Expression, Analysis and Understanding:

three essays in the philosophy of language

by

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ABSTRACT

Chapter 1 concerns the role non-linguistic contextual factors play in
the expression of thought. It is argued that contextual factors play a
role in determining what is expressed by predicates. Several strategies
for avoiding this conclusion are discussed and rejected. One strategy
maintains that contextual factors determine, not what is expressed, but
only what is otherwise communicated. Another contends that whatever can
be expressed context dependently can also be expressed context indepen-
dently. The chapter concludes by suggesting that context dependence
indicates that attempts to analyze thought and thinking in terms of lin-
guistic facts alone may not succeed.

Chapter 2 considers an argument for the view that understanding a sen-
tence that expresses a necessary truth suffices to determine its truth
value. The argument maintains, first, that understanding a sentence in-
volves meta-linguistic knowledge of its referential and truth condi-
tional properties, and, second, that such knowledge suffices to deter-
mine the truth value of a sentence that expresses a necessary truths.
It is argued that while a strong reading of the argument's first premise
is false a weak, though possibly true, reading renders the argument
invalid. Various defences for the argument's second premise are then
considered and rejected, and two arguments against it are presented.

Chapter 3 is an examination of two strands in Gottlob Frege views on the
analysis of Sense. Frege held that the analysis of Sense plays a cru-
cial role in the development of both the natural sciences as well as the
sciences of arithmetic and logic, and he held that the analysis of Sense
yields improved understanding of Sense. Frege thus viewed foundational
scientific insight as continuous with conceptual clarification. Several
aspects of these strands are discussed. The chapter concludes by specu-
lating about what these views on analysis suggest about Frege's concep-
tion of understanding.

Thesis Committee: Professor Robert Stalnaker
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For Jane

Chapter 1

Linguistic Meaning and Context

According to some, the defining project of analytic philosophy is to analyze or explain what it is to think or have a thought in terms of linguistic facts. Since psychological states are distinct from their contents, the project consists of two tasks. First, an explanation or analysis must be provided of what it is for a subject to be in a psychological state of a particular kind, say that of believing or thinking. A natural idea, perhaps, is to try to explain being in such a state in terms of linguistic behavior or dispositions. One might, for instance, try to analyze belief in terms of the notion of a disposition to assent to a sentence. Second, an explanation or analysis must be provided of what it is for a subject's psychological state to have a particular content. Since the contents of psychological states are expressed using language, a natural idea is to try to explain what it is for a state to have a given content in terms of its linguistic expression. One might, for instance, try to analyze believing a certain proposition in terms of the notion of a disposition to assent to a sentence that expresses that proposition. To avoid circularity the linguistic facts appealed to in these explanations must be explainable in non-psychological terms.

An obstacle confronting this second task is the role contextual factors play in the linguistic expression of thought. What a speaker refers to using an expression can depend in various ways on facts about the context in which the act of reference occurs. Indexicals, demonstratives, pronouns and definite descriptions can be used to refer to

different things in different contexts, while their linguistic meaning remains unchanged. Among the factors involved in determining what a speaker refers to are the speaker's intentions, the surrounding discourse and the relative saliency of surrounding objects. It is because these factors threaten to violate the non-circularity constraint that this phenomena constitutes a serious obstacle to the task of analyzing the expression of a proposition in linguistic terms alone.

One aim of this essay is to extend this point by arguing that what speakers say about these referents is also typically dependent on contextual factors. Predicates may be used to say different things in different contexts, even as their linguistic meaning remains unchanged. In section 1, I consider several simple and easily constructed examples that demonstrate this dependence. In section 2, I argue that certain strategies designed to avoid this conclusion are unsatisfactory. In section 3, I discuss philosophical views of understanding and communication that might encourage resistance to this conclusion. I conclude by discussing briefly what this context-dependence implies about the so-called defining project of analytic philosophy.

1. In this section I will consider four examples illustrating the role contextual factors play in determining what we say about the referents of our words. The first two are of a straightforward sort. They are intended primarily to introduce certain features of this context-dependence. These will then be further illustrated and discussed in considering the final examples.

The first example involves the English possessive, "'s", as it occurs in the phrase "Jane's book".[1] The expression can be used to speak of a relation of ownership or possession between Jane and some book; only rarely, if ever, will it be used to speak of spatial or temporal relations between Jane and some book. This much is clear from the meaning of "Jane's book" (or, perhaps, of "'s"). However, it is also clear that there are many different relations the expression can be used to speak of. It might, to note a few, speak of the book she wrote, the first book she wrote, the book she spent two years trying to sell, her (auto)biography, the book she has wanted for a while, the book she received at Christmas, the book she has been advertising, the book she has been *seen* advertising, the book she has been editing, etc.

There are several points to be noticed about this example. First, the meaning of the phase "Jane's book" requires that some relation or other be specified or determined by the context. Typically, if no relation is thus specified, or if more than one is, it will be unclear whether a thought has indeed been expressed. We might represent this linguistic requirement by reformulating the expression as follows: "the book bearing relation x to Jane". In this reformulation, "x" is a variable requiring contextual instantiation. However, and this is the second point, the expression's meaning does not require that it be one rather than some other of these relations. Typically, which relation it is will depend on further facts about the context of utterance. Third, nothing about the expression's meaning determines which context-variable factors determine the relation, let alone how they determine this. The meaning of the sentence, "He has bought Jane's book", even with its ref-

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[1] This is discussed further in Recanati (1988), p. 297.

erents fixed, does not determine a unique thought since it does not de-
termine a relation between Jane and the book. We might think of the
role context plays in this case as a sort of *enrichment* of what the
meaning itself contributes.

The second preliminary example involves vagueness. There are, I
think, at least two ways in which vagueness can be displayed. The most
cases of vagueness involves series of objects closely resembling each
other in shape, size or color. Words such as "round", "tall", "green"
are often said to be vague in that there will typically be scme member
of the relevant series such that what is said in uttering the word is
neither clearly true nor clearly false of that member, but true of one
of its neighbors and false of its other. There are, for instance,
patches on the color spectrum between green and blue that are not
clearly blue and not clearly green. In this sort of case, what is said
or expressed is held fixed and vagueness is displayed as a failure of it
to be clearly true (or false) of some member of a series of closely
resembling objects.

There is also a second sense in which words have been called vague.
Sometimes, varying certain aspects of the context of utterance can af-
fect whether uttering a word says something true of a given object. For
instance, in a context where Yul Brynner is the focus of interest, the
sentence "Jones is bald" might be used to say something false of Jones
even though in a different context the same sentence can be used to say
something true of him. One explanation holds that different contexts
impose different *standards of strictness* [2]. Different things can be
said of Jones using the sentence "Jones is bald", meaning what it does

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[2] This account is clearly presented in Lycan (1986), chapter 3.

in English, by sufficiently varying the contextual standards of strict-ness.

We might think of the role context-variable factors play in this case as a sort of *refining* of what the meaning contributes. One might try to accommodate this by including within a specification of the word's mean-ing a specification of those contextual factors that influence the stan-dard of strictness, and so determine what is said in using the word. For present purposes, it is enough to note that, in general, the stan-dards of strictness are imposed, not by the meaning of the relevant predicates, but rather by non-linguistic features of the context.

So far we have considered contextual contributions of two sorts. Contextual factors can enrich as well as refine what is contributed by the conventional linguistic meaning of the sentence. In both cases, the conventional linguistic meaning does not determine what contextual fac-tors are relevant, nor how they are relevant. One might react to these examples by claiming that they are special and unusual. Genitive con-structions are a small part of our language, and there are several pro-posals for dealing with vagueness. But I will now consider two cases which suggest that contextual factors can be relevant even in cases which might appear least problematic from the point of view of this pre-vailing thought.

The first example involves the sentence, "That is a duck", uttered by Andre in the following situations.[3]

A. A customer enters Andre's hunting shop and asks to look at hunt-ing decoys. Pointing to one, the customer asks, "Is that a goose de-

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[3] The example is Austin's, but the following discussion owes much to Travis (1975), chapter 3.

