from t to t' , and given that all other conditions stated in the antecedent of (DIC) seem to be fulfilled with respect to Jones's case, one could then use the diachronic principle to establish the result that while at t Jones believes a certain demonstrative thought, at t' he believes the negation of a different demonstrative thought. And such a difference in demonstrative content might be accounted for, in a Fregean fashion, in terms of a difference between the particular perceptual modes of presentation under which Jones is confronted with Venus at dawn and at dusk. Underlying such a difference in *Sinne* is the fact that one might describe Jones as taking the perceptual information he receives at dawn and the perceptual information he receives at dusk as having

²⁶ The view that there is something like an *acquaintance* with objects by *memory* was held by Bertrand Russell in his book 1989 (cf. 26). And the idea of a memory-based type way of thinking of an object (such as a spatio-temporal particular, a time, a place, etc.) is developed in Peacocke 1983 (Chapter 6).

two distinct objects as their sources; of course, Jones would only describe himself in that way if he were in a position to reflect about his own perceptual experiences, and this does not hold with respect to most of our current cognitive transactions with objects in our immediate environment.

4.2 Concerning the notion of change of mind as employed above, it is worth observing that one might be naturally inclined to treat it as a purely internal notion, or as a *cartesian* notion; in the sense that such a notion would apparently satisfy a general principle to the effect that those first-person judgements we make about our mental acts and states are bound to be infallible. Indeed, one might be tempted to think that it does not seem to be possible for a rational subject to be wrong about whether or not she has changed her mind about a certain content, or to be described as being under the illusion of having (or having not) changed her mind about something when in fact such a change of mind has not (or has) taken place. In other words, one might be inclined to regard the following sort of principle as obtaining:

(CM) Necessarily, if a rational subject x thinks that she has (respectively has not) changed her mind about a certain content p at a time t , then x has (respectively has not) changed her mind about p at t .

Nevertheless, however tempting the cartesian conception underlying principle (CM) may be, there are good reasons to reject it and to give up the above construal of the notion of change of mind as being a purely internal notion; hence, there are good reasons to take our notion as involving a certain sort of external (or extra-mental) component.

In effect, it is possible to show that principle (CM) is not immune to a

certain class of counter-examples. And the general pattern under which such counter-examples fall might be given as follows. Suppose that, on a certain occasion t , a certain subject x forms a certain belief to the effect that a certain content p holds. And suppose that, on a certain occasion t' ($t' > t$), x comes to suspend belief about p (or to be agnostic concerning p). Now the possibility of a (rational) subject's *misremembering* certain mental states in which she was, or certain propositional attitudes she took, is certainly a feature of our mental lives. Let us then suppose that, at t' , our subject x misremembers the particular belief she held at t ; imagine, for instance, that x thinks at t' that at t she neither accepted nor rejected p (or that at t she was agnostic concerning p). Therefore, under such circumstances, one would say that x thinks (at t') that she has *not* changed her mind about p . Yet, on the other hand, it is clearly the case that, at t' , she has changed her mind about p ; and this gives us a clear counter-example to half of principle (CM). As to the other half of (CM), viz. the claim that it is impossible for a rational agent to think that she has changed her mind about a given content without having actually changed her mind about it, the same sort of strategy could be used with a view to rendering the claim vulnerable to obvious counter-instances.

In any case, and going back to Jones's story, the fact that (CM) does not in general hold has no significant consequences with respect to our supposition that, at dusk, Jones has not changed his mind about the content of his former belief. For instance, I claim that it would be manifestly incorrect to report Jones's situation in the following kind of way. Although Jones would vehemently deny at t' that he has changed his mind about his previous belief - if we were to question him, he would probably say that he still believes that what he pointed to at dawn is a planet - his utterance at t' must nevertheless be seen as conveying such a change of mind (regardless of Jones's description of his

own doxastic state). Such a sort of account would presumably require that one should regard the thought that Jones believes at t and the thought he disbelieves at t' as being one and the same thought. And this would in turn lead us to something like a general conception of singular thoughts as neo-Russellian propositions, i.e. ordered n -tuples of properties and objects; thus, in our example, the common content of Jones's attitudes at t and t' would be something like the ordered pair of Venus and Planethood.

I do not think that such a line of reasoning could be plausibly developed. It is not that such an account is untenable because it would entail the possibility of a rational thinker's unknowingly changing her mind about something. As noticed, such a possibility is clearly consistent with the above sort of objection to principle (CM); and it only apparently comes into conflict with our ordinary intuitions. The implausibility of the account under consideration is rather due to the manifest implausibility of the crucial premiss used in it, viz. the description of Jones's utterance at t' as representing a change of mind relative to his original belief. In addition to this, such an account relies on general suppositions about singular content which lead to results which are inconsistent either with the standard Intuitive Criterion or with its diachronic extension (e.g. the result that it is possible for a rational subject to believe mutually contradictory propositions on the same occasion or, without changing her mind, on different occasions).

4.3 Incidentally, it might be thought that Jones's case introduces a problem for a Millian account of attitude-ascription. Indeed, such an account is eventually bound to employ some such notion as the notion of *taking a propositional attitude towards a Russellian proposition under a character*

(Kaplan), or *under a guise* (Salmon) or *under a text* (Perry)²⁷. And, in order to block certain absurd descriptions of (apparently) perfectly rational agents as being in fact irrational ones, the Millian theorist will very likely rely on some such general principle as the following one (which one might see as a sort of Millian analogue of the extended Intuitive Criterion of Difference²⁸):

(G) It is not possible for a rational subject to take - at the same time or, without changing her mind, at different times - antagonistic propositional attitudes (e.g. belief and disbelief) towards the same (neo-Russellian) proposition *under the same character, or guise, or text*.

Now it might be tempting to claim that principle (G) is not satisfied in Jones's case on the following grounds. On the one hand, Jones - who is *ex hypothesi* a rational subject - believes at *t* the neo-Russellian proposition consisting of Venus and Planethood under the guise (text, character) 'That is a planet'; on the other, he disbelieves at *t'* precisely the same neo-Russellian proposition under precisely the same guise (text, character).

However, such a claim is unwarranted. It relies on the supposition that the posited Millian entities - characters, texts, guises - are entirely linguistic in nature. Thus, in particular, the alleged character (text, guise) under which Jones believes at *t* the Russellian content <Venus, Planethood> and disbelieves at *t'* the same content, is identified with the *sentence-type* 'That is a planet'. Such an identification is presumably correct with respect to the notion of *text*; but it is arguably not correct with respect to the notion of *character* (and perhaps also with respect to the notion of *guise*). In Kaplan's theory of

²⁷ Kaplan 1988a; Perry 1980; and Salmon 1986.

²⁸ See footnote 14 (Section 1).

indexicality, the character associated with an indexical sentence is a certain constant function whose arguments are possible contexts of use of the sentence and whose values are the propositions expressed by the sentence in such contexts. Accordingly, the character of a sentence-type such as 'That is a planet' does not seem to vary from occasion of use to occasion of use: it is the same function which determines the same value, viz. the above neo-Russellian proposition, for the given contexts of use of the sentence by Jones at *t* and *t'*. On the other hand, characters are also taken as being governed by a rule of compositionality which might be crudely stated thus: the character of a complex expression is a function of the characters of its constituent parts. Hence, the character of our sentence-type 'That is a planet' will *inter alia* depend on the character associated with the demonstrative 'that'. In general, the character of an indexical is a constant function which maps a possible context of use onto the object (if there is such an object) referred to by the indexical in the context; for instance, the character attached to the expression-type 'now' is *grosso modo* given in the rule according to which an utterance of 'now' in a context *c* denotes the time of *c*. But, in the case of a perceptual demonstrative such as 'that', its character can only be regarded as being complete if one takes it in conjunction with a certain *demonstration*, which is invariably attached to the demonstrative in a context of use (where a demonstration is paradigmatically an ostension of a certain object, the *demonstratum*, by the agent of the context). Thus, in the case of demonstratives - in contradistinction to the case of pure indexicals such as 'now' - a mere consideration of the usual parameters which define a possible context of use will not be sufficient to determine an object (if there is such an object) as being the reference of a demonstrative in the context; in order to be able to fix a reference for a demonstrative, as used in a given context, one needs to take it together with the associated demonstration

(in the context in question).

Now one might reasonably take the demonstrations which are associated with Jones's uses of 'that' at *t* and *t'* as being distinct token demonstrations; such demonstrations might be viewed as presenting the same *demonstratum* in different particular ways. Hence, if one takes the character of a demonstrative as necessarily involving a certain accompanying demonstration, then one obtains the result that the character under which Jones believes at *t* the neo-Russellian proposition <Venus, Planethood> is different from the character under which he disbelieves at *t'* the same proposition. Therefore, the Millian theorist could not be said, at least on the basis of the above argument, to have violated a principle (viz. (G)) to which he would probably be committed²⁹.

