VIOLATIONS OF FREGE'S PRINCIPLE AND THEIR SIGNIFICANCE FOR CONTRASTIVE SEMANTICS

DAFYDD GIBBON

University of Göttingen/University of Bielefeld

1. *Preliminary remarks*

The content of this paper has developed from more specialised investigation in other areas of semantics, particularly those of idiomaticity and prosodic meaning. Much of it has been said before by others, though in different and more heterogeneous contexts. The central point, that natural languages violate Frege's Principle (cf. § 2), has been a commonplace of logic for a century (Frege's *Begriffsschrift* appeared just one hundred years ago); many of the specific examples, too, have also received extensive, if not definitive, attention in many quarters. A unified account of these problems within a practical descriptive framework is lacking, however, and this paper is intended to contribute towards delimiting the scope of such an account. It is suggested in the final section that there may be a unified strategy for solving this apparently heterogeneous set of problems, using a specific conception of context-sensitivity.

Neither is the descriptive field of contrastive semantics a new subject; like other domains of linguistic discourse, it is nevertheless constantly in need of systematic re-statement. There have been many detailed studies of semantic similarities and dissimilarities between languages, in contrastive and in general linguistics, particularly in lexical areas (e.g. verb valencies) but also on problems of sentence semantics such as quantification, propositional attitudes, presuppositions. In this paper I shall present a slightly more general perspective, and in order to do this I shall distinguish three of the possible views of what the term contrastive semantics may mean before starting on the main body of the paper. These views are:

(1) i. that contrastive semantics is plain semantics used to describe two rather than one or nineteen languages;
ii. that contrastive semantics is essentially the description and explanation of translation;
iii. that contrastive semantics is the description and explanation of the semantic system underlying the use of more than one language by persons in communities.

These three perspectives may be thought of as being arranged roughly on a scale of idealisation. The first has the least ambitious empirical goals, but the greatest chance of providing explanation rather than just description. The last is empirically the most ambitious, and the least amenable at present to stringent explanatory description; it underlies approaches to second language learning, bilingualism and diglossia. The intermediate category is not located on a simple straight line of idealisation between these two, but it does provide a bridge between them: translation may be seen at the 'upper' end on this scale as a semantic operation over two languages; at the 'lower' end it may be seen as a form of bilingual language activity. There are other ways of bridging this idealisation gap; such notions as control of contextually determined language variation, stylistic and functional 'code' switching, would also provide bridges of different kinds. Translation provides a convenient perspective for present purposes, however, and also in many ways a realistic goal for contrastive semantics, whether theoretical or applied. The present discussion has been developed with this perspective in mind, though particular arguments have been drawn mainly from the first of the above perspectives, and an explicit model of translation which includes non-Fregean translation is not developed.

2. *Frege's Principle, idiomaticity and analysis*

In a discussion of Montague grammar, Partee states the following (1976:52):

> *the task of the semantics* [*associated with a particular syntax*] *is to assign interpretations to the smallest units and then to give rules which determine the interpretation of larger units on the basis of the interpretation of their parts.*

Similar formulations are given by Cresswell (1973:75f.), who introduces the term 'Frege's Principle' for this fundamental inductive principle of compositional semantics, defining it as

> *the principle that the meaning of any complex expression is determined by the meanings of its parts. Or to be more precise, the meaning of the whole expression is a function of the meanings of its parts.*

He provides two explications of the principle, a weaker one simply stating the function involved, and a stronger one based on the substitutability of

synonymous constituents with preservation of the meaning of the whole construction. The first will be used in this paper. In Frege's works, the principle was more implicit than explicit; it seems clear (1892 (1962:49f.)) that he took it to hold for the compositional aspects of sense (*Sinn*), but although in introducing his 'conceptual notation' (*Begriffsschrift*) he uses an inductive definition of the notion of having reference (e.g. 1893:46), it does not seem that he goes so far as to claim that the reference of a sentence when asserted, i.e. its truth value, is a function of the references of its parts (i.e. objects), contrary to Cresswell's note (1973:75). Reference assignment to sentences presupposes such references (cf. '*Voraussetzung*' in 1892 (1962:54)), but would presumably not be taken to be a function of these presuppositions. Furthermore, Frege points out in the same study (p. 52)

> *dass die Bedeutung des Satzes nicht immer sein Wahrheitswert ist.*

This being the case, the reference of a sentence cannot be said to be a function of the references of its parts; in oblique (indirect, reported) contexts, its reference is said to be its normal sense (gewöhnlicher *Sinn*). Both sense and reference, our intension and extension, will be considered in the following discussion. The paper is not concerned with Frege exegesis, however; the Partee and Cresswell formulations will be taken to be suitable starting points. Other terms associated with extensional aspects of Frege's Principle are the following: Leibniz' Law; the principle of extensionality; the substitutability of equivalents; substitution *salva veritate*. They refer to the fundamental notion in extensional semantics that if a term with a given referent is substituted for a term with the identical referent in some sentence, then the truth value of the sentence is not affected by this substitution. Logics for which this aspect of the principle of compositionality does not hold are called 'intensional'.

Analogous principles have served from time to time in linguistic semantics; Bloomfield's semantics (1933) appears to be based on this principle, for instance. More recently, it has characterised the theories of Katz and Fodor (1963), Weinreich (1966) and others within the generative approach, where the principle has been discussed as a solution to the 'projection problem'. It is hard to decide whether generative semantics conforms to Frege's Principle or not, in view of its apparently uninterpreted deductive structure; it is probably intended to conform to the principle in many of its central concerns, however.