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coy?". Andre responds with, "No. That is a duck. We do have some geese over here, though."

B. Andre and his son Phillipe are visiting the local science museum, where there is a large incubator in which the fertilized eggs of several types of waterfowl are in various stages of incubation. Phillipe points to a small bird just recently out of its shell and asks, "Is that a goose?". His father, after reading the accompanying display cards, answers, "No. That is a duck. These are geese over here."

Let us begin by asking what we know about the meaning of the sentence. We know that "that" is a demonstrative referring expression, "is" is an expression employed in predication, "a" is a indefinite article, and "duck" is a name for birds of a certain kind. There are also various things we can say about birds of that kind. A duck is a bird of a certain kind; it has wings, feathers, and a beak; is able to fly, and to take off and land in water; is typically of such-and-such a color, and of such-and-such a shape and size; lays eggs, etc. These are facts about what it is to be a duck. I think we can also safely say that the word "duck" is neither ambiguous nor relevantly vague.[4]

What, now, do we know about what Andre said? Let us call the decoy, "X", and the baby duck, "Y". My own intuitions are that what he said on each occasion was true, but that what he said about X was not what he said about Y. To see this, consider the following differences. First,

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[4] One might claim that 'duck' can be used to say what is true of decoy ducks (as well as of other representations of ducks) because of its primary use as speaking of members of the natural kind. However, there is no reason to think the original linguistic meaning determines the derived one. Moreover, this ignores both the ease with which words can be used both with a 'derived' meaning and non-metaphorically, and the role contextual factors play in determining what is said. For more on this sort of linguistic innovation, (and for hundreds of intuitive examples), see Clark and Clark (1979).

knowing what Andre said about Y will lead us to expect certain further things to be true of Y: that it (probably) has a heart and a pair of lungs; that it is genetically similar to other ducks; that, if all goes well, it will grow and develop in certain predictable ways, and will learn to fly; that certain results peculiar to ducks will follow if certain tests are performed on it; and so on. Notice, though, that what Andre said does not imply that Y can *actually* fly. One could not show what he said to be false by pointing out that Y cannot actually fly. In contrast, nothing about what Andre said about X should lead one to expect such things to be true of it. Indeed, thinking one could draw such conclusions from what Andre said about X would be a sign of having misunderstood what he said.

Second, what would show what Andre said about Y to be false would have no bearing on the truth (or falsity) of what he said about X. Discovering, for instance, that Y has goose genes would show what Andre said about Y to be false. In contrast, that X does not have any genes at all is, it seems to me, irrelevant to the truth of what was said about it. If, however, it is discovered that someone has been deliberately painting goose decoys to look like ducks, then what Andre said about X might be false, depending on whether X is such a decoy. (This might also depend on whether ducks are more attracted by shape than color. If not, then, for all relevant practical purposes, e.g., hunting ducks, that X is goose-shaped rather than duck-shaped might make no difference.) Again, this discovery would have no bearing on the truth of what Andre said about Y.

Finally, suppose that, by some accident, a baby-duck decoy (call it, "Z") had been placed in the incubator, and that it, and not Y, had been

the referent of Andre's words. Clearly, what he said would then be false. But it is less clear that what Andre said about X would also be false of Z, had Z, by some accident, appeared in the store display. That what was said about X and about Y differ in these respects shows that different things were said about X and Y in the words "is a duck", meaning what they do in English.

Plausibly, the differences between X and Y are relevant factors in determining what was said in each case. But these are a matter of the context of utterance, and not of the meaning of the sentence used. Of further interest, is the fact that in each case the context refines elements of our rough characterization of the meaning of "duck". In A, for example, facts about genetic structure are not relevant to the truth of what is said whereas shape, color and size are. Similarly, the fact that Y cannot fly, has fuzz instead of feathers, and cannot actually lay (or fertilize) eggs are equally irrelevant to the truth of what was said about it.

Examples of this sort can, I think, easily be constructed for a wide variety of linguistic expressions. Names for artefacts ("table", "game"), natural kind terms ("tiger", "water"), adjectives ("tired", "scared"), verbs ("walk", "read") can all manifest this same sort of context-dependence. Articulating the meaning of such expressions can involve appealing to perceptual cases (e.g., "'chair' applies to things like this."), as well as specifications of more general information ("Chairs often have four legs and a seat."). Paul Ziff suggested that we think of the meaning of such expressions as consisting in a set of elements ('facets'). And he suggested, picturesquely, that "which facet

catches the light depends on contextual and linguistic environmental features, thus on its setting."[5]

The influence of contextual factors is not restricted, though, to cases where expressions having complex meanings are used. A final example involves Mary's small cast-iron kettle, and the predicate "green". The kettle has a brown wicker handle, and green enamel on the outside and on both sides of the lid. The inside of the kettle is black enamel sprinkled with small white dots. Over the years the kettle has acquired a dark brown layer of grease and stain over most of its bottom half. Now, consider the predicate "is green" as used in the following two situations.

A. One afternoon, Mary and her friend Josee are having tea in Mary's kitchen. Josee has recently moved into a new house, and is complaining about her difficulties finding the right furniture and appliances. In particular, she has been looking for appliances that match the light green wallpaper and linoleum floors of her kitchen. Seeing Mary's kettle, she says, "That kettle is green. In fact, it is exactly the green I'm looking for. Wherever did you find it."

B. That same afternoon, two city water inspectors arrive at Mary's house and explain that because of a recent chemical spill they are performing various tests throughout her neighborhood. One of their concerns is that the chemicals are being absorbed by such things as plates, cups, and kettles due to their regular exposure to the tainted water. A simple test for this absorption involves shining a red filtered light on the suspect surface. In the presence of the chemical, the surface will appear a striking fluorescent green. While Fred inspects the showers

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[5] Ziff (1960), p. 181. This point was made by Wittgenstein (1956), especially §66-80.

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and taps, Ernie inspects the kitchen and collects on the table every-
thing that tests positive. By mistake, the kettle, which tested nega-
tive, is included on the table among several white plates, and blue
mugs. When Fred returns, Ernie, pointing to the collection, reports as
follows: "Only a few plates and mugs tested green. Oh, and the kettle
is green, too."

First, what is there to say about the the meaning of the sentence,
"The kettle is green"? We might begin with the following. A kettle is
a kitchen appliance used for boiling water; "the" is the definite arti-
cle; "the kettle" is, then, a definite referring expression; "green" is
the name of a certain color; "is" is used in predication; so "is green"
says something to be colored green. Second, there is no prima facie
reason for thinking that the sentence Josee used differs in meaning from
the one used by Ernie. Nevertheless, what Josee said is true while what
Ernie said is false. Therefore, they did not say the same thing. But
both referred to the kettle, so the difference in what each said must be
a difference in what they said about the kettle. That is, what Josee
said about the kettle using the words "is green" is not what Ernie said
about the kettle using those words.

In this section, I have discussed four examples of context-depen-
dence. They illustrate, I think, that predicates can be used to say
different things in different contexts even while their linguistic mean-
ing remains fixed. Linguistic meaning does not determine what is said.
A complete defense of this view would require constructing many more ex-
amples. Instead, I will consider several strategies for avoiding this
conclusion. Doing this will provide further opportunity to support the
view.

2. One might think that although it is true that Josee and Ernie said different things in uttering the sentence, "The kettle is green", it is false that they referred to the same thing. One might think, that is, that Josee referred to, say, the kettle's outside surface and Ernie to its inside surface. The idea might be that what Josee said about the outside surface is true, while what Ernie said about its inside surface is false. This would, it might seem, allow for an explanation of the difference in what each said without supposing that different things were said using the words "is green".

But this is not, I think, a very natural suggestion. And it requires some account of how Josee and Ernie succeeded in referring to different things using the same words. But this might be considered a small price to pay to avoid accepting the context-dependence of what was said about the kettle. However, even if we accept that different references were made using the words "the kettle", meaning what they do in English, there is still good reason to think they said different things about what they referred to.