Nevertheless, there are kinds of case involving indexicals with respect to which it is uncertain whether a Millian account of cognitive value would conform to principle (G). First, it has been claimed³⁰ that situations might be devised in which it would be impossible to discriminate between the token demonstrations associated with uses (on distinct occasions) of the same perceptual demonstrative; and in which a rational agent takes, at different times but without changing her mind, conflicting attitudes towards the same neo-Russellian content. Secondly, cases might apparently be introduced in which a rational subject employs distinct, but co-referential, tokens of the same *pure indexical* in such

²⁹ Of course, it might be replied that such an appeal to demonstrations, taken as ways in which certain *demonstranda* may be perceptually presented to a thinker, would have the effect of bringing Millianism closer to a Fregean account of demonstrative modes of presentation. Yet, I do not think that it would follow from this that Millianism should be seen as a notational variant of a Fregean theory of demonstratives; for Kaplanesque characters and demonstrations are construed as being external to semantic content.

³⁰ In his article 1987, William Taschek draws upon such cases to attack Kaplan's attempt to explain the phenomena of cognitive significance in terms of the notion of character.

a way that she might be seen as holding conflicting attitudes towards the same neo-Russellian content under the *same* character; notice that the character of a pure indexical is exhausted by its linguistic meaning, and this is a feature which is obviously invariant across contexts of use.

Let me concentrate briefly on the latter cases, which I take as being potentially more problematic for Millianism. And let me consider a situation which involves diachronicity but in which, one might suppose, there is no change in the subject's original beliefs. Suppose that, on the 28th October 1989, Jack (a rational person) asserts a token of 'Today is fine' in Oxford at 11:30 p.m.; and that, an hour later, heavy rain happens to pour down so that, looking at his watch, he comes to assert a token of 'Today is not fine'. Unlike Jack, we know that the real time of his latter utterance is in fact 11:30 p.m. and the day still the 28th October: Jack was simply unaware that British Summer Time ended on the 29th October³¹. Hence, it seems that we are entitled to assert that Jack believes and disbelieves, on distinct occasions³², the same neo-Russellian content, viz. the ordered pair of the 28th October 1989 and Fineness, under a single character, viz. the linguistic meaning of the sentence-type 'Today is fine' (the tokens of the pure indexical 'today' having obviously the same character). Thus, supposing that on the later occasion Jack has not changed his former belief, it seems that his story provides us with a counter-example to principle (G). Yet, a possible way out which might be available to the Millian theorist would consist in entering the times of Jack's utterances into the neo-Russellian propositions believed and disbelieved by him on the above occasions; such propositions would now be something like ordered triples of the day in question,

³¹ Assume, for the sake of argument, that the convention in Britain was different and that the clocks go back at midnight instead of at 2:00 a.m.

³² Or should we say at the same time?

Fineness, and a time. As a result, one would rather describe Jack as holding conflicting attitudes on different occasions towards *different* neo-Russellian contents under the same character. But, although no clear violation of principle (G) would thus be forthcoming, one might still say that such attitudes are taken towards the same neo-Russellian propositional *matrix* (to use Salmon's terminology³³) under the same character.

Of course, the Millian theorist could not avail himself of the above sort of manoeuvre when dealing with cases in which synchronicity in attitude-taking is assumed. So the question arises whether or not cases can be constructed in which a single neo-Russellian Indexical content is the object of conflicting attitudes held by a rational subject at a single time and is presented to her under a single character, or under a single guise. Well, I am inclined to think that it is unlikely that Millianism could be dismissed on such a basis. Yet, although the sort of case introduced below does not give us a straightforward affirmative answer to our question, I think that it could hardly be accommodated within a framework of characters or guises. Suppose that on a certain day *d*, at breakfast, Jill thinks 'Today is Christmas Day'; and that at lunch, having kept track of *d*, she thinks again 'Today is Christmas Day'. Suppose further that a few days later, on *d'*, she comes to think at a certain time *t* 'I am sure that *that* day was Christmas Day; but I wonder whether *that* day was Christmas Day', where the thoughts entertained at *t* involve memory-based modes of presentation of *d* which are made available by memory-images of *d* at breakfast and at lunch (respectively). Jill is unsure whether the same day is in question in both cases, and so she holds (at a single time) conflicting attitudes, viz. belief and suspension of belief, towards such thoughts. Now, on the Millian view, these happen to be one and the same neo-Russellian proposition. And it is not obvious

³³ See Salmon 1986, 27-8.

how the notion of character (or the notion of guise) could be applied here so as to secure the result that that proposition is presented to Jill under different characters (or guises).

4.4 Having finished such a digression, let me now go back to the notion of change of mind. As claimed in Section 3³⁴, the notion of an absence of change of mind is entailed by the notion of retention (assuming that we are dealing with rational subjects, and this is a supposition which I shall keep throughout the current Section).

Now it might be interesting to check whether the converse entailment holds. Thus, suppose that at a certain time t a rational thinker, say Ralph, looking at a certain pencil on his desk, asserts 'That pencil was bought at Rymans'. Suppose further that Ralph falls asleep and that meanwhile someone (possibly some philosopher playing the role of a cartesian demon) replaces the pencil in question with a qualitatively identical one (assume that this one was not bought at Rymans). Then he wakes up and at a later time t' , looking at what he naturally takes to be (numerically) the same pencil, asserts again 'That pencil was bought at Rymans'. In this sort of situation it is clearly the case that our subject has not changed his mind at any time in the interval between t and t' concerning the content he believed at t . Yet, there is obviously a sense in which one might be inclined to say that Ralph's utterance at t' does not manifest a persistence of the particular belief he had at t . The reason why one would say that this is so is that there are grounds to think that the particular thoughts believed by Ralph on both occasions are not the same; and it seems plausible to assume that retention of a token propositional attitude throughout time requires in general that its particular content be preserved (I shall come back to this

³⁴ This claim was then represented as Principle (C).

claim soon).

However, one should be cautious in dealing with cases of such a sort. Indeed, although it is reasonable to claim that Ralph's *utterance* at t' does not manifest a persistence of his former belief, it does not follow from this that at t' he has not *retained* that belief at all. In effect, in a certain sense, Ralph's mental state formed at t does not appear to have been interrupted (or terminated), and the particular belief in question might still be there at t' . Assuming that the original pencil is no longer within Ralph's perceptual field at t' , what he is prevented from doing then is to re-express his former belief by assertively uttering, or sincerely assenting to an utterance of, a sentence containing a perceptual demonstrative referring to that object; in non-linguistic terms, one could say that since at t' Ralph does not stand in any perceptual relation to the relevant object, he is prevented from employing then any demonstrative way of thinking of it based on perception. But it would be a *non sequitur* to claim that at t' he is not in a position to retain his previous belief. In fact, I think that it would be intuitively plausible to claim that if at t' Ralph remembers the pencil seen at t as possessing a certain property (viz. that of having been acquired in a certain place), then he will be able to retain at t' his former belief about the pencil by employing a demonstrative way of thinking of it based on memory; and we might perhaps represent such a continuity of Ralph's mental state by saying that at t' he would be prepared to judge a thought such as 'That pencil was bought at Rymans', where the reference of the demonstrative would be secured by a memory (or by a memory-image) of the pencil seen at t . Of course, if at t' Ralph forgets everything about his perceptual encounters with the pencil at t (e.g. as a result of a blow in the head while sleeping), then he will not be then in a position to retain his original belief in the way suggested above; and, at first blush, this seems to be the only

way available by means of which such a retention could be secured. Yet, maybe there is a sense in which one could still regard him - from a third-person perspective - as having not changed his mind about the belief in question, in which case the conclusion could be drawn that, in general, the notion of an absence of change of mind does not entail the notion of attitude-retention. In any case, the preceding reflection surely entitle us to draw a weaker conclusion, viz. the conclusion that, in general, an absence of change of mind does not entail that species of attitude-retention which is carried out by employing demonstrative ways of thinking of objects based on perception.

4.5 The objection might be immediately raised that the foregoing account is question-begging on the following grounds. We want the diachronic principle with a view to being able to discriminate between given thoughts in an apparently more extensive and adequate way. But our principle depends in a crucial manner upon a notion of retention for particular attitudes; and it now turns out that we need some prior notion of preservation of content, or identity of thought throughout time, to make sense of the notion of attitude-retention itself.

It is indeed true that our account is committed to the claim that identity of content over time is required for a subject's retaining at a later time a token attitude previously held. In effect, in Section 3 the notion of retention was defined as follows: a subject x retains a token attitude a , of type m and content p , from a time t_0 to a later time t_1 if and only if a exists at any time t_i such that $t_0 \leq t_i \leq t_1$. And, by the Essentialist Principle introduced in Section 2, the particular content attached to a token attitude existing at a certain time is an essential property of the attitude in question, a property which it necessarily has at any time at which it might exist; therefore, retention of a token attitude

with a certain content throughout a certain period of time entails that at any time in that period the very same content is attached to the attitude in question.