Perhaps surprisingly, the standard dictionary definitions of one sense of the word 'idiom' amount simply to the claim that idioms are those composite expressions which do not conform to Frege's Principle, as in the second part of the Webster's Collegiate Dictionary definition (taking 'conjoined' non-technically):

> *an expression, in the usage of a language, that is peculiar to itself either in grammatical*

construction or in having a meaning which cannot be derived as a whole from the conjoined meanings of its elements.

This kind of idiom definition is quite common in linguistics; note Hockett's well-known definition (1958:172):

> *Let us momentarily use the term "Y" for any grammatical form the meaning of which is not dedudible from its structure. Any Y, any in occurrence in which it is not a constituent of a larger Y, is an idiom.*

This definition ignores non-wellformed 'idioms', and forces Hockett to regard non-composite items, i.e. morphemes, as idioms, a highly debatable point; the phrase "in which it is not a constituent of a larger Y" deprives putative idioms of this status when embedded in a larger idiom. Similarly, Fraser stated (1970:22):

> *For the purpose of this discussion I shall regard an idiom as a constituent or series of constituents for which the semantic interpretation is not a compositional function of the formatives of which it is composed.*

Since there are many other kinds of violation of Frege's Principle than idiomaticity (cf. §3), and since the descriptions of idiomaticity given here amount to simple denials of Frege's Principle, they cannot be regarded as *sufficient* conditions for idiomaticity, though they are *necessary* conditions. They are therefore not, in any strict sense, definitions of idiomaticity at all. A similar point, though not in these terms and in a more restricted context, was made by Voitl (1969:206), who noted that the definitions also apply to metaphor; one might add irony, allusion and a host of other systematic and stylistic devices. It is interesting to observe that Hockett included a variety of linguistic forms in the category of idiom which at first sight seem to overstretch the meaning of the term: substitutes (i.e. indexical and anaphoric expressions), proper names, abbreviations, compounds (with qualifications) figures of speech and slang. But however counter-intuitive some of these categories may be as types of idiom, as Hockett described them they are all violations of Frege's Principle and their heterogeneity is simply a consequence of taking this principle to be a sufficient condition for idiomaticity.

More will be said on the subject of idiomaticity in the following two sections.

The main area of application of Frege's Principle has been in the construction of 'ideal' or 'perfect' formal languages to explicate and replace supposedly inadequate natural languages for certain logical and methodological purposes; it formed the basis of the programme of analysis whose earliest representatives were Frege and Russell, and which initiated one main branch of analytic philosophy. Cresswell uses Frege's Principle to mark a boundary between natural and ideal languages (1973:76):

> *Frege's Principle does not hold for ordinary language. Indeed, it might be plausible to maintain that this is the most crucial difference between the artificial languages we have been describing and the language we use in everyday communication.*

It is intuitively evident that, given two artificial interpreted languages conforming to Frege's Principle and having the same domain, the problems of translation (cf. 1ii. in §1) are easily stated. Either the smallest constituents in each language may be translated definitionally as in word-for-word translation, with the principle of compositionality looked after by the syntax, or if the primes of the two languages are differently 'decomposed' or 'componentialised' with respect to the domain, then translation may take place between constituents at different compositional levels. Then, in the words of Haas (1962 (1968:107)):

> The discipline of translation consists very largely in choosing the smallest possible unit that will admit of adequate matching.

In natural languages this problem of 'adequate matching', i.e. an inter-language version of the synonymy problem, is far more complex. The point at issue in the present paper is that there are areas where the criterion of 'adequate matching' of constituents which have the same meaning in some sense may not guarantee the translatability of the whole. This may be illustrated by means of a referentially opaque context (cf. §3. 1.). What is the best translation of "Ceasar dixit, 'Veni, vidi, vici'"? Is it (1) "Caesar said, 'Veni, vidi, vici'", or (2) "Caesar said, 'I came, I saw, I conquered' ", or (3) "Caesar said he came, saw and conquered", or even (4) "Caesar reported on his arrival, his observations and his conquest"? Wherever further contextual considerations are required in order to make a choice, Frege's Principle is infringed; this applies to puns, metaphors, idioms and related areas, being particularly obvious with regard to *loan idioms* such as *vice versa*, *chacun à son goût*, *hoi poloi*, &c.

This is not to claim that Frege's Principle is irrelevant to natural language semantics. It is essential for characterising the clear cases where common sense, too, accepts compositionality; its function here is the complementary one of delimiting the unclear cases.

3. *Violations of Frege's Principle in natural languages*

The first thing to clarify in this context is the meaning of "meaning". Since a full discussion of this problem is not possible here, the simple Fregean distinction between sign, sense and reference will be used. The notions of associative or connotative and natural meaning may be taken as being outside the scope of Frege's Principle in the first place, while to many who hold functional or instrumental theories of 'meaning as use', the principle will seem to be a complete red herring; I shall use it as a heuristic tool. Each of the following subsections will be oriented towards the Fregean meaning triad.

The second thing to clarify is what counts, in a general sense, as a violation of Frege's Principle. There are a number of ways in which meaning composition as a function of component meanings may fail; they will be numbered according to the following failure types:

(2) i. absence of a value for a given set of arguments (opacity);
ii. presence of more than one value for a given set of arguments (ambiguity);
iii. absence of one or more arguments (context-sensitivity);
iv. indeterminacy about whether arguments or values are present, and if so which (vagueness, fuzziness).