To begin with, knowing what Ernie said would lead us to expect certain further things to be true of the kettle, or of its inside surface. In particular, we know that if what Ernie said about the inside surface of the kettle were true (which it is not), then this surface would appear fluorescent green if a red-filtered light were shined on it. But nothing about what Josee said about the outside surface of the kettle would lead one to expect that it too would appear fluorescent green if a red-filtered light were shined on it. For all she said, such a light might make the surface appear blue. To be sure, knowing what she said

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would lead one to expect certain further things to be true of it (e.g., that cleaning would reveal it to be completely green), but surely nothing about the effects of a red-filtered light.

Second, shining such a light on the inside surface of the kettle would show what Ernie said about it to be false. The outcome of a similar test on the outside surface would, on the other hand, have no bearing whatsoever on the truth (or falsity) of what Josee said about the kettle (or about its outside surface). In contrast, though, what Josee said might very well be false if on closer examination the enamelled (outside) surface of the kettle is found to be coated in a thin greenish water-based paint, which then dissolves upon cleaning leaving a blue enamel. A similar discovery about the inside surface would likely have no effect on the truth of what Ernie said.

Finally, what Ernie said (falsely) about the inside surface of the kettle can be truly said of the plates and mugs he collected. However, what Josee said (truly) of the outside surface of the kettle is false of these same plates and mugs.

Facts about what a thought entails, about what would show it to be true (or false), and about what else might make it true, are crucial to identifying and distinguishing thoughts. Utterances that differ in such ways differ in what they express. Since Josee's and Ernie's utterances differ in such ways (even when supposing a difference in reference) they expressed different thoughts. So what Josee said about the outside surface of the kettle is not what Ernie said about its inside surface.

These considerations serve to counter a second strategy. One might argue that it is not clear that Josee (or Ernie) expressed a thought. One might argue, perhaps, that she failed to express a thought, or only

incompletely expressed one, or, perhaps, only expressed an incomplete

thought. This strategy might take support from the fact that there is a

certain amount of looseness in our notion of expressing a thought. One

might try to argue that these examples trade on precisely this loose-

ness. It is right that we begin our investigations without a clear un-

derstanding of the notions of a thought or of its expression. There is

a certain looseness in these notions, and we must be careful to respect

this. But clear intuitions about when someone has expressed a thought,

and about when different thoughts are expressed surely count as

important. It seems very natural to hold that Josee and Ernie each

expressed a thought, and a different thought from the other. I think

the differences just mentioned support this.

A third, and more interesting, strategy aims to show that there is

less to what is literally said than meets the eye by exploiting the dis-

tinction between what a speaker literally or strictly says and what she

merely suggests or otherwise communicates. The strategy is to hold that

whereas contextual factors play a role in determining what is otherwise

communicated, linguistic meaning alone determines what is literally

said.[6] The distinction is a good one, and its motivations are

compelling. But it does not tell against context-dependence.

It is relatively uncontroversial that we can communicate more than we

actually say. If I say to someone whose car has broken down that there

is a garage around the corner, though I have not said that the garage is

open, I have almost certainly communicated to him that it is. Simi-

larly, we can communicate truths by saying what is false. One can in-

form another that the man in the corner is a murderer by expressing he

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[6] The idea of such a distinction originates, I think, in Grice (1989),
and has been discussed more recently by Kripke (1977).

proposition that the man drinking the martini is a murderer, even though the man's glass contains water. Participants in a conversation typically share background beliefs, purposes, intentions and expectations. And they commonly exploit this shared background in communicating with each other. I believe that a satisfactory account of communication will need to rely on some distinction between what is said and what is otherwise communicated.

But the distinction does not tell against the view that the linguistic expression of thought is dependent on context. The view that it does is sometimes supported by a certain methodological principle. The principle, which Grice called "Modified Occam's Razor", holds that in explanations of linguistic phenomena linguistic meanings are not to be multiplied beyond necessity.[7] Like other methodological maxims counselling theoretical simplicity, this is a reasonable principle. Explanations of linguistic phenomena which do not involve positing linguistic ambiguities are, all things considered, to be preferred to those that do.

But the principle does not tell against the view that the linguistic expression of thought is context-dependent. It would only if admitting context-dependence involved a commitment to linguistic ambiguity. But my suggested explanations of the examples do not appeal to linguistic ambiguity. Moreover, by allowing contextual factors a role in an account of the expression of thought we can accommodate the principle, since it allows us to simplify our account of the role linguistic meaning plays in the expression of thought. In particular, it allows us to accommodate the intuition that few of our words are ambiguous by

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[7] Grice (1989), 47-49. For a developed criticism of the principle's relevance along present lines see Recanati (1989).

allowing for a distinction between a word's linguistic meaning and what that word might be used to say about a thing.

Contextual factors do sometimes play a role in determining what is said when an ambiguous word is used. What a speaker says when she uses the word "bank" or utters the sentence "flying planes can be dangerous" typically depends on context because these words are ambiguous. But there is, I think, no reason to assume that this is the only, or even the primary, role contextual factors play in determining what is said.

The view that a distinction between what is said and what is otherwise communicated tells against contextual dependence also assumes that what is said is determined by linguistic meaning alone. For the strategy holds that what is literally said or expressed is determined by linguistic meaning, while contextual factors determine what is otherwise communicated. Applied to the case of the kettle, the strategy requires that there be a thought that both Josee and Ernie expressed, and that it is what that sentence literally expresses. But there is good reason to reject this.

Consider the following uses of the sentence, each referring to a given kettle.

A. Josee's use of it as described above.

B. As used by Marie's painter friend, Andre, who is assembling a kitchen still-life for his students, and is looking for a small green object.

C. As used by Marie's daughter, Monique, after having carefully painted the kettle, grease and all, with green water color.

D. As used by Marie, to Josee, after explaining that her new kitchen lights tend to change the color of certain of her kitchen pots.

E. As used by Marie's husband, Paul, to teach his youngest daughter the meaning of the word "green".

F. As used by a potter, to his helper, after applying a clear glaze which when carefully fired at a specific temperature oxidizes to a green enamel. The helper's task is to place the kettle in the appropriate kiln.

G. As used by Madeleine, Monique's best friend, to point out her favorite shade of green.

Here are just a few of the differences between what was said in each case. i) As we have already noted, what Josee said would be false if it were discovered that the kettle is yellow but covered in green watercolor. The same is obviously not true of what Monique said. However, what Josee said would be true of the kettle, while what Monique said false of it, after the kettle is washed. ii) What Josee said would be true even if the kettle were completely covered in a hardened coat of brown grease. (She is, after all, interested in how the kettle looked after being bought.) What Andre said would, plausibly, be false of such a kettle. The truth of what Paul said, though, as well as the truth of what Madeleine said, would not be affected by any discovery about the kettle. There is a sense in which the kettle is not the subject of their statements. iii) What Josee said, as well as what Andre said and what Paul said, would be true of a clean (ripe) Granny Smith apple. Plausibly, what Monique said would be false of such an apple. In the case of what Madeleine said, the apple's particular shade of green would be relevant to whether what she said of the kettle would also be true of the apple. Typically, apples come in different shades of green. Not all apples, then, will exhibit Madeleine's favorite. iv) Case D is in-

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teresting since it seems to be unclear, to me anyway, what Marie said. Did she say that the kettle only appears green in this light? Or did she say that the kettle is not affected by the light, and so really is the color it appears to be? Further facts about the context seem to be required to determine which she said. v) Case F is interesting since, unlike the other examples, the truth of what the worker said does not depend on how the kettle looks at the time of speaking.

What is common to the examples (with the possible exception of D) is that the speaker used the English phrase "is green" to say something about the kettle. If the strategy under consideration is correct, then they all said the same thing, though at most one spoke the literal truth. But I think the examples tell against this. There seems to be no principled way of selecting one of the things said as being what that sentence literally says. And I do not recognize one of them as being what that sentence literally says. There appear rather to be many different things to be literally said about a given kettle using the words "The kettle is green". Which is to say that there is not some one thing which is what, meaning what it does, a speaker in uttering it would literally say.