However, I have reasons to believe that the account we have been developing is not really threatened by the above line of criticism.

Let us begin by considering what I would take to be a bad reply. It might be argued that the objection in question would only be effective if we conceded that our account requires a prior notion of preservation of content to *explain* (in part) the notion of attitude-retention. Yet, we do not need to make such a concession at all. In general, not every condition which one might take as necessary for some notion to be satisfied is *ipso facto* a condition which provides us with an *explanation* of the latter notion. For instance, the condition *being at least as rich as* (which holds of certain ordered pairs of people) is surely necessary for the condition *being the same person as* to obtain; however, it would be manifestly absurd to introduce the former notion as (partially) explaining the concept of personal identity. Thus, likewise, our claim that preservation of content is necessary for attitude-retention would not necessarily commit us to construing the latter notion as being (partially) explained in terms of the former.

This would be a bad reply because it would render our account utterly uninteresting from a philosophical point of view. Indeed, what we are aiming at is philosophical explanation; so we are interested in stating, not mere necessary conditions, but constraints on the notion of attitude-retention which explain it. Hence, I think that one should admit that our account of attitude-retention requires in fact a prior notion of persistence of content. However, it does not follow that our explanation is viciously (or uninformatively) circular. In effect, what one seems to have here is a case of *local holism*, i.e. a case in which the

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notions under consideration - attitude-retention and preservation of content - should be taken as being simultaneously introduced into our account, each of them being explained by reference to the other and to a certain set of other notions.

Our account could only be regarded as viciously circular if the notion of identity of content throughout time to which we must make an appeal involves in some way or other the very idea underlying our diachronic principle for the individuation of content. But, at least with respect to Ralph's story and similar cases, it is clear that the notion of content that we are employing when we discriminate between the thought Ralph believes at t and the thought he believes at t' is completely independent of the diachronic principle. Indeed, such a discrimination relies upon a general assumption about mental content which we adopted as a basic one from the outset, viz. the assumption that thoughts are the proper bearers of truth-values; and, if this assumption is taken for granted, then the following minimal principle for the individuation of content will be a logical truth: necessarily, if thoughts p and q are identical then p and q have the same truth-value. Such a principle is clearly sufficient to differentiate between the thoughts entertained by Ralph at t and t' .

But that is an easy kind of case. What should one say about cases, such as e.g. Jones's story, where one is unable to discriminate between thoughts entertained on distinct occasions on the basis of their truth-values? Well, I think that, in general, there appears to be no *a priori* reason to think that the notion of sameness of content required by the notion of retention should necessarily involve some notion of cognitive significance for thoughts such as the one underlying our diachronic criterion. On the other hand, the cases in question suggest that the notion of content one needs in connection with the

diachronic principle is some such notion as Evans's notion of a *dynamic thought*³⁵, i.e. a thought which involves temporally extended ways of thinking of indexically presented objects; in particular, one needs the notion of a *memory-based* thought, i.e. a thought which involves modes of presentation of indexically presented objects which are made available by memories, or memory-images, of the objects.

4.6 I have claimed that preservation of content believed, judged, desired, and so forth, should be viewed as a necessary condition for persistence of belief, judgement, desire, and so forth. In his article 'A Problem About Continued Belief'³⁶, John Perry considers the question of whether such a claim is true and, though leaving this question unresolved, he discusses a case which might *prima facie* direct us towards a negative answer.

I take it to be instructive to examine such a case from the viewpoint of our account of retention. Perry's example (slightly modified) is as follows. Suppose that I go for a walk in the Oxford University Parks, and that throughout the walk I keep thinking to myself 'This is University property'. Suppose further that, unbeknownst to me, I leave and re-enter the Parks several times in the course of my walk: I just do not pay attention to the various signs marking the limits of the Parks. On the one hand, it should be obvious that in this sort of situation the content judged by me changes as I move in and out of the University Parks: conspicuous differences in truth-value are enough to convince us of this. On the other hand, one might be apparently tempted to say that throughout the walk I continue to make the same judgement, or that throughout the walk I continue to judge the same thing (although what

³⁵ Evans 1981, 311.

³⁶ Perry 1980, 323.

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I judge changes truth-value). So it seems that, after all, preservation of content is not required for retention.

Nonetheless, what I believe to be the right sort of thing to say concerning such a case is this: throughout the walk, and as I move in and out of the Parks area, I am in fact making different particular judgements (although I am unaware of this, of course). That is to say, every time I leave (or re-enter) the University Parks and judge 'This is University property' I am actually forming a new particular judgement. Thus, what I claim is that - contrary to appearances - no re-expression of judgement is taking place in such a sort of situation. But the following query might then be naturally raised. Why is it that one is so inclined to hold - perhaps on pre-philosophical grounds (as suggested by Perry) - that there is some kind of persistence of judgement going on? Well, I think that the example discussed contains two ingredients which might perhaps induce on us such an impression of continuity of attitude. On the one side, the (different) particular contents judged by me on distinct occasions during the walk (e.g. when I am out of the Parks area and then when I re-enter the Parks) may be said to belong to the same type of content, in the sense that on both occasions I am thinking of a certain place in the same (demonstrative) sort of way (the 'this'-type of way of thinking) and I am ascribing the same property to such a place (though different places are in fact thought about on those occasions). On the other side, a significant feature of the situation described is that throughout the walk it seems to the thinker (i.e. myself) that he is judging the very same particular content all the time (assuming that the thinker is self-reflective). And those people who feel tempted to describe my position as that of someone who has been re-expressing a particular judgement for a certain period of time are likely to do so on the basis of some pre-theoretical conception of retention as something which is wholly internal to the subject, something

which may not be dependent upon any contingent features of the subject's environment.

Now I do not wish to deny that retention of particular attitudes over time involves some sort of internal continuity. Yet, as we have seen, such a continuity is not adequately represented in the idea that the notion of an absence of change of mind, which is undoubtedly entailed by the notion of retention, should be taken as a purely internal notion. Thus, I tentatively propose the following principle as being appropriate to capture the sort of interior continuity which seems to be present in cases such as the one discussed above:

(S) Necessarily, if an agent x retains a certain token attitude, with a certain content and belonging to a certain type, throughout an interval of time from t_0 to t_n , then for any time t_i in the interval it does not seem to x at t_i that x is not taking the attitude towards the same content (e.g. it does not seem to x at t_i that x is not believing, desiring, judging, etc., the same thing).³⁷

Nevertheless, the condition just stated is far from being sufficient for attitude-retention, as it ought to be in order to warrant the "internalist" conception of retention referred to above. In effect, I maintain that cases of the sort exemplified by my story In the Parks and by Ralph's story mentioned earlier on force upon us the general conclusion that attitude-retention is not a

³⁷In formulating principle (S) one might have employed the positive construction 'it seems to x at t_i that x is taking the attitude towards the same content'. The problem is that this would require, on the one hand, that the concept of the attitude in question (e.g. the concept of belief) is part of our agent's conceptual repertoire, and that she is in a position to reflect about her own mental states, on the other. By contrast, such requirements are not involved in the negative construction used in the text.

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purely internal notion. And such a result is to be taken in the following sense: It is possible for a (rational) agent to think that she has retained at a later time a particular propositional attitude previously held, or to think that on such an occasion she continues to have the attitude towards the same content, while as a matter of fact at the time in question she has not retained that attitude, or she no longer continues to have the attitude towards the same content. Consequently, our account of retention allows the possibility that a subject be wrong about whether or not she has retained on a certain occasion a certain particular attitude she formerly took, or about whether or not on that occasion she continues to believe, desire, etc., the same thing. There is undoubtedly a distinction to be made between cases in which attitude-retention is successful and cases in which it is not; and, in general, one should not credit the subject with infallible knowledge about whether or not she has (successfully) retained a certain propositional attitude.

Moreover, I would propose the following as a crude explanation of why in the envisaged cases a re-expression of an attitude would seem (to the thinker) to have been accomplished (for convenience, I assume that our thinker is a self-reflective one). Throughout my walk in the Parks it would seem to me that I have re-expressed a particular judgement because - or, better, partly because - I keep thinking that I am judging the same particular content. And it would seem to me that I am judging the same thing all the time (partly) because throughout the walk I (wrongly) think that I have (successfully) kept track of a certain place, viz. the University Parks area, as I move around. Analogously, it would seem to Ralph that he has re-expressed at the later time t' his former belief held at t (partly) because he thinks that at t' he is believing the same particular content. And it would seem to him that he is then believing the same thing (partly) because he (wrongly) thinks that he has (successfully) kept track

of a certain object, viz. the pencil on his desk, from t to t' .