This means taking Frege's Principle quite literally as a statement about a function in its strict technical sense in which the meaning of a given construction C is a function of the meanings of its constituents $C_1, \ldots C_n$:

(3) For $C = [C_1, \ldots C_n]$, $M(C) = M_1(M(C_1), \ldots M(C_n))$

The subtleties involved in interpreting this kind of formal conception in terms of particular problems of natural language semantics were first, and perhaps most clearly, aired by Weinreich (1966, 1966a), who also attempted to account for some types of violation of the principle such as metaphor and idiom.

3.1. *Opacity*

If the range of the function contains no value for a given set of arguments, this may mean, extensionally, that a composite (e.g. a sentence) has no extension (e.g. truth value), or, intensionally, that it quite literally makes no sense. In the former case, this holds with non-constative sentences if one accepts Austin's analysis of speech acts (1962), since it is the defining feature of non-constatives to have no truth value. The Principle can be saved here, however, if (a) all utterances are reduced to constatives; or (b) sentence extensions are generalised to cover appropriateness values of other kinds, a more Austinian solution.

Similar are Frege's '*ungerade*', Quine's 'opaque' (1960:§30) contexts such as the embedding of sentences in quotation or reported speech, or in statements of propositional attitude (e.g. belief) or in modal, future or other indeterminate statements. In these areas, no truth value may be assignable because what is expressed by the sentence in the opaque context is not literally asserted to be the case. Furthermore, the interpretation of sentences in such contexts requires reference to the context, whether of higher sentences or of the situation, and thus removes the inductive basis of Frege's Principle (cf. §3.3, §4). Such contexts, if verbal at all, are indicated by a variety of locutions aligned on a scale of explicitness from full superordinate clauses with *verba*

dicendi &c., to sentence adverbs, particles, parenthetic items and tags of various kinds. Some features of opaque contexts may also be conveyed by intonation, though this does not occur on anything like the same level of explicitness as with locutions but more allusively, by picking out a limited component of the context concerned. A survey of some of the less explicit devices in German and English which are often used for signalling opaque contexts is to be found in Bublitz (1978; cf. also Gibbon, 1976a).

Table 1.

Samples of objections to asserted preposition (P), to assertion of proposition/belief (B), and to pejoration (A).

English				*German*			
Objection	P	B	A	Objection	P	B	A
come off it	+		+	wie kannst du nur?		+	+
how could you?			+	aber nicht doch			+
steady on a bit			+	also nee	+		+
oh no	+		+	meinst du wirklich?		+	
no	(deviant)			nee	?	+	
no: (i.e. overlong)	+	+	+	das stimmt nicht	+		
that's not true	+	?		das glaube ich nicht	+		
do you really		+		du spinnst wohl	+		
well I don't	+	?		was, der soll lügen?	+	?	
well he isn't	+			der und lügen?	+		
you're crazy	+			wie kommst du denn darauf?		+	
what? him lying?	+						
how do you know?		+					

It is instructive to examine how opaque contexts may be dealt with in dialogue in cases where the truth value or the assignment of any truth value at all is queried. Assertion of the sentence *Ich glaube, daß Hans lügt* in German, or *I think John is lying* in English can meet with doubt or outright contradiction in a number of ways. The contradiction of particular constituents in contrastive contexts will be excluded here; even so, there are still three main aspects of clause-level meaning in this example which may be called into question: (1) denial of the proposition that John is lying, or (2) of the speaker's holding of the belief, or (3) objection to utterance of a pejorative statement, interpretable as denial of the appropriateness of the value judgment.

A short selection of such rejoinders is given in Table 1; objection to the truth value assigned is symbolised by "P", to the basis for assignment of the truth value by "B" and to the appraisive component by "A". The lists, which are obviously not systematically correlated and are incomplete, show that the stereotypic expressions involved vary considerably from the one language to the other, as do their applications as objections, but they do illustrate the simple point that opaque contexts have systematisable, if formally elusive status in natural languages and are not just logical constructs.

An illustration of the differing treatment of opaque contexts in German and English may be found in the use of the disagreement particles *nein/nee* (and *doch*) as against *no* (and *yes*) when used in isolation. The English particles tend to be used as answers to questions; in other contexts they are expanded, e.g. to *no, he isn't*. The German particles may be used with a broader range of contexts, as Table 1 shows for *nee* and *no*. I recall being surprised at one time by their use in German to operate into the narrower scope inside an opaque context:

(4) A. Es handelt sich um einen statistischen Normbegriff.
B. Das glaube ich nicht.
A. Doch!

The related English sequence is odd; a disambiquating response is required, such as "Yes, it is":

(5) A. His conception of the norm is a statistical one.
B. I don't agree.
A. Yes!

The isolated "Yes!" is interpreted as operating on the opaque context itself, not penetrating into it; under the pressure of interference from English dialogue conventions I took the wider scope (though I am assured that German native speakers often have similar reactions). The problem is closely related to the well-known '*not*-transportation' situation in English and German, where the scope of negation is narrower than would be expected from the surface syntax of the opaque context (6ii):

(6) i. Ich glaube, daß es sich nicht um einen statistischen Normbegriff hnadelt.
ii. Ich glaube nicht, daß es sich um einen statistischen Normbegriff handelt.

The ambiquity is between the 'P' and the 'B' readings of Table 1, with the 'B' or truth value gap reading overridden — a property of natural language which would no doubt have delighted Russell.