A fourth strategy for avoiding the view that the expression of thought is context-dependent aims to show that there is more to linguistic meaning than meets the eye by maintaining that whatever can be expressed context-dependently can also be expressed context-independently. According to this strategy, if an utterance of a sentence expresses a thought context-dependently, then there is some other sentence any utterance of which would express that thought. Call such a sentence a "complete" sentence.

This strategy has been advanced by John Searle in his book <u>Speech</u>
<u>Acts</u>, Searle proposes what he calls the Principle of Expressibility.[8]
The principle holds that for any thought T, and any speaker S, whenever
S intends to express T it is possible that there is some expression E
such that E is an "exact expression or formulation" of T. And he con-
tends that this shows that contextual factors are not essential to an
account of the expression of thought. For, according to Searle, the
principle implies that "cases where the speaker does not say exactly
what he means-- the principle kinds of cases of which are non-literal-
ness, vagueness, ambiguity, and incompleteness-- are not theoretically
essential to linguistic communication."[9] Prima facie, these are cases
where contextual factors play a role in determining what is said. For
contextual factors play a role in resolving ambiguities and supplying
standards of strictness or literalness.

This strategy does not deny the phenomena of context-dependence, but
views it as eliminable through appropriate reformulation or regimenta-
tion. And this, it is concluded, shows that the expression of thought
is properly to be understood in terms of the notion of a complete sen-
tence. We could construct a new sentence and stipulate that it is to be
used only to express what Josee said. In this way, we might overcome
the role context played in her expression of that thought.[10] But this

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[8] Searle (1969), Chapter 1, section 5. In later work, Searle seems to
retract what I am here attributing to him, namely acceptance of some no-
tion of a complete sentence, while retaining the Principle of Express-
ibility. (Cf. Searle (1979) chapter 5). This retraction substantially
trivializes the Principle. The present interpretation of Searle's Prin-
ciple is also given in Katz (1972); see below.

[9] Searle (1969), 20.

[10] Among the beliefs and intentions that are part of the context are be-
liefs about what words mean and intentions to use words in certain ways.
So even stipulating that a sentence is to express a given thought would
not overcome the context-dependence of the expression of thought.

is plainly an artificial solution. And though it may succeed in particular cases, it cannot be applied generally. I take it that what is of interest in the strategy is the idea that our ordinary language can as it is express context-independently whatever we may express context-dependently. There is, however, little reason to suppose complete sentences can be constructed, and the idea that they can involves misconstruing the role non-linguistic contextual factors play in the expression of thought.

Consider the example involving Josee and the kettle. I argued that Josee's saying what she did in uttering the sentence "The kettle is green" depended on the context of her utterance. The present strategy holds that there is, nevertheless, a sentence any utterance of which would express context-independently what Josee expressed only context-dependently.

To count as complete two things must be true of a sentence. First, it must be the case that an utterance of it would express the thought expressed only context-dependently by the incomplete sentence. Second, it must be the case that any utterance of the candidate would express the thought in question regardless of the context, or at least that any context-dependence would be completely determined by its linguistic meaning. I think that constructing a sentence that meets both requirements is less than trivial. Since I lack the space (and patience) to consider every possible candidate complete sentence, I will illustrate the difficulties using two plausible candidates: "The kettle is colored green" and "The kettle is enamelled green".

The difficulty involved in satisfying the first requirement stems from the fact that the candidate sentence is bound to have a different

linguistic meaning than the original one. The difficulty is that it is not obvious that its meaning will not interact with contextual factors in such a way as to make it express a different thought from that expressed using the original sentence.

Suppose Josee had uttered "The kettle is colored green." What she actually said would be shown false if it were discovered that Marie's daughter had recently covered Marie's yellow kettle with green water colors. It is not as clear, though, that this would show what she would have said using this first candidate to be false: being painted green is, after all, one way of being colored green. To say that something is colored green is not to say that it is green.

Suppose Josee had uttered "The kettle is enameled green". And suppose it is discovered that the kettle has, in fact, two coats of enamel; one a bright yellow and the other a light blue. Combined, they produce the effect of a single coat of green enamel even though there is no green enamel on the kettle. Plausibly, such a discovery would show what would be expressed using "The kettle is enamelled green" to be false. For being enamelled green requires bearing a coat of green enamel. However, since the overall effect is the same, such a discovery would, it seems, have no effect on the truth of what Josee actually said. She is, after all, interested in finding a kettle to match the color of her floors and walls.

The general point, I think, is this. The greater the divergence between the meaning of the original sentence and that of the candidate sentence, the greater the likelihood that there will be interactions between the candidate and the original context making it express a differ-

ent thought. Appealing to still more complicated sentences simply increases the likelihood of such interaction.

The second condition on being a complete sentence requires that any utterance of it express the same thought regardless of the particular context of utterance. The sorts of context-dependence already discussed ought to make constructing a sentence satisfying this condition extremely difficult. The candidate complete sentence's expressing what it does would have to be immune to, among other factors, shifts in contextual standards of strictness, potential enrichments of the sort noticed in the case of Marie's kettle, and potential refinings of the sort noticed in the case of the decoy duck.

Consider the second candidate complete sentence, "The kettle is enamelled green." Suppose, again, that the kettle has two coats of enamel, one a bright yellow the other a light blue. Would uttering the sentence then say something true of the kettle? It might if, for instance, we are concerned with whether the kettle will match other enamelled pots and pans. In such a case, that the kettle's enamel does not actually contain green pigment might be irrelevant to the truth, and so not part of what is then said about it. But suppose it is discovered that the green pigment used in some enamels is carcinogenic. In a context where this is relevant, the fact that the kettle does not contain green pigment might be relevant to the truth of what is said, and so might be part of what is said in using the sentence, "The kettle is enamelled green." There are different things to be said about a kettle using the phrase "is enamelled green", meaning what it does in English.

These considerations support an argument of a more general character advanced by E.J. Lemmon against Quine's notion of an eternal sentence.

Lemmon considers how the sentence "Brutus killed Caesar", as uttered on an occasion, might be transformed into a complete sentence.

> We have already seen that (it) is not in fact eternal, if only because there may be dogs called Brutus and Caesar. But even if we expand (it) into:
>> Brutus, the Roman Senator who lived from 85 to 42 B.C., killed Caesar, the Roman General who lived from 102 to 44 B.C.,
>
> we are in theory no better off. For it is in principle still possible that there were two such senators or two such generals, or even two Romes. No such definite description or proper name, however 'complete', carries a *logical* assurance of context free unique reference, which is what Quine's expansion seems to demand.[11]

If the result of reformulating the sentence is to count as a complete or eternal sentence, then there must be, Lemmon is claiming, a 'logical' or, better, 'semantical' guarantee that the sentence will indeed express a unique thought context-independently. That is, the meaning of the complete sentence must be such as to preclude semantic interaction with contextual factors. For such interaction would result in its expressing a thought context-dependently, and this is precisely what is to be ruled out. But, Lemmon notes, there is little reason to believe that such guarantees are available. The considerations I have been advancing in this section provide further support for this skepticism. The linguistic meaning of our ordinary words seem to lack the independent life such a guarantee would require.

Jerrold Katz has objected that the demand for a logical or semantical guarantee is too strong. He claims that all that is required for a sentence's counting as a complete sentence is that, as a matter of contin-

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[11] Lemmon (1966), 245.

gent fact, any utterance of it does express that thought.[12] On this weakened version of the requirement, that an utterance of a complete sentence expresses what it does depends both on the sentence's linguistic meaning and on the way things are actually are. But the original appeal to a complete sentence was intended to underwrite a purely linguistic explanation of the expression of thought. The strategy promised to throw light on the nature of thought and of its relation to language. Accepting the weakened requirement deprives the strategy of much of its philosophical interest. If the appeal to a complete sentence is to be philosophically interesting it should involve commitment to a semantical guarantee to the effect that any utterance of a complete sentence will express the same thought regardless of context. But, as Lemmon has pointed out, there seems little reason to believe such guarantees available.