4.7 The above considerations suggest that, at least in the case of attitudes with demonstrative contents, another kind of internal continuity which is involved in (a certain sort of) retention of a token attitude from one occasion to another consists in a continued exercise - on the part of the subject of the attitude - of an ability to keep track of an object over time and/or space³⁸ (and this may require, as it does in my story, that the subject keep track of his own position in space as he moves around). It is important to emphasize that the condition stated is not to be taken as a condition imposed on attitude-retention *tout court*, but only on that particular species of attitude-retention in which given agents re-express propositional attitudes formerly held by means of perceptual demonstratives (i.e. expressions such as 'this' and 'that', 'here', 'there' and 'over there', 'he' and 'you', etc., taken in certain uses). At the level of thought, one might express this by saying that the condition in question only holds with respect to cases where a subject retains an attitude previously taken towards a certain demonstrative content by employing a type of way of thinking of an object based on perception³⁹. Let us call this particular sort of attitude-retention *perception-based retention* (in short, *P-retention*). Clearly, P-retention

³⁸The general idea is due to Evans and is expounded in his article 1980. A more recent and very interesting development may be found in John Campbell's paper 1987/1988.

³⁹ The reason why the condition should not be seen as holding with respect to the notion of attitude-retention in general is that, as pointed out before, one should make room for the possibility of a subject's retaining on a later occasion and on the basis of *memory* a token attitude previously taken towards a demonstrative content on the basis of perception. On the other hand, the notion of *perception-based retention* just sketched should have to be tightened up; the reason is that certain non-intended cases, particularly those involving recognition-based ways of thinking of perceptually presented items, turn out to be covered by it. I ignore the complication here.

hold. In effect, one may succeed in keeping track of an object for a certain period of time and yet not P-retain a propositional attitude previously taken; for there is always the possibility that meanwhile one has changed one's mind concerning the content of that attitude. Thus, consider the following case. At a certain time t Bernard, looking at a suitcase in his room and considering its size, asserts 'It is heavy'. Then he moves around and at a later time t' , looking at the same suitcase and forming a mental picture of its content, assertively says 'I wonder whether it is heavy'. Finally, at a still later time t'' , and after trying to lift the suitcase, Bernard comes to assert 'It is heavy'. It is clear - or at least one might suppose - that in this sort of situation our subject has (successfully) kept track of an object (the suitcase) from t to t'' (and from sensory modality to sensory modality). Yet, I guess it would be wrong to describe Bernard as having P-retained at t'' the particular belief he had at t . Although Bernard's assertion at t'' gives voice to a token belief which has exactly the same particular content (one may safely assume) as the token belief he held at t , that assertion should not be seen as manifesting a persistence of his former belief; for meanwhile, at t' , he has undoubtedly changed his mind by suspending judgement concerning the content of such a belief. And if at t'' our subject has not retained *tout court* his previous belief then he has not P-retained it either.

Another general result one could extract from the above sort of example is that preservation of content is not a sufficient condition for attitude-retention (as one would expect it not to be). As we have seen, the particular thought believed by Bernard at t is presumably the same as the particular thought he believes at t'' (at least one could not discriminate between such thoughts on the basis of something like the minimal principle of individuation stated earlier on). Yet, there is no retention of belief going on here.

Notice further that one could not be in a position to apply the diachronic principle to Bernard's case in order to obtain the patently absurd result that the thought he believes at t is distinct from the one concerning which he suspends judgement at t' (such a result would obviously constitute a *reductio* of our principle (DIC)). Thus, although the token attitudes Bernard forms at t and t' may be said to belong to antagonistic types, it is clear that the condition about retention stated in (DIC) is not satisfied with respect to Bernard's story; for the fact that at t' Bernard changes his mind about the content of the particular belief he had at t - and he clearly takes the objects thought about on both occasions as being one and the same - is sufficient to show that such a belief has not been retained (it is deliberately interrupted at t').

4.8 I turn now my attention to a certain class of cases which are worth examining in the light of our diachronic principle, especially when one tries to figure out what sort of consequence could be drawn from a possible application of the principle to such cases.

I shall take the following situation as representative of the envisaged class of cases. Suppose that Mary is attending a party and on a certain occasion (say at t), looking at a certain man in the room, she says 'He is a brilliant chess player' (believing it). Then she moves around and a little while later (say at t'), looking at apparently the same man, she says 'He is not a brilliant chess player' (also believing it). Now suppose that supporting Mary's latter assertion is the well-known fact that the man in question (who is indeed very good at chess) has a twin brother (who happens to be very bad at chess), and they both have the habit of amusing themselves at deceiving other people at parties by taking the place of one another. Yet, unbeknownst to Mary, what actually goes on is that this time such a replacement has not occurred so that on the later occasion

the man she is looking at is still the talented chess player.

The problem I would like to take up is whether an application of the proposed diachronic principle to such a sort of case would yield the result that the particular thought believed by Mary at t should be distinguished from the particular thought she disbelieves at t' . Notice that *prima facie* there are grounds to think that such a consequence would be forthcoming. First, Mary's particular propositional attitudes at t and t' exemplify mutually conflicting attitude-types. Secondly, one might perhaps say that at t' Mary has retained her former belief (held at t) that the man she looked at is a brilliant chess player. Indeed, there appears to be no sense in which Mary might be described as having changed her mind concerning the content she believed at t . And, on the other hand, it seems that in fact Mary has kept track of the man thought about from t to t' (though she wrongly thinks that meanwhile she has lost track of him). Thus, it looks as though continuity of belief is secured in this case, and hence nothing prevents us from getting the conclusion above mentioned by means of the diachronic principle.

Such a conclusion is surely not an absurd one: our subject would picture herself as having been perceptually presented with two distinct people, and one could presumably exploit this fact with a view to construing the particular contents believed and disbelieved by her as involving different (perceptual) modes of presentation of what turns out to be the same individual.

Nevertheless, there are also reasons to believe that our diachronic principle would not enable us to establish the distinctness of those thoughts; and so a different sort of consideration would have to be employed if one still wished to stick to such a result. Thus, consider the following argument to that effect. Contrary to what has been suggested above, it is reasonable to maintain that the condition about attitude-retention is not satisfied with respect to Mary's

story. I have claimed before that the notion of keeping track of an object is not purely internal, where such a claim should be read as follows: it is not the case that, necessarily, if a subject thinks that she has kept track of a given object from one occasion to another then she has kept track of the object throughout the period of time in question. But it does not follow that our notion should be taken as lacking any sort of internal component. In effect, I am inclined to think that the converse of the conditional just stated holds; that is to say, the following principle should be seen as obtaining:

(T) Necessarily, if a reflective subject has kept track of a given object for a certain period of time then throughout such a period it must seem to her that she has kept track of the object in question.

Now the consequent of principle (T) turns out to be false with respect to Mary's case: clearly, she does not think that she has kept track of the brilliant chess player from t to t' . Therefore, assuming that principle (T) is sound and taking it in conjunction with Principle (K), one gets the conclusion that at t' Mary has not P-retained the particular belief she formed at t . Hence, it seems that no consequence concerning the identity or distinctness of the demonstrative contents believed and disbelieved by her at t and t' (respectively) would be available in the light of the diachronic principle; of course, this would still leave the way open to discriminate between those contents on a different basis, or to hold the view that at t' Mary is not actually entertaining any thought at all (on the grounds that at t' she has lost track of the man thought about at t).

However, the argument just outlined contains a fallacious step. In order to be applicable our diachronic principle requires indeed that a subject retain on later occasions the token attitudes formerly held. But, as claimed before, from

the fact that at t' Mary has not *P-retained* her previous belief about the chess player it does not follow that at t' she has not retained *tout court* such a belief. Moreover, there are reasons to think that such a retention might still hold in Mary's case. It seems plausible to say that Mary's original belief, to the effect that the man seen at t is a brilliant chess player, is not interrupted at any time in the interval from t to t' . Of course, at t' Mary comes to disbelieve that the man she sees *then* has such a property; but that does not generate any interruption of her former belief. Thus, the idea that, even though the man the belief held at t is about is no longer perceptually accessible to Mary at t' , she might still retain then such a belief, seems to be an intuitively plausible idea. And one might claim that Mary would be able to retain at t' her previous belief by means of a memory of the person seen earlier on as possessing a certain quality. In other words, the claim would be to the effect that if Mary remembers at t' that the man she saw at t is a brilliant chess player, then one is entitled to say that at t' she continues to hold her former belief⁴¹. Mary's demonstrative belief at t , a belief based on a visual perception of the person thought about, could be in this way regarded as being readjusted at t' into a belief based on a memory demonstration of that person; and one might perhaps adopt a causal account of memory to explain why the thought retained at t' is a thought about the person in question (and not about someone else): it is a thought about that person because such a person is the origin of a causal chain which leads to Mary's memory.