These examples illustrate something about opaque contexts in the somewhat extended sense of the term used here which is often left unspoken. This is that in ordinary give-and-take dialoque, as opposed to logic textbooks in which an omniscient logician may judge beliefs assigned to third persons to be true or false by the yardstick of his own knowledge, statements (whether of 'belief' or of 'knowledge') are always relative to the speaker making them and thus for the other participants always opaque — *errare humanum est*.

The isolated quotation contexts of text-book examples abstract away from pragmatic considerations (a case of meta-opacity, perhaps) and thereby obscure this point; opacity is clearly not a purely semantic problem.

The preceding discussion has touched mainly on referential opacity, where intensional and extensional problems come into conflict. More purely intensional cases where a composite is lacking in (literal) meaning are certain types of idiom and metaphor, and semantic anomalies, which require the use of additional principles of interpretation. The provision of contexts for anomalous readings has been discussed briefly by Katz (1972:95f.); the contexts are metalinguistic and therefore (intensionally) opaque:

(7) i. Prepositions feel oily. (Odd)
ii. The sentence "Prepositions feel oily" is conceptually absurd (Acceptable)

Weinreich (1966, 1966a) has attempted to come to grips with such selectional flexibility problems, in metaphorical and idiomatic contexts. And even Chomsky's notorious *colourless green ideas sleep furiously* has found its way in various supposedly ungrammatical permutations into a number of poetastic (and in a less tangible sense opaque) contexts in which it appears to make sense and regain grammaticality.

3.2. *Ambiguity*

If the range of the supposed function has more than one value for each argument, then there is no function at all, but a relation of some other kind. In terms of language, this case is essentially that of ambiguity, of which there are many kinds, which cannot all be accounted for in detail here. Some of the most popular targets have been the verb *be*, quantitfiers and articles, conjunctions, and the ambiguous scope of operators. There, are of course, many *uses* of ambiguity (such as metaphor, irony, punning, &c.), which can only be mentioned in passing.

Restoration of function status can occur by stipulating one *relatum* to be the value of the function; in the linguistic frame of reference this amounts to disambiguation, and the most common disambiguation procedure is to augment the verbal arguments of the function by an additional contextual argument in order to increase the selectional restrictions on possible values, as when it is claimed that, for example *visiting aunts can be dangerous* is unambiguous in context. If disambiguation is reconstructed in this way, the irrelevance of objections that such sentences are 'unambiguous in context' to the problem of constructional ambiguity becomes obvious. The items *be*, *any* and *or* will be used to illustrate this point; the disambiguating contexts involved will not be commented on explicitly, but in general they involve the selectional restrictions of lexical entries in the immediate sentential context in the case of *be*, the auxiliary complex and syntactic function in the case of *any*, and the categorial context in the case of *or*.

In the case of *be* the following main kinds of context can be provided.

(8) i. Identity: *John is Brian's father*;
ii. Class-membership/property ascription: *Rosie is pregnant*;
iii. Role-ascription: *Tim is a teacher* (treated in practice for many purposes like ii.);
iv. Class inclusion/material implication: *men are mammals*;
v. Simple definition: *A philatelist is a stamp-collector*;
vi. Definition by *genus proximum et differentia specifica*: *Funkanlagen sind elektrische Sendeeinrichtungen sowie elektrische Empfangseinrichtungen, bei denen die Übermittlung oder der Empfang von Nachrichten, Zeichen, Bildern oder Tönen ohne Verbindungsleitungen oder unter Verwendung elektrischer, an einem Leiter entlang geführter Schwingungen stattfinden kann* (*BRD, Gesetz über Fernmeldenanlagen*), in which the meanings of the constituents of the *definiens* are assumed to be evident or known by previous definition.

Quantifiers and articles provide the broadest and trickiest field, since their ambiguity is often coupled with use in opaque and vague contexts. The most notorious example in English is *any*, whose major uses are as follows:

(9) i. universal quantifier in general, opaque modal or future contexts: *any philosopher knows his Aristotle*, *anyone can do that* (or the next to the last sentence in §3.4. below);
ii. explicitly or implicitly universal quantifier in non-opaque contexts: *he accepted anything he was given*, *anyone came*;
iii. 'existential' quantifier in non-assertive contexts: *he didn't see anybody*, *did you see anybody*?;
iv. as an appraisal/quality-marked existential quantifier in contrastive dialogue contexts, as in A: *Did you manage to get any cheese*? — B: *Yes, but not just any cheese — I got Red Windsor*.

Note that in the last example it is not sufficient simply to specify 'contrastive intonation' here, since the variety of intonation contours which may occur are not *per se* contrastive. It is the dialoque context which defines contrastivity; assignment of contrastivity to intonation alone is a typical case of the notional fallacy in intonation description, in which notional terms are used to label intonation forms which are then assumed to be identified and are then adduced to illustrate the notion: a vicious circle (cf. Gibbon 1981).

The fact that several different factors, each of which may contribute

to violation of Frege's Principle, simultaneously determine the meaning of quantified items makes the translation problem extremely complex and prehaps even of the same order as idiom translation, as the following examples show.

(10) E. Any philosopher knows his Aristotle.
G. Wer Philosoph ist, kennt seinen Aristoteles.

(11) E. Anyone can do that.
G. Das kann doch jeder.

(12) E. Anyone came.
G. Alles/jeder kam.

(13) E. He accepted anything he was offered.
G. Er nahm alles, an, was ihm geboten wurde.