I think that the idea that whatever can be expressed context-dependently can also be expressed context-independently rests on misunderstanding the role contextual factors play in the expression of thought. In discussing the distinction between what is said and what is otherwise communicated, I noted that participants in a conversation typically share certain background beliefs, intentions, purposes and expectations. These are among the factors that determine what speakers convey over and above what they say. But I think these are also among the factors that determine what a speaker says in uttering a sentence. Conversation and inquiry take place against a background of beliefs, intentions and purposes. And it is not clear what it would be for this background to be absent.

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12 Katz (1972), 126.

It is tempting to picture the role of contextual factors as consisting in the expression of something. The thought expressed by a speaker would, on this picture, consist in what is expressed by her sentence together with what is expressed by the context. Sometimes the role played by contextual factors is described in just these terms. Assimilating the role played by context to this picture of that played by language may encourage the idea that language can play both roles. But what is at issue is whether this is the right model of the role language plays.

In my opinion, it is best to view thoughts as expressed by speakers, not by sentences or contexts. In expressing thoughts speakers employ and exploit contextual facts of various sorts. Among these are linguistic facts and the beliefs, intentions, purposes and expectations they share with those they are addressing. But speakers no more express the linguistic facts they employ than they do the other contextual facts they exploit. Contextual factors determine what is said, but not whether what is said is true. Once contextual factors are allowed a role in the expression of thought it is, in my opinion, not obvious how this role is to be taken over by words.[13]

5. I have been arguing that contextual factors play a role in the expression of thought, and I have suggested that this role may be ineliminable. One apparent source of philosophical resistance to this is a concern to safeguard the expressibility and communicability of thoughts.

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[13] Echoes of this point are to be found in Austin's work. In discussing what he calls the "demonstrative" conventions involved in the making of a statement, Austin writes that "however many verbal demonstrative devices we use as auxiliaries, there must *always* be a non-verbal *origin* for the co-ordinates, which is the point of utterance of the statement." Austin (1961), 90 note 3. Words, Austin is suggesting, can not play the role of origin.

Quine, for instance, warns that the alternative to the idea that thoughts can be expressed by complete sentences is that some are simply inexpressible.[14] David Bell cautions that the alternative to the view that thoughts can be fully 'embodied' in words is that some are incommunicable.[15] I think these warnings rest on a mistaken view of what is involved in understanding.

Neither Quine nor Bell defends this account of the alternatives. They may be relying on the epistemological view that understanding a speaker requires determining on the basis of her linguistic behavior alone what proposition she expressed. For one might conclude from this view that if context dependence is indeed ineliminable then communication would be problematic or even impossible. That is, if linguistic meaning does not alone determine what proposition the speaker expressed, then one cannot determine what she said on the basis of linguistic meaning alone. However, to the extent that this epistemological view simply assumes that linguistic meaning alone can determine what is said, it begs the question against one who holds that contextual dependence is an ineliminable feature of linguistic expression and communication.

Quine and Bell might instead be relying on the somewhat more general epistemological view that understanding what a speaker says requires knowing the facts, linguistic and contextual, that make her utterance express what it does. This, together with the plausible assumption that contextual factors play an extremely complex role, might suggest that understanding another requires knowledge typically unavailable to the

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[14] Quine (1960), 194. Along similar lines, John Searle and Jerrold Katz each suggests that the alternative is that the expression of thought involves a mystical or mysterious force. Cf. Searle (1969), 87; Katz (1972), 126.
[15] Bell (1987), 38.

average person. Understanding what a speaker says does involve knowing

a contingent matter of fact, since it is contingent that a speaker says

what she does. So, for instance, understanding what Josee says when she

utters "The kettle is green" involves both grasping the proposition she

expressed and knowing that it is the proposition she expressed. But it

does not follow that understanding what a speaker says requires knowing

what makes it the case that she expressed what she did. It does not

follow from the fact that what Josee said depends on context factors,

that understanding what she said requires knowing the role these factors

play in making it the case that she said what she did. Indeed, few

speakers if any know how their utterances come to express what they do,

let alone the role linguistic meaning plays in determining what they

say.[16] One can, after all, know that a speaker expressed a certain

thought without knowing which language she used to express it. And one

can know that the she expressed that thought without knowing how the

various contextual factors jointly determine that it is what she ex-

pressed. This is not to deny that successful communication typically

does require that participants know certain facts about the context of

utterance. Understanding what Josee said in uttering the words "The

kettle is green" involves knowing, among other things, that she is

speaking English and that that she is engaged in what might broadly be

called interior decorating. And, plausibly, understanding what she said

involves knowing something about interior decorating. It is a difficult

matter just what counts as minimal competence. But that we are reliable

detectors of what other people say does not depend on our knowing what

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[16] Similarly, one can know that a psychological state has a certain con-
tent without knowing how it has come by that content, and one can know
that a word has a certain meaning without knowing what makes it have
that meaning.

principles govern this ability, anymore than that we are reliable detectors of shape depends on our knowing what principles govern the ability to determine an object's shape on the basis of observation.

Moreover, whatever contextual factors determine what a speaker says will also, in favorable circumstances, determine what a hearer thinks the speaker said. Typically, participants in a conversation understand the language being used and know the various contextual factors. When a speaker utters a sentence its meaning together with other contextual factors determine what thought she expresses. To grasp that thought, a hearer need only thoughtfully repeat that sentence to herself. For it, together with the other contextual factors, will determine the very thought the speaker expressed. And this may be sufficient for the hearer to grasp the thought the speaker expressed. The point is not that this is what typically happens during communication. It is, rather, that the contextual factors that determine what a speaker says in uttering a sentence may also determine what a well informed and competent hearer believes the speaker has said.

Sometimes, understanding what someone says does require figuring it out on the basis of what one knows about the language and what one knows or believes about the speaker's intentions and beliefs, and about the context of utterance. This is an uncontroversial aspect of communication. The conversational maxims discussed by Grice provide a fruitful framework for theorizing about this kind of reasoning. But this kind of reasoning is the exception, rather than the rule. Typically, one understands what a speaker says without any reasoning at all. That communication is typically so effortless may have encouraged the views that the expression of thought depends solely on linguistic

facts, and that understanding requires only linguistic knowledge. But I think the proper conclusion is that the contextual factors that determine what is said sometimes also determine what a competent and well informed hearer believes has been said.

6. I have argued that contextual factors play a role in the expression of thought, and have suggested that this role may be ineliminable. In this concluding section, I want to discuss briefly the relevance of this to the philosophical project of explaining or analyzing thought and thinking in terms of language. I will argue that the role contextual factors play strongly suggests that this project will not succeed. But I will develop a limited sense in which understanding depends on language.

The project of explaining thought in terms of language requires explaining or analyzing what it is for a subject's psychological state to have a particular content in linguistic terms alone. One might, for instance, try to analyze believing a certain proposition in terms of disposition to assent to a sentence expressing that proposition. The role contextual factors play in the expression of thought strongly suggest that this natural idea will not succeed. For among the contextual factors determining what a speaker says are such psychological facts as the speaker's intentions and the purposes and aims she shares with the participants in the conversation. The expression and communication of thought occur against a background of purposes, aims and projects. Because it is not clear that this background is either eliminable or analyzable in linguistic terms, it is doubtful whether the expression of thought can be satisfactorily explained in terms of linguistic facts

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alone. This doubt is supported by the fact that the relevant linguistic facts are themselves plausibly viewed as dependent on psychological facts. The association of a word and a meaning is an arbitrary association. The word-form "green" might have had the meaning of the English word-forms "happy", "and" or "walk". A natural view is that the association of a word and a meaning is a matter of the intentions of the word's users. That the word "green" means what it does depends on the intentional use of it by speakers to express their thoughts. These shared intentions establish and sustain this association.