Now if the preceding reflection is along the right lines then our diachronic principle might after all be used to obtain the conclusion that the content of Mary's belief at t and the content of her disbelief at t' should be

⁴¹The claim that propositional memory entails attitude-retention was advanced as principle (M) at the end of Section 3.

construed as being distinct particular thoughts (a result which we have already taken as being plausible).

4.9 Let us briefly consider now another kind of case, a case which might apparently provide us with a counter-example to our diachronic principle (DIC). Suppose that, on the basis of a certain amount of information about the conflict in the Gulf gathered from the media, I come to believe on the 20th December 1990 that Saddam Hussein will be overthrown by the 15th January 1991. And suppose that two days later - on the basis of precisely the same information, which I now evaluate in a different way - I come to doubt that Saddam Hussein will be overthrown by the 15th January 1991. Could one use (DIC) to infer that the thought I believe on the 20th December is not the same as the one I doubt on the 22nd December? If so then this would have to be viewed as a *reductio* of our principle, since it would be manifestly wrong to discern any difference in content here.

However, the presented situation does not constitute a genuine counter-example to (DIC); for it is intuitively evident that one could not speak of attitude-retention with respect to such a case. Indeed, on the 22nd I have undoubtedly changed my mind about the content of the belief I had on the 20th, although such a change of mind is not caused by my considering a piece of evidence hitherto unavailable. What this suggests is that the notion of a change of mind concerning a given content *p* should be seen as involving not only the subject's coming across new evidence which she takes as undermining *p*, but also the subject's giving a different weight to the same evidence, i.e. to evidence he already possesses.

4.10 Finally, I want to re-examine Jones's case - introduced at the beginning

of this Section and involving his visual encounters with the Morning Star and the Evening Star - in the light of the preceding discussion about attitude-retention. Earlier on I made the claim that when Jones (pointing to Venus) asserts 'That is not a planet' at dusk we may assume that on such an occasion he still believes that the heavenly body he pointed to at dawn is a planet; i.e., we may assume that Jones has retained this particular belief from dawn to dusk.

I would like to raise the following issue concerning the supposition that attitude-retention is secured in Jones's case (and in similar cases). The problem is whether or not such an assumption is consistent with the requirement on attitude-retention expressed in our principle (K). In other words, the problem is whether it would be plausible to argue that since Jones has not kept track of Venus from dawn to dusk, he might not be said (according to the above principle) to have retained at dusk the belief held at dawn. If this were right then one could not be in a position to obtain - by means of the diachronic principle - the (intuitively acceptable) result that the thoughts believed and disbelieved by Jones at dawn and dusk (respectively) are distinct from each other; hence, it seems that the range of application of our principle is in fact narrower than one would wish: it does not discriminate between contents where it should.

However, if principle (K) were taken as being applicable to Jones's story then the conclusion one would be entitled to derive is only that Jones has not P-retained at dusk his previous belief; and, again, it does not follow from this that he has not retained then such a belief. Therefore, our treatment of cases of such a sort is clearly consistent with principle (K). On the other hand, one might perhaps hold the view that the notion of keeping track of an object which is required by Principle (K) is simply inapplicable to Jones's case. One might concede that there is presumably a sense in which one could say that it would

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be possible for a subject (located on Earth) to keep track of an object such as the planet Venus from dawn to dusk (as it and Earth orbit the Sun and revolve around their axis). But this would be a highly sophisticated conceptual skill, a skill which would involve a great deal of astronomical knowledge and the employment of rather complex methods of observation and calculation. It is definitely not something one would be able to do by means of ordinary perception; actually, one would not even be able to do it by means of augmented perception (backed up by auxiliary devices such as telescopes, etc.). Thus, even granting that the notion of tracking has such a (surely very special) sense, it is obviously not the sense one intends when one employs the notion in connection with Principle (K). In effect, what is meant here is a much more basic (non-conceptual) skill, an ability we exercise all the time in our ordinary transactions (visual, tactual, aural, etc.) with objects in our surroundings. Hence, one might maintain that it does not make sense to apply the relevant notion of keeping track of an object over time to such a sort of case, in which case even the conclusion that at dusk Jones has not P-retained his former belief would not be available on the basis of principle (K).

SECTION 5 – THE PROBLEM OF COGNITIVE DYNAMICS

This closing Section is devoted to a concise examination of the interesting topic of Cognitive Dynamics as it has been introduced by David Kaplan in his seminal essay 'Demonstratives'⁴². Having in mind the central theme of the present essay, I focus once more upon two different sorts of approach to Cognitive Dynamics, viz. the Millian account proposed by Kaplan and others and the neo-Fregean account proposed by Evans and others. The ensuing discussion should be seen as a continuation of the reflection undertaken in Chapter III when we dealt with certain "notational variance" claims in connection with the issue of indexical reference; and the upshot is not, in this respect, different from the sort of result we have obtained before: the claims in question should also be regarded as unwarranted in the area of Cognitive Dynamics.

5.1 Cognitive Dynamics is in essence the study of attitude-retention. It is thus a discipline concerned with the conditions under which propositional attitudes can be said to persist over time. Propositional attitudes have been here assumed to be certain relational mental states which hold between given agents, on the one hand, and thoughts or propositions, on the other. The latter are said to be the *contents* of the attitudes and, especially in the case of attitudes which have singular thoughts as their contents, we have been developing a view on which questions concerning the conditions under which such attitudes might be retained are not, in general, independent of questions about how such thoughts are to be construed and individuated; one of the directions of such a link can be appreciated from the way we have formulated our diachronic principle of Individuation for contents.

⁴² D.Kaplan 1988a (especially 537-8).

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Let me introduce what might perhaps be seen as the most challenging and delicate issue of Cognitive Dynamics. As formulated by Kaplan, the problem is mainly related to the phenomena of retention and change in those propositional attitudes which have indexical thoughts as their contents, i.e. thoughts which might be expressed by utterances (in given contexts) of sentences containing at least one occurrence of an indexical expression. It is assumed that attitudes with non-indexical contents, e.g. my fear that planes are likely to crash during take-offs, do not present any serious difficulties. And the species of indexicality whose investigation appears to be more interesting - relative to the issue under consideration - are mainly those which are given in temporal indexical thoughts (indexical thoughts about particular times), spatial indexical thoughts (indexical thoughts about particular places), and perception-dependent indexical thoughts (indexical thoughts about spatio-temporal particulars demonstratively identified by means of the several sensory modalities).

Accordingly, let us restrict ourselves to cases where one is dealing with indexical contents, especially those of the above sorts. Such cases are problematic and worth investigating because they often involve what might be called a realignment in the linguistic means of expression of an indexical thought - on the part of a given thinker - as time goes by. In other words, there are situations in which the verbal expression of an indexical thought entertained by a thinker at a certain time must, at a later time, be readjusted in a certain way by the thinker in order for the thought in question to be then entertained; so that one could presumably say that a certain particular attitude taken at the earlier time towards the thought in question has been retained by the thinker at the later time (the very same thought being the object of the attitude on both occasions).

Naturally, such readjustments are to be thought of as being operated in

the linguistic means employed for the expression of the thoughts; in effect, it does not make much sense - at least in the light of the general conception of content we have been assuming - to think of the thoughts, or of the propositions, as being themselves subjected to any sort of change or realignment. As we shall see, the problem is that certain linguistic means which *prima facie* suggest themselves as appropriate to the effect do not seem to capture, at least according to some views, certain apparently intuitive facts about the cognitive structure of a given thinker.

A general formulation of the problem with which I shall be mainly concerned here, and which I label *the central problem of Cognitive Dynamics*, might be given as follows. Suppose that at a certain time t a given subject x holds a particular belief b with content p , where p is a singular thought containing at least one indexical ingredient. For example, suppose that, at t , x sincerely and assertively utters (or assents to) a token of a sentence-type S containing some indexical expression i and expressing (with respect to the context of use) the thought that p . We are then invited to consider the following questions. Under what circumstances should we say that, at a later time t' , x has retained her particular belief b ? And this question, taken as a question in *philosophical logic* (and that is how I shall take it), is to be intended in the following sense. What sentence or sentences (if any) S' - presumably containing some indexical expression $i' \neq i$ - must x be disposed to assent to (or to assert) at t' so that we would be entitled to say that her particular belief b has been retained at t' ? Obviously, a natural (and minimal) requirement one should make here is that S' must have the same content as S , i.e. it must have the thought that p as its content (relative to the context of use); indeed, as argued in Section 4, identity of content over time is to be taken as necessary for attitude-retention.