(14) E. He didn't see anybody.
G. Er hat niemand(en) gesehen.

(15) E. ... but not just any cheese...
G. ... aber nicht irgendeinen Käse ...

These problems are related to the question of context-sensitivity dealt with in the following section.

The ambiguity of conjunctions may be illustrated by *or*, as follows (in German, *oder* additionally occurs as a question tag):

(16) i. truth function: $p \equiv q$ (inclusive *or*);
ii. truth function: $-(\equiv q)$ (exclusive *or*);
iii. pragmatic negative conditional: *stop it or I'll leave*;
iv. appositive definition: *the turdus musicus, or songthrush*;
v. discourse correction: *Tom, or rather his dad, ...*
vi. other non-sentential disjunction: *is it in or on the box*?

A fourth type of logical ambiguity, scope ambiguity, was discussed above in connexion with opaque contexts and is particularly interesting when the scopes of two operators (e.g. two quantifiers, or quantification and negation) are concerned, as in (18) and (19).

(17) He's not leaving because it's late.
(18) Everybody isn't coming.
(19) i. Everybody loves somebody.
ii. Somebody is loved by everybody.

In (19), each of the examples is potentially ambiguous, though the linear order of the quantifiers tends to create preferential interpretations. Judgments vary greatly here, however.

The more narrowly linguistic types of ambiguity, i.e. lexical, phrasal and transformational ambiguity, require no special mention here; they overlap in part with the types of ambiguity mentioned above (e.g. phrasal ambiguity is scope ambiguity of lexical items, roughly speaking).

A number of natural language ambiguities often seem to be beyond the scope of formal explication or at least at the edge of the range of present techniques. Idioms have already been mentioned as not conforming to Frege's Principle; one of the reasons for this is that many of them, especially the more conspicuously idiomatic 'tournures' (Makkai, 1972), are ambiguous between their literal and idiomatic meanings. In fact, in the idiom theory of Chafe (1968; 1970) idiomaticity was reduced in effect to a special form of paraphrase and, complementarily, ambiguity, which may be represented by the following arrangement:

(20)

(put the cart before the horse) —*LIT*— *put the cart before the horse*

ID

(set false priorities) —*LIT*— *set false priorities*

The abbreviations '*LIT*' and '*ID*' mean literal and idiomatic meaning-form relations respectively.

These intentional ambiguities may be supplemented by the types of extensional ambiguity found in Hockett's discussion of monomorphemic 'idioms' (1958:310ff), mentioned in §2 above, in particular 'substitutes' (items such as pronouns, and other indexical or class terms such as numerals, which have anaphoric and other 'constant shifting' of reference), and personal proper names which, in addition to non-unique reference (differing in this from strictly logical proper names, which do not exist in natural languages), often have intensional idiomatic status by virtue of the difference between etymology and actual use — *Smith*, *Baker*, etc. Though this has been suggested for my own surname it is, perhaps fortunately, merely a diminutive of *Gilbert* and homonymous with a loan word from a South-East Asian language, rather than an idiom or even a metaphor. Extensional ambiguity has been seen as a property of the indefinite quantifiers *a*, *any*, *some*, *many*, *few*, &c. (cf. Russell (1919:167) on 'indefinite (or ambiguous)' descriptions). There is a well-known class of role-ascription terms (cf. 8iii. above) in which German, French and other

languages differ from English in lacking the 'ambiguously referring' article:

(21) E. He is a teacher.
G. Er ist Lehrer.
F. Il est professeur.

The subclass covers socially fixed, (positively or negatively) appraisive characteristic roles, and even affliction by chronic ailments. Such role ascriptions are language (or culture) specific and some of the following German role ascriptions would have an article in French or be expressed by a non-substantival circumlocution in English (e.g. 'suffers from asthma' for 'ist Asthmatiker'):

(22) Er ist Lehrer/Ingenieur /Politiker/Sozialist/Vater/Briefmarkensammler/Hobbyjäger/Trinker (i.e. alcoholic) Spieler (i.e. gambler) Asthmatiker.

This 'ambiguous' use of the indefinite article is perhaps better thought of as a non-referring use, the nominal being a general term. There are referential (so-called [+specific] but ambiguous, 'unidentified' (so-called [—definite] uses (cf. also Strawson, 1950 (1968:83)) such as *I came across a rabid fox*, where a referent exists or existed, but further identification is considered irrelevant. In dialogue contexts, such non-identifying references may be said to be pragmatically unambiguous for the speaker but pragmatically ambiguous for the hearer; a detailed pragmatic rather than semantic explanation cannot be given here, however.

3.3. *Context-sensitivity*

If one or more arguments are absent, there can be no value assignment by the function. Examples have been given at various points under the previous subheadings, and, taken at face value, this is precisely the kind of problem which Frege's Principle was designed to delimit; the case which most readily springs to mind is that of truth value gaps due to simple presupposition failure (note also the opacity discussion in §3.1.). Outside the immediate scope of the principle, and considerably more interesting from the linguistic point of view (Chomsky 1981), are absent but recoverable argument *names*, i.e. ellipsis, whether overtly context-determined by anaphora of various kinds, or determined by general conventions of other types as with referentially 'ambiguous' objects, cf. *Jack's eating* (*something*), or imperatives, as in (*You*(*will*)) *close your eyes*.