I have argued that an expression's linguistic meaning does not determine what thought a sentence containing it will be used to express. But it does determine what kind of thought it is typically used to express. Roughly speaking, the words "is green" are used to say of a thing that it is green. This is true even though there are various things to say about a thing using these words, meaning what they do. One purpose of specifying an expression's linguistic meaning is to convey its conventional usage. And this is accomplished by specifying the sort of thoughts it is commonly used to express. In saying that the word "green" is a name for a certain color, one conveys in a rough way what sort of thought sentences containing it are commonly used to express.

These points suggest that thought and thinking cannot be explained in terms of linguistic facts alone. But I do not believe they can be explained fully independently of language either. For language plays a role in improving understanding of the contents of thought. This view rests on two ideas. One is that explicating or articulating propositional content yields improved understanding of it. The other is that

such explications or articulations typically employ language. I will discuss each idea in turn.

To explicate a proposition is to state how it represents things as being, to state how things would be if it were true. A subject has an incomplete understanding of a belief or thought if she is unable to provide a thorough explication or articulation of its propositional content. Since having a belief or thought requires knowing enough about what its content is to believe or think it, some minimal knowledge is required. But acquiring this minimal knowledge is easily gained and may require little more than reflectively thinking about the content of the belief or thought. Nevertheless, one can have a belief or thought without being able to provide a complete or correct explication of its content. Consider Jones' belief that a cat is on his mat. Grasping the proposition that is that belief's content, and so knowing what Jones is believing, involves knowing how things would be if it were true. Plausibly, this involves knowing what it is for something to be a cat. Jones might have that belief while not knowing exactly what it is for something to be a cat. Indeed, he can have that belief while having false beliefs about what it is for something to be a cat, and even while falsely believing of certain things that they are cats. By gaining a better understanding of what it is for something to be a cat, Jones can attain a better understanding of how his belief represents things as being. This would improve his understanding of his belief.

This link between understanding and explicating propositional content was illustrated in the discussion of what Josee said about the kettle. It would be true to say that she had said that the kettle was green. But, as was shown by the discussion of the differences between what she

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and Ernie said, this is not all that can be said about the content of her statement. By articulating these differences we gained a better understanding of what each said. Improved understanding of what was said was gained by articulating or explicating how things would be if what was said was true.

This link between understanding and explicating propositional content complements traditional ideas about the identity conditions of propositions and about analyses of meaning. One traditional idea is that propositions are individuated, at least in part, by their logical relations to other thoughts. Grasping a proposition involves knowing its constitutive links with other thoughts. Since explicating or articulating a proposition reveals its logical links to other propositions, explication improves understanding. A second traditional idea is that learning so-called truths of meaning or conceptual truths improves understanding. Truths, such as that a vixen is a female fox, which formulate necessary or foundational truths constitute norms for correct understanding. Whether a speaker believes these truths is a defeasible test for her gasp of the relevant concepts.[17]

The view that language plays a role in improving understanding rests on a second point. It is that explicating or articulating propositional content typically employs language. This is relatively uncontroversial. Explicating a proposition involves stating how things would be if it were true. This is easily and most naturally done using language. Moreover, it is arguable that explicating or analyzing meanings is to be viewed as continuous with scientific investigation generally; knowledge acquired by explicating the meanings and concepts we think with is not

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[17] For a discussion of this point, see Burge (1986b), (1989).

to be distinguished from knowledge of the subject matters we use those concepts and meanings to think about. To the extent that scientific investigations make indispensable use of language, so too do explications of meanings and concepts. But two points should be noted.

First, it is not the aim of explicating or articulating a proposition to construct a complete sentence. I have argued that complete sentences cannot be constructed. The aim, rather, is to formulate the proposition in a more revealing manner. In certain contexts, one can formulate the proposition Josee expressed by using the sentence "The kettle is green". But as the discussion of the differences between what she and Ernie said suggest, this may not be the most revealing way of formulating it. In order to formulate it in a more revealing way, one exploits linguistic and non-linguistic contextual factors in the way one does when expressing any proposition. Second, that explicating a proposition employs language does not entail any particular view about the structure or nature of propositions. In particular, it does not require that propositions be structured in the way sentences are, or even that they be structured. Even if we suppose that propositions are unstructured sets of possible worlds, we might still hold that explicating a proposition yields improved understanding and that such explication typically employs language. For the view that explications that improve understanding typically employ language is an epistemological view about understanding. It is not a view about the nature of what is understood.

In this section I have argued that the phenomenon of context-dependence strongly suggests that the project of trying to explain thought and thinking in terms of linguistic facts alone will not succeed. If the view mentioned in the introduction is right, this undermines the

defining project of analytic philosophy. But I have also suggested that

another important theme in contemporary analytic philosophy, that there

is a link between understanding and theory, may nevertheless be correct.

Chapter 2

Understanding, Necessity and Truth

Some propositions are such that neither understanding sentences that express them nor entertaining them in thought suffices for determining whether they are true. For, roughly put, determining whether they are true requires knowing how things are in the world. An utterance of (1) in an appropriate context expresses such a proposition.

    (1) The vixen is on the mat.

    (2) A vixen is a female fox.

For determining whether what is thus expressed is true requires knowing how things are with a certain vixen. Some have held the view, however, that, at least in certain cases, necessarily true propositions are such that understanding sentences that express them suffices for determining that they are true. On this view, one cannot understand such a sentence without accepting it, or entertain such a proposition without believing it. Assuming, ι᾽ I will for the purposes of this paper, that (2) expresses such a truth, this view has it that understanding it, or entertaining what it expresses in thought, is sufficient for determining that it is true.

In this paper I will focus on one argument for this view, an argument I will call the "Argument from Understanding". It starts from a certain conception of the knowledge involved in understanding a sentence, and maintains that, in the case of at least some sentences that express necessary truths, such knowledge suffices to determine the sentence's truth value. The conception in question is that understanding a sentence in-

volves meta-linguistic knowledge of the sentence's truth-conditional and referential properties. The argument maintains that, in some cases, such meta-linguistic knowledge suffices to determine a sentence's truth value.

The primary aim of this paper is to argue that this argument should be rejected. In sections 2, 3 and 4, I argue against that conception of understanding, and discuss the roles meta-linguistic reasoning and knowledge play in understanding and doubting necessary truths. In section 5, I argue that it is anyway not clear that meta-linguistic knowledge does suffice to determine the truth value of a sentence that expresses a necessary truth. But I begin by noting some qualifications to that conception of understanding, and by laying out the Argument from Understanding.

1. By "proposition" I will mean what is expressed by a sentence, what is the content of a psychological state and what is, in the first instance, true or false. I take it that understanding a sentence and thinking involve 'grasping' a proposition, and that this is the starting point for a philosophical inquiry into understanding. The aim of such an inquiry is to say just what it is to grasp a proposition. Some have held that propositions simply are truth conditions. This may derive from a particular use of the expression "truth condition". But since at least part of what is at issue here is the nature of propositions, I will remain neutral on the question what propositions are. I will continue to speak of propositions as what sentences express, as what are the contents of belief and other psychological states, and as what, in the first instance, are true or false. And I will say that a proposition,

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or a sentence that expresses one, "has" or "determines" truth conditions.

The account of understanding I want to oppose is that understanding a sentence involve knowing truth conditions. Some qualification is needed since there are sentences that are neither true nor false, or that do not have or determine truth conditions. Some sentences are used to ask questions or to make requests or demands rather than to express propositions, and sentences that contain pronouns, indexicals, demonstratives, definite descriptions and tensed verbs can be used to express different propositions in different contexts. Understanding such sentences cannot require knowing truth conditions, since these sentences do not have or determine truth conditions. One might qualify the view of understanding by restricting it to understanding uses of sentences that express propositions, or by restricting it to sentences that express the same proposition regardless of context. Since, nothing in what I will argue depends on, or is affected by, whatever role contextual factors may play in the linguistic expression of propositions, I will adopt the first strategy.

The view that understanding a sentence that expresses a necessary truth suffices to determine that it is true is enunciated by Carnap in the following passage.