And the related question would be the following one. Under what sort of conditions should we say that, at t' , x has not retained her former belief b and has (for instance) changed her mind with respect to (the content of) such a belief? That is to say, what sentence or sentences (if any) S' must x be disposed to assent to (or to dissent from) at t' so that one could say that she no longer holds at that time her belief b ? As to this question, one should notice at once that there could be several ways by means of which one could say that, at t' , x has changed her mind about her original belief. For instance, she could at t' suspend judgement about the content p of b , by neither believing p nor believing the negation of p . Or she could at t' disbelieve the content p of b , which would be (we might assume) tantamount to believing the negation of p . Or she could find herself at t' in a position in which she simply does not believe p at all (or fails to believe that p). In all these cases one would say that x has not retained at t' the particular belief b she held at t ; for in all such cases she takes towards p at t' an attitude which is in some way antagonistic to the one she took towards the same thought at t . (Of course, all that has been said about belief could be easily extended to the other attitudes).

Let me illustrate this by considering the following sort of case; I focus again on cases involving temporal thoughts, resuming thus the discussion initiated in Chapter III. Suppose that, at a certain time t , I sincerely and assertively utter (or assent to) a token of the sentence-type

(1) This room is hot now.

One would then say that at t I hold a particular belief about the temperature in the room where I happen to be at t . Now what sentence (or sentences) should I be prepared to assert (or to assent to) at a later time t' , say three minutes later, in order to retain the particular belief I formed at t ? How should I readjust at t' the thought - relative to its verbal expression, of course - I

entertained and believed at t ? Well, assuming that at t' I am still in the same room, a natural candidate would be (a token of) the sentence(-type)

(2) This room was hot three minutes ago;

or, allowing for a certain degree of vagueness, perhaps (a token of) the sentence(-type)

(3) This room was hot a moment ago.

To take another example, consider once more the 'today'/'yesterday' case. Suppose that on a certain day, say d , Jones says

(4) Today is fine,

and believes it. What sentence (or sentences) should he be disposed to assert (or to accept) on the following day, $d+1$, so that one could say that he has then retained his belief about the weather on d ? Again, a plausible choice would apparently be given in the sentence

(5) Yesterday was fine.

(And analogous questions might be naturally raised with respect to sentences containing other categories of indexicals, such as spatial indexicals or perceptual demonstratives).

5.2 For convenience, let us call the above - *prima facie* intuitively sound - claim to the effect that sentences such as (2) (or (3)) and (5), taken with respect to the envisaged contexts, constitute choices which are appropriate for attitude-retention the **Natural Realignment Claim**. It is important to begin our reflection by noticing that such a claim might be given the following two different readings. Take Jones's case, for instance. On the one hand, it might be held that Jones may be said to have retained on $d+1$ the particular belief he held on d (by accepting then (4)) *only if* he would be disposed to accept (5) on $d+1$. That is to say, the claim is that a disposition to accept (a token of) the

sentence in question on the later occasion is *necessary* for retention (or re-expression) of the belief had on the earlier occasion. Of course, it is assumed - and I shall keep this assumption throughout our coming discussion - that Jones is an articulate speaker of English eager to give voice to his beliefs; otherwise such a claim would be manifestly false. On the other hand, it might be held that Jones's disposition to accept (5) on $d+1$ is *sufficient* for retention of the belief he held on d (by accepting then (4)). For simplicity of exposition, I shall refer to those two distinct versions of the Natural Realignment Claim as the *Necessity Claim* and the *Unqualified Sufficiency Claim* (respectively).

Now I argue below towards the conclusion that the *Unqualified Sufficiency Claim* is unsound, i.e. towards the result that e.g. Jones's disposition to accept (5) on $d+1$ is not sufficient for belief-retention. And from such an argument a different and stronger claim will emerge, viz. the claim that such a disposition - taken in conjunction with a certain set of additional suppositions - is sufficient for belief-retention. Let us call this claim the *Qualified Sufficiency Claim*.

With a view to identifying the supplementary suppositions required by the *Qualified Sufficiency Claim*, let us then see why the *Unqualified Sufficiency Claim* does not hold, e.g. why Jones's propensity to accept (5) on $d+1$ is not - taken *per se* - sufficient for belief-retention. In what follows I mention three different ways by means of which such an insufficiency could be displayed.

First, suppose that on $d+1$ - e.g. as a result of a blow in the head - Jones forgets everything about the preceding day (what the weather was like, etc.). Suppose further that on $d+1$ - being aware of Jones's condition - a reliable friend gives him some information about d , including the information that it was a fine day (and assume that this was indeed the case); and suppose that Jones accepts this testimony without any reluctance. Then one might surely conclude that on $d+1$ Jones would be disposed to assert (or to assent to) a

token of (5). Yet, under such circumstances, one would hardly say that he has retained on $d+1$ the particular belief he held on d (by accepting then (4)). In order to secure belief-retention Jones's disposition to accept (5) on $d+1$ must be causally connected in some way or other with his acceptance of (4) on d ; indeed, one would have to say that he is disposed to accept (5) on $d+1$ *because* he accepted (4) on d (or that he believes today - i.e. $d+1$ - that yesterday - i.e. d - was fine *because* he believed yesterday that yesterday was fine). And in the above sort of circumstance such a causal connection - which, as the case suggests, may be guaranteed by memory - is clearly absent.

Another way of establishing the same point - i.e. the unsoundness of the Unqualified Sufficiency Claim - might be given as follows. Suppose that Jones asserts (or assents to) a token of (4) at 11:58 p.m. on d , and that three minutes later, being unaware that midnight has already passed, he comes to accept (a token of) (5). Of course, under such circumstances, with 'yesterday' he intends to refer to $d-1$, a day on which - he remembers (let us suppose) - the weather was also fine (and one might also assume that he correctly remembers the weather on d). So it seems that Jones accepts (5) on $d+1$ (though he would reject such a description of his situation). However, it is obvious that one could not claim that he has thereby retained (or re-expressed) the belief he held on d ; at most, and even this is rather problematic, one could perhaps claim that he has thereby retained a certain belief held on $d-1$ about the weather on that day. Again, there is some sort of causal connection which appears to be required for attitude-retention and which is missing here: in the envisioned situation one would not say that Jones accepts (5) on $d+1$ *in virtue of* his previous acceptance of (4) on d . Now in Section 4 we subscribed to the principle according to which, necessarily, if a subject retains a certain attitude for a certain period of time then throughout the period in question she thinks that she is having the same

attitude towards the same content (or, at least, she does not think that she is not having the same attitude towards the same content). And this kind of internal continuity is not present in the above sort of case. When Jones comes to accept (5) on $d+1$ it certainly does not seem to him that he is believing then the same thing he believed on d when he accepted (4); and, in particular, it certainly does not seem to him that he accepts (5) on $d+1$ because he accepted (4) on d (for the simple reason that it does not seem to him that he accepts (5) on $d+1$ at all). One might add that Jones thinks that he is believing a different thing - when he accepts (5) - in virtue of the fact that he thinks that he has correctly kept track of time, whereas in fact he has mistracked the days; thus, the case suggests that a continued exercise of an ability to keep track of an object (viz. a day) as time passes may also provide us with a causal connection of the kind needed for attitude-retention.

Recall that, in the preceding Section, an exercised ability to track an object over time and/or space was in general taken as necessary for what we called then *P-retention*, i.e. for a subject's re-expressing by means of perceptual demonstratives token attitudes previously taken towards perception-dependent thoughts (e.g. perceptual beliefs). This claim was then represented as principle (K); and what the foregoing considerations suggest is a certain extension of principle (K) to cases of attitude-retention in which given subjects are able to re-express by means of temporal indexicals (e.g. 'yesterday' and 'a moment ago') token attitudes formerly held towards temporal indexical thoughts (e.g. temporal beliefs involving 'today'-thoughts or 'now'-thoughts). Let us refer to such a sort of attitude-retention as *T-retention*. Then one might formulate as follows the envisaged temporal analogue of principle (K). Let r be a temporal indexical thought about a certain time u . Then the following holds:

(K)* Necessarily, if a subject x T-retains a token attitude a , of type m and content r , throughout an interval of time from t_0 to t_1 , then x keeps track of u from t_0 to t_1 .

Thus, for instance, in order for Jones to be able to T-retain on $d+1$ - or to re-express on $d+1$ by using a temporal indexical - the particular belief he held on d about d (by accepting then a token of (4)), he must keep track of d from d to $d+1$. And an analogue of principle (K) could also be formulated to cover cases in which a subject re-expresses by means of spatial indexicals (e.g. 'here') token attitudes formerly taken towards spatial indexical thoughts (e.g. spatial beliefs involving 'there'-thoughts).