A marginal, and anecdotal, case in which presupposition failure is sometimes deliberately used in a natural language context may be seen in what counts as 'permitted' verbal deceptions on April Fools' Day. In some areas the only permitted verbal deceptions are those based on presupposition failure, not on assertion of a falsehood; this is true of the West Riding of Yorkshire, where I grew up. One could say, for instance, *Look out of the window!*, or *What's that?* and, if the addressee looked and there was nothing there, exclaim *April fool!* Should he protest *But there's nothing there, you liar!* the standard escape would be *I never said there was, did I?* It was considered unfair to assert something falsely, as in *Look, there's a circus just going past!* In many places the rules of the game appear to be less rigid, and falsehood rather than presupposition failure is permitted. In German, where the ritual unmasking phrase *April, April!* is used, similar considerations apply.

The most important property of solutions for cases in which arguments or argument names are lacking is, as has already been noted, sensitivity to context: the remaining arguments, or an additionally adduced contextual argument, are utilised in order to recover the 'missing' information. This approach may perhaps be seen as an attempt to bridge the divide between contextual and non-contextual theories of meaning. One special area which may be examined with this strategy in mind is that of speech act idioms.

Sadock (1974) suggested that amongst the indirect speech acts two types may be distinguished which have the properties of idioms and metaphors respectively. His conception of idiomaticity is not entirely explicit; it is partly diachronic, with idioms (his example is *down in the dumps*) originating in the metaphorical *use* of a locution which in time because its fixed *meaning*. Synchronically, the traditional definition by denial of Frege's Principle (cf. §2) seems to be implied by the formulation 'aspects of semantic structure can be idiosyncratically substituted for to form idioms'. A synchronic distinction between metaphor and idiom is ascribed to the syntactic frozenness of idioms in contrast to the syntactic freedoms available to metaphors. Sadock shows that the indirect speech act type *Will you shut the window* is more 'frozen' than the type *When will you shut the window*, each being superficially ambiguous, though intended as requests. The question which arises here is whether the notion of meaning used in Frege's Principle can be stretched to cover illocutionary force: With explicit performatives there is no problem: meaning and illocutionary force coincide. It seems to me that the answer to the question for other speech act types must be negative, since the only relatively explicit attempt to characterise illocutionary force (Searle, 1969) is clearly a pragmatic theory which refers to speaker, hearer, normal input/output conditions, and other contextual factors. Both 'speech act idioms' and 'speech act metaphors' are explainable as being sensitive to context, the idiom criterion of 'frozenness' being syntactic stereotypy rather than semantic idiomaticity. Searle (1976) has also criticised Sadock's view, pointing out that there are other kinds of locution which would qualify as speech act idioms in a stricter sense; an example would be *How about a coffee break?* Indirect speech acts, whether stereotypic or

not, share with other violations of Frege's Principle the property of ambiguity; the addition of a contextual argument to the function (specifiable in an appropriate theory of conversational ellipsis, cf. Grice's 'conversational implicature', 1975) makes this kind of violation of the principle soluble by analogy with treatment of other kinds.

3.4. *Vagueness*

Next to ambiguity, vagueness in natural languages has been most frowned on by logicians and is perhaps the most general kind of violation of Frege's Principle. Vagueness amounts to not being able to give boundary criteria for membership of a set: where does acquaintanceship stop and friendship begin, or (assuming the scale is a simple one) where does friendship stop and love begin? Or, to take an example from relative terms with more concrete domains, when does an object cease to be warm and become hot? Vagueness (indeterminacy, fuzziness) was pointed out as a problem for linguistic semantics by Bolinger (1961; 1965), and the removal of natural language vagueness by 'analysis' or 'explication' was part of the programme of the constructivistic branches of analytic philosophy. It has received much attention by logicians and linguistic semanticists in the past two decades (cf. Lewis (1972) and the survey and elaboration in Eikmeyer and Rieser (1978)). Vagueness should not be confused with ambiguity, where the choice between membership of two sets is determinate, or with hyperonymy (generality), as with *it was an animal* vs. *it was a mole*. There are vagueness markers in many areas of language, from degree adverbs (*about*, *fairly*, *somewhat*, &c.), to the natural existential quantifiers (*some*, *many*, *most*, &c.) and metacommunicative parentheses like...or *something*, *you know*, &c., or dummy nouns (e.g. *thingummy*). Structural vagueness, or 'squishes' (e.g. 'nouniness' from proper names to de-sentential NPs), will not be considered here.

For contrastive semantics, some of the greatest problems to do with vagueness occur in word semantics, particularly in the fact that different vocabularies (whether different technical registers of the same language, or different dialects and languages) not only 'slice up' the world in different ways, they also anchor the words they contain at different points on various semantic scales such as those of magnitude, generality, and vagueness, which represent possible parametrisations for the 'adequate matching' problem of §2.

A suitable illustration may be found in English *political*, with relatively restricted collocability, in contrast to German *politisch* which may be collocated in compounds with a wide variety of terms referring to different aspects of social structure for which a government may feel itself responsible: *familienpolitisch*, *aussenpolitisch*, *kirchenpolitisch*, *verkehrspolitisch*, *steuerpolitisch*, *parteipolitisch*, &c., of which only the last has a close cognate in English. The borders are further delimited in English by *policy* vs. *politics*, implying, by dubious bilingual criteria, that German *Politik* is ambiguous. As any teacher of English knows, it is often hard to persuade German students of this 'ambiguity', which is in fact a complex distinction of generality, vagueness and ambiguity. It would be too complex a task to explicate the relation of vagueness to context-sensitivity here; a detailed analysis on such lines is given by Eikmeyer and Rieser (1978).