> Philosophers have often distinguished two kinds of truth:
> the truth of some statements is logical, necessary, based
> upon meaning, while that of other statements is empirical,
> contingent, dependent upon the facts of the world. The fol-
> lowing two statements belong to the first kind:
>> (a) "Fido is black or Fido is not black"
>> (b) "If Jack is a bachelor, then he is not married"
> In either case it is sufficient to understand the statement
> in order to establish its truth; knowledge of (extra-lin-

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guistic) facts is not involved. However, there is a differ-
ence. To ascertain the truth of (a), only the meanings of
the logical particles ("is", "or", "not") are required; the
meanings of the descriptive (i.e., nonlogical) words
("Fido", "black") are irrelevant (except that they must be-
long to suitable types). For (b), on the other hand, the
meanings of some descriptive words are involved, viz., those
of "bachelor" and "married".[18]

Carnap's view is that the knowledge involved in understanding a sentence

that expresses a necessary truth justifies one in believing what the

sentence says, or is sufficient to determine that the sentence is true.

In another place, Carnap explains that understanding a sentence is

knowledge of, or at least requires knowing, the sentence's truth con-

ditions. In introducing the notion of a semantical system, for in-

stance, Carnap explains that

> [b]y a *semantical system* (or interpreted system) we under-
> stand a system of rules, formulated in a metalanguage and
> referring to an object language, of such a kind that the
> rules determine a *truth-condition* for every sentence of the
> object language, i.e. a sufficient and necessary condition
> for its truth. In this way the sentences are *interpreted* by
> the rules, i.e. made understandable, because to understand a
> sentence, to know what is asserted by it, is the same as to
> know under what conditions it would be true. To formulate
> it in still another way: the rules determine the *meaning* or
> *sense* of the sentences.[19]

The view is that the knowledge involved in understanding a sentence is

meta-linguistic knowledge of its referential and truth-conditional

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[18] Carnap (1952), 222. (For simplicity, I have re-named his examples.)
This view is also expressed by Carnap in his (1956), §§2 and 17, and by
John Wisdom (1938), 63 n.1; Carl Hempel (1945), 379; and A.J. Ayer
(1946), 78-9.
[19] Carnap (1948), §7; cf. 28-29 where Carnap credits Wittgenstein with
having emphasized the point that understanding a sentence involves know-
ing its truth conditions. This view of understanding is also explicit
in Carnap's (1956), 5 and 9-10.

properties. Carnap concludes the passage by remarking that to "know the truth-condition of a sentence is (in most cases) much less than to know its truth-value, but it is the necessary starting point for finding out its truth value."

All of this suggests what might be called the Argument from Understanding.

(AU)   (A) Understanding a sentence that expresses a necessary truth requires knowing its truth conditions.

     (B) But knowing the truth conditions of a sentence that expresses a necessary truth suffices to determine that it is true.

     (C) Hence, understanding a sentence that expresses a necessary truth suffices to determine that it is true.

The conclusion is plainly controversial.[20] It was intended as a central element in an attempt to accommodate knowledge of necessary truths within a broadly empiricist epistemology. And I take it that (AU) was intended as a non-trivial defense of (C). That is, I take it that (C) was not intended to follow simply from a proposal as to how to analyze the concept of linguistic knowledge, or of understanding, since any such analysis would be at least as controversial as (C) itself. So I will assume that (A) and (B) are to be understood as independent of each other, and that neither by itself entails (C).

2. In order to assess premise (A) we must distinguish a strong and a weak version of it. First, one might hold that knowing a sentence's truth conditional and referential properties requires *explicit* knowl-

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[20] The conclusion should be distinguished from the view that understanding suffices to determine a sentence's modal value; that is, to determine either that it is contingent or that it is necessary.

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edge, where having such knowledge involves being able to think and rea-

son about the sentence and its referential and truth conditional proper-

ties. Second, one might hold that knowing a sentence's truth condi-

tional and referential properties requires having *tacit* knowledge, where

having such knowledge does not require being able to reason or think

about the sentence and its referential and truth conditional properties.

In this section I will discuss the strong version of (A).

Carnap appears to have had this version in mind when advocating (C).

In discussing an example meant to illustrate how the truth value of a

sentence that expresses a necessary truth can be determined his reason-

ing is explicitly meta-linguistic: it employs as premises propositions

about the referential properties of words.[21] The discussion leaves the

impression that it is by reasoning about, among other things, the

referential properties of our words that the truth value of such

sentences can be determined. Moreover, Carnap offers the following as

an adequacy condition on any proposed explication of the ordinary notion

of a necessary, logical or analytic truth.

> A sentence... S is is **L-true** in a semantical system S if
> and only if [it] is true in S in such a way that its truth
> can be established on the basis of the semantical rules of
> the system S alone, without any reference to (extra-linguis-
> tic) facts.[22]

Though he says that this is an "informal formulation" intended to play

merely an "explanatory and heuristic function", it seems clear that he

saw the determination of a necessarily true sentence's truth value as

involving reference to the sentence's referential and truth conditional

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[21] Carnap (1956), 11. I discuss this example in more detail below.
[22] Carnap (1956), 10; Cf. 70. This is also suggested by the passages
from Wisdom and Hempel quoted in section 5, below.

properties. The idea was that it is by reference to a semantical theory about the language that the sentence's truth value can be determined.

There is, however, good reason to think this strong version of (A) is mistaken. To see this, consider what it is to understand the English word "vixen". This requires being able to use it to think and talk about vixens; that is, to entertain and express propositions about vixens. So, for instance, one understands it if one understands sentences such as (3), (4), or (5) in which it is used.

(3) John shot a vixen.

(4) A vixen ran past the window.

(5) A vixen is a small mammal.

But does understanding the word "vixen" require knowing the proposition expressed by (6)?

(6) "Vixen" refers to vixens.

There are two notable features of the proposition expressed by (6). First, it is a proposition about the word "vixen"; it is a meta-linguistic proposition. Second, (6) states what Carnap might have called a "semantical rule" governing the use of the word "vixen"; (6) states (part of) what it is about the word "vixen" that makes it fit to be used to talk and think about vixens.

There are, however, several for reasons for thinking that understanding a word or sentence does not require being able to think or talk about the word's or sentence's referential or truth conditional properties.[23] One is that knowing what (6) says requires having conceptual resources that many who understand the word need not be supposed to

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[23] What follows relies on Soames (1989), though the basic point is also to be found in much of Tyler Burge's work; especially his (1986b).

have. More specifically, knowing what (6) states requires having a meta-linguistic concept of reference; it requires being able to think or talk about the referential properties of ones words. For to know that "vixen" refers to vixens one has to know what reference is, or what it is for a word to refer to something. But it seems wrong to suppose that this knowledge is required since young children and unsophisticated adults can understand lots of words without knowing what reference is, or what it is for a word to refer to something. Indeed, children understand all sorts of words long before they learn to talk about their words.

Though this point is illustrated most clearly in the case of children it is not restricted to this case. To see this, consider a small, isolated, linguistic community the curiosity of whose members is limited to their natural surroundings and to their more primitive practices and activities. For whatever reason, they do not reflect on their linguistic activities. We might suppose that they share a primitive religious belief that such reflection is forbidden. Or we might suppose that they simply have not thought to reflect on their linguistic practices. Though such people might be unlike us in certain respects there is no absurdity in supposing there to be, or to have been, such a linguistic community. Moreover, we would say that they understand their words and use them to say and think things about their surroundings. But it would be wrong to conclude that they explicitly know that their words refer to objects in their environment. For their participation in the practices is not sufficiently reflective for them to have acquired such knowledge. From their perspective, such knowledge would count as new and highly informative.

It might be thought that understanding the word "vixen" requires having a meta-linguistic concept of reference, even if one has not word for it on the grounds that understanding a word requires knowing that words are used to refer to things. Michael Dummett, for instance, says that "[w]e can grasp the sense of a name... only if we understand what it is to regard, and to use, an expression as a name."[24] As already remarked, understanding the word "vixen" requires being able to use it to talk and think about vixens. So there is a sense in which understanding the word requires knowing how to use it. But this does not require, as Dummett's claim might suggest, knowing *what it is* to use a word as a name, or that one must know this in order to learn a language. So understood, Dummett's remark exaggerates the intellectual sophistication required both in order to understand a word or sentence, and in order to learn a language.[25]

Soames points to a second reason for holding that understanding the word "vixen" does not require knowing the proposition expressed by (6)

> (6) "Vixen" refers to vixens.