Finally, a third way of displaying the inadequacy of the Unqualified Sufficiency Claim is this. One might imagine a situation in which our subject Jones simply changes his mind on a certain occasion between his acceptance of (4) on d and his acceptance of (5) on $d+1$. Suppose that Jones accepts (4) at some time t during the afternoon of d , and that in the evening of d the weather gets temporarily pretty miserable so that at t' he comes to doubt that the weather is fine on d . Then at some time t'' on $d+1$, after having given some reflection to the topic of the weather on the preceding day, he ends up accepting (5). One may assume that at t'' Jones remembers what the weather was like on d and that he has successfully kept track of the days from t to t'' . However, I guess that in such circumstances one would not be entitled to say that Jones has retained at t'' the particular belief he formed at t , or that this belief persists throughout the period which goes from t to t'' . (Maybe there is a sense in which one could say that such a belief is *resumed* at t'' ; at least such a description would not be inconsistent with any of the general principles making up the minimal account of token attitudes proposed in Section 2).

From the above sort of consideration one could extract the following general conclusion with respect to the 'today'/'yesterday' case; and parallel results would surely hold for other pairs of temporal indexicals such as e.g. 'now'/'three minutes ago' and spatial indexicals such as e.g. 'here'/'there'. Given an acceptance of a token of (4) on a day d , a subject's disposition to accept a token of (5) on $d+1$ would not by itself guarantee the persistence of the belief held on d . The reason is that at least one of the following conditions might not be satisfied: (i)- the subject remembers the weather on d ; (ii)- he keeps track of the days from d to $d+1$; (iii)- he does not change his mind about his earlier belief. Therefore, what I take to be the Qualified Sufficiency Claim might now be given the following formulation: the conjunction of the above sort of disposition with such conditions as (i), (ii) and (iii) would be sufficient for attitude-retention.

Now the questions I would like to address in the remainder of the present Section are these. Is the Natural Realignment Claim - construed as the Qualified Sufficiency Claim - a sound claim? And is the Natural Realignment Claim - construed as the Necessity Claim - a sound claim?

5.3 Let us begin by considering the latter question. It is worth observing that the Necessity Claim - i.e. the claim that, given an acceptance of a token of (4) on d , a propensity to accept a token of (5) on $d+1$ would be necessary to retain then the belief held on d - would presumably be in general subscribed to, though on disparate grounds, either by an advocate of (certain versions of) a directly referential account of indexical content (such as e.g. Perry) or by an advocate of (certain versions of) a neo-Fregean account (such as e.g. Evans). Indeed, under normal circumstances, by being disposed to accept (5) on $d+1$ our subject would be regarded on either view as retaining the particular content

believed on d ; and retention of content believed is, as we have claimed, required for retention of belief. And both accounts might be seen as yielding the result that an utterance of (5) on $d+1$ should be assigned the same content, or would express the same proposition, as an utterance of (4) on d (with respect to the envisaged contexts of use); in spite of the fact that the premisses employed to reach such a conclusion would be - as shown below - substantially different in each case.

The direct reference theorist would construe the common content in question as being the neo-Russellian proposition consisting of the day d itself and the property of Fineness. And he would perhaps add the remark that on d that proposition is believed by Jones under the *character* (Kaplan) or *role* (Perry) of the sentence-type 'today is fine', the character or role of the word-type 'today' being roughly given in the following sort of rule of reference: an utterance of 'today' refers to the day on which the utterance is produced; whereas on $d+1$ that proposition would be believed by Jones under a new character or role, viz. that of the sentence-type 'yesterday was fine', the character or role of the word-type 'yesterday' being roughly given in the following sort of rule of reference: an utterance of 'yesterday' refers to the day which immediately precedes the day on which the utterance is made. But, since on the view in question a character (or a role) is never a part of propositional content (rather, it determines propositional content from a given context of utterance), Jones would be said to believe the same content on both occasions. Of course, the sort of preservation of content envisaged by the direct reference theorist falls short of providing us with the kind of internal continuity noticed before and apparently required for belief-retention; in effect, neo-Russellian propositions are by definition something which is wholly external to their thinkers or believers. And, on the other hand, it is unlikely that the notion of

character (or role) could be used so as to provide us with such a continuity. Thus, on $d+1$ Jones believes the same content under a *different* character, and it is unclear what relation should obtain between the old and the new character so that it could yield the sort of internal (or causal) connection necessary for attitude-retention⁴³. Hence, lacking the appropriate kind of conceptual apparatus (at least at the strictly semantic level), the direct reference theorist seems to be left with the problem of accounting in some way or other for such a connection.⁴⁴

On the other side, this would not constitute any problem for certain neo-Fregean approaches to indexical thought, e.g. the particular account advanced by Evans. The reason is that the sort of consideration usually employed on such an account to establish the result that Jones's acceptance of (5) on $d+1$ would, under normal circumstances, manifest the persistence of the particular content believed by him on d (when he accepts (4)), are such that they provide us at once with a certain kind of interior continuity. In effect, on that sort of view,

⁴³ This is Kaplan's point in 1988a, footnote 64.

⁴⁴ In his recent book 1990, Mark Richard makes an interesting suggestion along the following lines (Cf. p. 228). When Jones accepts (4) on d he might be seen as also accepting the sentence 'A-certain-day _{d} is fine', where 'a-certain-day _{d} ' is construed as being a non-indexical device by means of which Jones would be able to refer to d when this day becomes "indexically inaccessible". Thus, on $d+1$ he could either accept (5) or 'A-certain-day _{d} is fine'; and this would apparently provide us with the sort of continuity required for retention: our subject employs either distinct tokens of the same name of the object thought about (viz. d) or a "chain" of tokens of distinct names of the object, where the connection between such tokens is secured by memory (one either has "memory traces" of earlier tokens or groups tokens with such traces). The problem is that on Richard's view the objects of belief (and other attitudes) are not, strictly speaking, Russellian propositions since they include not only the objects and properties thought about but also the linguistic expressions which determine them; thus, the object of Jones's belief on d would be something like the ordered pair $\langle\langle\text{'is fine', being fine}\rangle, \langle\text{'today', }d\rangle\rangle$ (or the pair $\langle\langle\text{'is fine', being fine}\rangle, \langle\text{'a-certain-day}_d, d\rangle\rangle$). And, given the sort of (interior) connection between names appealed to above, one might have reasons to suspect that such a view turns out to be rather similar to a neo-Fregean account of retention (such as the one outlined below).

It is claimed that the particular Fregean thought Jones believes by accepting (4) on d is identical to the one he believes by being disposed to accept (5) on $d+1$ because both thoughts are composed out of the very same particular way of thinking of an object (viz. a day); and such a way of thinking is taken to be a temporally extended mode of presentation of d , one which consists in a way of keeping track of d from d to $d+1$ which Jones employs in thought. Thus, a certain kind of internal continuity, namely that which is given in an exercise of an ability to keep track of a time as it recedes into the past, is in this manner incorporated into (Fregean) propositional content itself.

And the neo-Fregean theorist would be able to conclude that a subject's disposition to accept (5) on $d+1$ is necessary for her to retain the content believed on d ; for, on his view, if the subject keeps track of the day d from d to $d+1$ then she is bound to have such a disposition on $d+1$, and if she wants to retain then the content of her earlier belief, then she must exercise such an ability. Moreover, an argument along the following lines could then be mounted with a view to establishing the Necessity Claim. If the above result holds, i.e. if a disposition to accept (5) on $d+1$ is necessary for preservation of content, then such a disposition is necessary for belief-retention; since, in general, belief-retention requires identity of content believed. (It should be noted that this latter argument, but not the former one, might perhaps be endorsed by the direct reference theorist as well). Alternatively, a different argument towards the same conclusion could be set out in the following way. One might claim that, in general, retention of certain demonstrative or indexical beliefs about particular objects requires that the subject keep track of the objects thought about throughout certain periods of times. Thus, in particular, Jones retains on $d+1$ his belief held on d about d only if he keeps track of d from d to $d+1$. On the other hand, as claimed above, in order to be able to keep track of d from

d to d+1 he must be disposed to accept (5) on d+1. Therefore, the conclusion is forthcoming that such a disposition would be necessary for belief-retention.

5.4 The strongest objection I know to the Natural Realignment Claim - or at least to its construal as the Necessity Claim - is Kaplan's criticism in 'Demonstratives'. Kaplan dismisses as unsatisfactory such a sort of answer to the problem of Cognitive Dynamics; and he does not provide us with any alternative solution to the problem, leaving it open. His argument might be represented as the following sort of *reductio*. If, in order to be able to retain on d+1 his former belief, Jones must replace 'today' with 'yesterday' and accept (5), then if he were someone like Rip Van Winkle - someone who systematically loses track of time and never knows his own position in time - it would be utterly impossible for him to retain that belief; for the simple reason that he could never be in a position to accept (or to be disposed to accept) a sentence such as (5). Of course, Kaplan takes this as a rather implausible consequence of the claim under discussion. Thus, what Kaplan seems to reject is some such general claim as the claim that in order to retain certain demonstrative or indexical beliefs about a given object for a certain period of time a subject must keep track of the object in question throughout that period of time.