4. *Conspectus and conclusions*

Frege's Principle was used in the preceding sections to provide a backcloth to a systematisation of some problems of contrastive semantics, in particular ambiguity, idiomaticity and contextual recoverability of meaning. The informal contrastive perspective was provided by the field of translation. One of the methodological points raised at the beginning of the paper was whether the tion of a violation of Frege's Principle provided a unified domain of investigation; the complementary domain, that of Frege's Principle itself does provide such a unified domain with respect to the 'clear cases' of semantics. In the light of the discussion of particular types of possible violation of the principle it appeared that the key to this point was the notion of context-sensitivity: a kind of contextual 're-Fregeanisation' was suggested for the interpretation of ambiguities, idioms, opaque contexts and vague contexts. The inductive Fregean type of interpretation may be illustrated by means of the structural schema (23i), and that of contextual interpretation by means of schema (23ii):

(23) i. ii.

In (23i) the meaning of A is assigned as a function of the meanings of B and C; in (23ii) the meaning of A is assigned as a function of the meanings of B, C and E; the schemata may be illustrated with reference to examples (7i) and (7ii) respectively, where the unacceptability reading of *prepositions feel oily* in the first case does not hold in the (opaque) metalinguistic context *the sentence ... is conceptually absurd*. In such cases the interpretation function has to reach outside the cyclical domain of application in order to provide a reading for this domain.

The notion of context was systematically used in the Katz & Fodor theory

of semantic interpretation (1963; 1972) for the specific purpose of disambiguation. Their use of context was strictly Fregean, however: within the domain A, C was taken as a context for the possible readings of B; in Weinreich's theory of idioms a central point was mutual selection of B readings by C and of C readings by B (1966). Oddity of the reading for A resulted from incompatibility of the readings for B and C. This kind of context-sensitivity may be termed *local context-sensitivity*. In schema (7ii), on the other hand, a different kind of context-sensitivity is involved, which may be termed *non-local context-sensitivity*. The suggestion may therefore be made that it is just such a notion of non-local context-sensitivity of semantic interpretation which characterises the various violations of Frege's Principle. This suggestion cannot be taken further here, but it seems likely that some problems of domain-bounding which lie on the borders of syntax and semantics and which have received considerable attention within generative linguistics in recent years (cf. Koster 1978; Chomsky 1981) have more than a superficial structural similarity to the problems of violation of Frege's Principle which have been discussed here, and that the notions of local and non-local context-sensitivity may provide a conceptual bridge between the two areas. If this is so, then a generalised notion of locality as postulated here must be explicated, as a next step, in terms of possible well-defined domains: subcategorisational, clausal, sentential and discourse domains, each relevant for a subset of violations of Fregean semantic interpretation.

The Katz and Fodor theory may be taken as a point of orientation for the aspect of translation, too, despite the reservations which have been expressed on many sides about the structure and scope of the theory, and turning into a virtue one criticism which Lewis (1972:169) made:

> *Semantic markers are symbols: items in the vocabulary of an artificial language we may call Semantic Markerese. Semantic interpretation by means of them amounts merely to a translation algorithm from the object language to the auxiliary language Markerese.*

Critics of the theory overlook the model-theoretic intentions of Katz and Fodor (1963:183); the realisation of these is not immune from criticism but does indicate a possible line of investigation for translation theory which is not unrelated to earlier work on idioms in the context of translation by Bar-Hillel (1955), who was later one of the strongest critics of the Katz and Fodor approach. Dictionary entries (cf. also Katz, 1972) are sets of functions (i.e. sets of 'paths') from words to sets of semantic components (markers, distinguishers, disjunctions of local context-restrictions) and projection rules are functions from pairs (in a binary P-marker) of sets of components to sets of components; the projection functions take local context-sensitivity into account. This formulation makes clear both the model-theoretic character of the theory and the import of Lewis' description: intensions in the Katz & Fodor theory are paths and projection rules; extensions are sets of components. If, as with Lewis, the markers are given linguistic rather than some other ontological status, then we have an elementary and inexplicit model theory interpreted as a translation theory. If, as Katz & Fodor presumably intended, they have some other kind of status, then the semantic model may be associated with, for instance, a psychologistic ontology.

The ontological issue is not of central importance in linguistic semantics, however, though it is certainly in need of more clarification than it generally gets. The most appropriate stance for a linguist on this issue is probably that of the agnostic. If a semantic theory makes it possible to state problems and seek solutions in such areas as translation, or idiomaticity and other areas where Frege's Principle is violated, or in developing a useful notion of context in semantic interpretation, then this is justification enough. Ontological issues need not be too worrying; indeed, the linguist might derive comfort from the fact that these problems are not completely solved either in the Tarskian or Carnapian leaps between formal and material modes of speech, or between state descriptions and states, in logical semantics itself.

Postscript

The first version of this paper was presented in Boszkowo, Poland in May 1979; credit for whatever improvements there may be in this version is due to those who contributed critical interventions on that occasion, particularly Bob Borsley, and to Thomas Gardner, for innumerable extensive discussions.

REFERENCES

Austin, J. L. 1962. *How to do things with words*. London: Oxford University Press.
Bar-Hillel, Y. 1955. "Idioms". In Locke, W. N. and Booth, A. D. (eds). 1955. 183–93.
Bloomfield, L. 1933. *Language*. New York: Holt, Rinehart and Winston.
Bolinger, D. L. 1961. *Generality, gradience and All-or-None*. The Hague: Mouton.
Bolinger, D. L. 1965. "The atomization of meaning". *Language 41*. 555–73.
Bublitz, W. 1978. *Ausdrucksweisen der Sprechereinstellung im Deutschen und Englischen*. Tübingen: Niemeyer Verlag.
Chafe, W. L. 1968. "Idiomaticity as an anomaly in the Chomskyan paradigm". *Foundations of Language 4*. 109–25.
Chafe, W. L. 1970. *Meaning and the structure of language*. Chicago: University of Chicago Press.
Chiţoran, D. (ed.). 1976. *Second International Conference of English Contrastive Projects*. Bucharest: Bucharest University Press.
Chomsky, N. 1981. *Lectures on government and binding*. Dordrecht: Foris Publications.
Cole, P. and Morgan, J. L. (eds). 1975. *Syntax and semantics. Vol. 3. Speech acts*. New York: Academic Press.
Cresswell, M. J. 1973. *Logics and languages*. London: Methuen.

Davidson, D. and Harman, G. (eds). 1972. *Semantics of natural languages*. Dordrecht: Reidel.
Eikmeyer, H.-J. and Rieser, H. 1978. *Vagheitstheorie*. Report of the "Projekt Vagheitstheorie". University of Bielefeld.
Fraser, B. 1970. "Idioms within a transformational grammar". *Foundations of Language 6*. 22–42.
Frege, G. 1879. *Begriffsschrift*. Halle/Saale.
Frege, G. 1892. "Über Sinn und Bedeutung". *Zeitschrift für Philosophie und Philosophische Kritik, Neue Folge 100*. 25–50. Repr. In Patzig, G. (ed.). 1962. 40–65.
Frege, G. 1893. *Grundgesetze der Arithmetik. Begriffsschriftlich abgeleitet*. Jena. Repr. Darmstadt: Wissenschaftliche Buchgesellschaft. 1955.
Gibbon, D. 1976. *Perspectives of intonation analysis*. Bern: Lang.
Gibbon, D. 1976a. "Performatory categories in contrastive intonation analysis". In Chiţoran, D. (ed.). 1976. 145–56.
Gibbon, D. 1981. "A new look at intonation syntax and semantics". In James, A. and Westney, P. (eds). 1981. 71–98.
Grice, H. P. 1975. "Logic and conversation". In Cole, P. and Morgan, J. L. (eds) .1975. 41–58.
Haas, W. 1962. "The theory of translation". *Philosophy 37*. 208–28. Repr. In Parkinson, G. H. R. (ed.). 1968. 86–108.
Hockett, C. F. 1958. *A course in modern linguistics*. New York: Macmillan.
James, A. and Westney, P. (eds). 1981. *New linguistic impulses in foreign language teaching*. Tübingen: Narr.
Katz, J. J. and Fodor, J. A. 1963. "The structure of a semantic theory". *Language 39*. 170–210.
Katz, J. J. 1972. *Semantic theory*. New York: Harper and Row.
Koster, J. 1978. *Locality principles in syntax*. Dordrecht: Foris Publications.
Lewis, D. 1972. "General semantics". In Davidson, D. and Harman, G. (eds). 1972. 129–218.
Locke, W. N. and Booth, A. D. (eds). 1955. *Machine translation of languages. Fourteen essays*. Cambridge, Mass.: Technology Press, M.I.T.
Makkai, A. 1972. *Idiom structure in English*. The Hague: Mouton.
Quine, W. v. O. 1960. *Word and object*. Cambridge, Mass.: The M.I.T. Press.
Parkinson, G. H. E. (ed.). 1968. *The theory of meaning*. London: Oxford University Press.
Partee, B. 1973. "Some transformational extensions of Montague Grammar". *Journal of Philosophical Logic 2*. 509–34. Repr. In Partee, B. (ed.). 1976. 51–76.
Partee, B. (ed.). 1976. *Montague Grammar*. New York: Academic Press.
Patzig, G. (ed.). 1962. *Gottlob Frege: Funktion, Begriff, Bedeutung. Fünf logische Studien*. Göttingen: Vandenhoek and Ruprecht.
Puhvel, J. (ed.). 1969. *Substance and structure of language*. Berkeley: University of California Press.
Russell, B. 1919. *Introduction to mathematical philosophy*. London: Allen and Unwin.
Sadock, J. M. 1974. *Toward a linguistic theory of speech acts*. New York: Academic Press.
Searle, J. R. 1969. *Speech acts. An essay in the philosophy of language*. Cambridge: Cambridge University Press.
Searle, J. R. 1976. Review of Sadock 1970. *Language 52*. 966–71.
Sebeok, T. A. (ed.). 1966. *Current trends in linguistics, Vol. III*. The Hague: Mouton.
Strawson, P. F. 1950. "On referring". *Mind 59*. 320–44. Repr. In Parkinson, G. H. R. (ed.). 1968. 61–85.

Voitl, H. 1969. "Probleme der englischen Idiomatik". *Germanisch-romanische Monatsschrift 50*. 194–212.
Weinreich, U. 1966. "Explorations in semantic theory". In Sebeok, T. A. (ed.). 1966. 395–477. Repr. sep. The Hague: Mouton. 1972.
Weinreich, U. 1969. "Problems in the analysis of idioms". In Puhvel, J. (ed.). 1969. 23–81.