And the strongest rejoinder I know to Kaplan's argument is Evans's in his influential essay 'Understanding Demonstratives'⁴⁵. Evans rejects Kaplan's verdict and takes the above sort of consequence as being perfectly acceptable. He argues that an ability to keep track of time - which manifests itself in a propensity to accept (5) on d+1 - necessarily underlies Jones's retention of his original belief. If Jones were like Rip Van Winkle and that ability were missing, there would be no belief-retention; rather, the subject would be under the

⁴⁵ Evans 1981; see especially footnote 21 on page 311.

Illusion of having retained a certain belief.

How should one assess such a dispute? First, notice that the case presented by Kaplan is an extreme one. And I am inclined to think that Evans is probably right when he holds that a subject who systematically and massively mlstracks time - e.g. by sleeping for too many consecutive days - could hardly be in a position to retain temporal beliefs. However, there is no need for such an extreme case. Indeed, an analogous point could be made with respect to cases in which we deal with subjects who only locally or temporarily lose track of time. Thus, suppose again that Jones accepts (4) at 11:58 p.m. on *d* and that three minutes later he is unsure whether midnight has passed (imagine that he has no means to check the time). Hence, Jones would not be in a position to be disposed to accept (5) at 00:01 a.m. on *d+1*, such a disposition being grounded on an ability to keep track of a day which he happens not to exercise in the situation described. So, according to the Necessity Claim, it seems that Jones would be prevented from retaining at 00:01 a.m. on *d+1* the belief he held at 11:58 p.m. on *d* (even assuming that he does not misremember the weather conditions on *d*). Yet, I think that there apparently is - at least at a pre-theoretical level - a sense in which at 00:01 a.m. on *d+1* Jones still continues to believe what he believed three minutes earlier; that is to say, it seems to me that there is an intuition to the effect that it should be possible for Jones to retain then the belief held on the day before about the weather on that day, even if he is *ex hypothesi* not able to think of the day in question as 'yesterday' or as 'the day which immediately precedes today' (or to identify it by means of knowledge of his own position in time).

The sort of approach to the central problem of Cognitive Dynamics I am willing to endorse, and whose main ideas are subsequently sketched, is one which is both in (partial) agreement with Evans's views and in (partial)

agreement with Kaplan's views.

On the one hand, *pace* Evans, I have reasons to believe that the Necessity Claim is not in general sound; in particular, as pointed out, I would agree with Kaplan's verdict that in the above sort of circumstance - in spite of not being disposed to accept (5) on $d+1$, and hence in spite of not being in a position to keep track of d in a certain way, viz. as the preceding day - Jones might still be seen as having retained his earlier belief; what sort of retention would that be, and how might Jones manifest it, are questions I take up below.

On the other hand, I have reasons to believe that claims such as principles (K) and (K)* still impose a plausible constraint upon a subject's ability to re-express in a certain way propositional attitudes with certain demonstrative or indexical contents. Thus, *pace* Kaplan, I think that the notion of keeping track of an object over time and/or space should still be seen as playing an important role in an adequate account of certain forms of attitude-retention. And our rejection of the Necessity Claim should not be regarded as being inconsistent with our acceptance of such principles as (K) or (K)*. Indeed, I think that there is more than a kernel of truth not only in Evans's doctrine that in order to re-express in a certain way a previous demonstrative or indexical belief a subject must keep track of the object thought about, but also in his doctrine that ways of tracking objects are themselves to be taken as component parts of certain demonstrative or indexical contents.

Nevertheless, I maintain that the Necessity Claim does not hold. As claimed before, the reason is that I accept the idea, which I see as being grounded to a large extent on sound intuitions, that it is possible for a subject to retain on $d+1$ a belief held on d by accepting (4) without having then any disposition to accept (5). And one might perhaps represent the basic mistake made by a proponent of the Necessity Claim as apparently consisting in a tacit endorsement

of certain strengthened and unrestricted forms of principles such as (K) and (K)*. According to the stronger principles in question, a subject's exercise of an ability to track a certain object over time and/or space would be required for the subject to retain *tout court* certain perceptual or temporal beliefs previously held about the object in question; whereas, according to the formulations proposed and which I take as plausible, the weaker principles (K) and (K)* are restricted respectively to cases of P-retention, i.e. re-expression of former perceptual beliefs by means of perceptual demonstratives, and to cases of T-retention, i.e. re-expression of former temporal beliefs by means of temporal indexicals. So one might perhaps view the Necessity Claim as resting upon an assimilation of attitude-retention in general to T-retention, in the temporal case, and to P-retention, in the perceptual case.

Sed Contra such an assimilation, I am prepared to hold the view that not every instance of retention *tout court* is to be taken, for example, as an instance of T-retention (though the converse result is obviously false). Thus, if Jones mistracked time in the way mentioned before, then - in the light of principle (K)* - what he would not be in a position to do at 00:01 a.m. on d+1 is to T-retain the particular belief he held at 11:58 p.m. on d+1 (by accepting then (4)); that is to say, he would not be able to re-express then such a belief by using a temporal indexical such as 'yesterday'. But it does not follow that it would be impossible for him to retain (*tout court*) that particular belief.

The account we have developed so far already provides us with the sort of result we need to make sense of such a possibility; and I shall follow here the policy adopted in Section 4 when we dealt with perceptual cases. Indeed, there surely is an intimate connection between attitude-retention and memory. In particular, we have subscribed to the general principle according to which

propositional memory entails attitude-retention⁴⁶. Thus, with respect to Jones's case and assuming that on $d+1$ he remembers what the weather was like on d , one might say that he would be then in a position to retain the belief had on d , such a retention being secured by memory. Accordingly, what one should take as being the extreme case here is not the case of a massive loss of a capacity to keep track of time (Rip van Winkle's situation), but rather that of a massive loss of memory, i.e. the case of amnesia; thus, what one ought to say is that temporal beliefs such as the ones we have been discussing could hardly be retained by an amnesiac.

If the foregoing reflection is along the right lines then one may claim that, although Jones is *ex hypothesi* unable on $d+1$ to keep track of d (as 'yesterday'), he still might be said to have retained on $d+1$ his former belief about d in a certain way, viz. by means of memory (and not in virtue of the particular position he occupies in time or of his knowledge of such a position). Hence, I conclude that there are grounds on which one might regard as unacceptable the claim according to which a disposition to accept (5) on $d+1$ is necessary for a thinker to retain then a belief she had on d by accepting (4); In the light of the above kind of consideration, the existence of such a disposition is not necessary for belief-retention; and it is not sufficient either (for different but rather obvious reasons).

Assuming thus that what I have called the Natural Realignment does not constitute a necessary condition for belief-retention, one is still left with the problem of specifying what sort of linguistic readjustment (if any) could Jones make on $d+1$ with a view to expressing then the persistence of the particular belief he had on d . A tentative proposal, suggested by the preceding remarks, might be sketched in the following way. When Jones accepts (4) on d , he might

⁴⁶ See principle (M) at the end of Section 3.

as well accept a token of a sentence such as

(6) This day is fine,

where the demonstrative 'this day' expresses a perceptual mode of presentation of the day thought about, viz. d . In effect, it seems plausible to regard 'today' - taken in its pronominal use - as having a genuinely demonstrative sense, so that an utterance of (4) on a certain day might be seen as expressing the same thought as an utterance of (6) on the same day. And if such a suggestion is reasonable, then a way by means of which a thinker like Jones could retain on $d+1$ the belief he held on d by accepting (4) would be to accept (or to have a disposition to accept) on $d+1$ a token of a sentence such as

(7) That day was fine,

where the demonstrative 'that day' would be taken as expressing a memory-based demonstrative mode of presentation of d , i.e. a way of thinking of a certain day anchored upon a memory demonstration of the day in question. Reference to a particular day would be in this way secured by memory; and one might still say that the thinker knows which day is in question, or that he is in a certain sense acquainted with the object thought about, since he thinks of that day as the day on which certain remembered events took place.

Finally, let us turn our attention to that reading of the Natural Realignment Claim which we have labelled the Qualified Sufficiency Claim. Recall that this claim is to the effect that if a subject (who accepts (4) on d) is disposed to accept (5) on $d+1$ - by keeping track of d in the "canonical" way - then she retains on $d+1$ the belief held on d , provided that the following conditions are also satisfied: (i)- she remembers that the weather was fine on d ; and (ii)- she does not change her mind about her former belief. What should one say about such a claim? Well, I take it as a perfectly acceptable (and also innocuous) one. In effect, it turns out to be a simple logical consequence of our

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principle (M) (by means of the rule of addition of premisses). So there seems to be no reason to reject the view that, by being disposed to accept (5) on $d+1$, the subject does not form a new belief, different from the one held on d by accepting (4) (assuming that the above conditions are fulfilled). The basic idea we have tried to introduce is just that such a belief might be retained by the subject on $d+1$ in a different way.

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