It is that, typically, speakers exploit their understanding of their words in reflecting on what their words refer to. Consider how a native speaker of English might come to know what (6) says. To suppose that it is by understanding the word "vixen" reverses what seems like the intuitive order of explanation. For knowing that "vixen" refers to vixens

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[24] Dummett (1988), 26.

[25] Higginbotham notes that a "person can know something without being in full command of the concepts that may be used to characterize what she knows" (1991, 282), and suggests that this point applies to a speaker's knowledge of the referential properties of her words. I agree that one can have the concept of linguistic reference without knowing a great deal about what reference is. My point, though, is that even the minimal knowledge and conceptual abilities required to grasp what (6) expresses are more than is required simply to understand the word "vixen".

requires not only knowing the meaning of "refers", but also knowing the meaning of the word "vixen". For the word "vixen" is used, as well as mentioned, in (6). It is more plausible to suppose that a native speaker of English comes to know what (6) says by being told it, or by thinking about her words. And it is in part because she already understands her words that she is able to understand claims about them. That is, it is because a subject understands her words that she is able to talk about their referential properties. Understanding claims about what one's words refer to exploits, and so in general cannot explain, one's understanding of those words.

This second point can be brought out in a slightly different way. Suppose someone we consider to be a competent English speaker disagrees with us about (6). There are several things we might think. We might suspect a misunderstanding, and so only a verbal disagreement. But in that case we would likely question, not her understanding of "vixen", but, rather, her understanding of the word "refers". We might suspect that she simply lacks the concept of reference. But it might be she has unorthodox views about reference: perhaps she thinks natural kind terms are not referential. One reason for not immediately questioning her understanding of "vixen" is that beliefs about the referential properties of one's words are acquired only after one has learned those words, and depends on or exploits one's knowledge of their meaning.

These considerations can be extended to the case of understanding a sentence. Understanding (2) does not, I think, require knowing the proposition expressed by (8).

(2) A vixen is a female fox.

(8) "A vixen is a female fox" is true just in case a vixen is a

female fox.

(8) correctly states the truth conditions of (2). But, for reasons of
the kind we have already discussed, understanding (2) does not require
knowing the proposition it expresses. First, children and unsophisti-
cated adults can without difficulty understand (2) without having a
meta-linguistic concept of truth, and so without knowing what (8) says.
Children understand and accept many sentences long before they have the
ability to reflect about their sentences or about what their sentences
refer to or require for truth. Second, to suppose that understanding
(2) requires knowing what (8) states is to reverse what seems like the
intuitive order of explanation. Knowing the proposition expressed by
(8) requires not only having a meta-linguistic concept of truth, it also
requires knowing the meaning of (2). For what (2) expresses is a part
of what (8) expresses. It is, in part, because one understands (2) that
one can understand (8). It is because one understands one's sentences
that one can know propositions about their truth conditions.

One might object that understanding a sentence or having a belief
nevertheless requires having a meta-linguistic or meta-psychological
concept of truth on the grounds that understanding a sentence requires
knowing that sentences are used to express truths, and that having a
belief requires knowing that one should aim to have only true beliefs.
But, again, this seems to exaggerate the intellectual resources required
for understanding and belief. Scott Soames remarks that a child will
get along fine if all she believes is that one should say or believe
that a vixen rushed past the window only if a vixen rushed past the
window; or that a vixen is a female fox only if a vixen is a female fox;

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or that John shot a vixen only if John shot a vixen; and so on. Soames comments that

> [a] truth predicate comes in handy in stating such a rule, for it allows one to eliminate the "and so on" in favour of quantification over assertions [or beliefs] plus predications of truth. But handy or not, this logical technology is not necessary for learning.[26]

Soames's point is that intellectual sophistication of the kind required to formulate or understand general principles governing assertion and the formation of beliefs is attained (if ever) only long after one has learned one's language and formed lots of beliefs. Acceptance of such principles cannot be considered necessary for understanding a sentence or having a belief.

In this section I have argued that the strong version of premise (A) is mistaken. Understanding a sentence does not require explicit knowledge of its truth conditional and referential properties. For having such knowledge requires abilities and resources not required for understanding, and its acquisition depends on, and so cannot explain, one's understanding. On this strong version of premise (A), then, the Argument from Understanding is valid but not sound, and so provides no support for the contention that understanding a sentence that expresses a necessary truth suffices to determine its truth value.

3. In response to this, one might adopt only a weak version of (A). For one might hold that although using words to think and talk about the world does not require being able to reason about, or explicitly know, the propositions governing this use, these propositions are nevertheless

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26 Soames (1989), 594, n. 3.

tacitly known by speakers. The aim of this section is to discuss this version of (A).

The first thing to notice about the weak version of (A) is that adopting it threatens to render (AU) either invalid or uninteresting. The argument's conclusion, (C), maintains that the truth value of certain sentences can be known on the basis of understanding alone. If (C) is understood as a claim about how we can acquire explicit knowledge of the sentence's truth value, then adopting the weak version of (A) invalidates (AU). For one can have implicit knowledge of a sentence's truth conditional properties without having explicit knowledge of its truth value. Indeed, one can even have implicit knowledge of a sentence's truth value without having explicit knowledge of this. If, on the other hand, (C) is understood as a claim about tacit knowledge of a sentence's truth value then (AU) is of little apparent interest. For, again, one can tacitly know that a vixen is a female fox while explicitly believing otherwise.

Some support for a weak version of (A) may be thought to derive from our ordinary unreflective use of the words "meaning" and "reference". For the phrases "know the meaning of" and "know the referent of" are often used interchangeably with the word "understand", even when describing the linguistic abilities of children and unsophisticated adults. But this ordinary usage is not meant to reflect an accepted theoretical analysis of understanding, let alone some account of the tacit knowledge employed by competent speakers. That ordinary usage does not distinguish among applications of these words suggests that their philosophical and theoretical uses are exceptional and require careful explanation.

Recently, attempts have been made to explain certain social and psychological aspects of language use by appealing to a notion of tacit knowledge of referential and truth conditional properties. One project aims to explain the conventional character of linguistic regularities by ascribing to speakers complex tacit knowledge about their linguistic practices and, in particular, about the referential properties of their words.[27] The project aims to explain the sense in which, for instance, it is conventional that "vixen" refers to vixens, in terms of the notion of a speaker's tacit knowledge of, inter alia, the proposition that "vixen" refers to vixens. A second project that appeals to tacit knowledge of such propositions aims to characterize and explain the psychological and/or biological basis of linguistic competence.[28] The aim is to explain certain of a speaker's linguistic abilities and behaviors as depending on, or as issuing causally from, among other things, tacit knowledge of the referential and truth conditional properties of her words and sentences. This is not the place to consider whether a notion of tacit knowledge of referential and truth conditional properties will play a fruitful role in explaining linguistic convention or competence. But two related points are relevant to the present topic.

The first concerns the reasons for counting the knowledge tacit. One reason is that speakers typically lack the concepts required in order to state what they are being said to know. In general, successful engagement in an activity or practice does not require having the concepts appealed to in a true theory about the activity or practice. This is clearest in cases where the activity has a biological basis. But it

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[27] Lewis (1969).
[28] Higginbotham (1989).

applies also in cases where the activity's basis is social or conventional. These concepts are acquired, if ever, only after the activity has been mastered. They are acquired by theorizing about the activity and are not among the conceptual resources employed by participants while engaging in it. This does not in itself tell against explanatory projects that appeal to tacit knowledge of such propositions in explaining the participant's behavior or underlying competence.

A second, and related, reason for counting the ascribed knowledge tacit is that successful participation in an activity does not guarantee against false beliefs or mistaken theorizing about the activity's basis.[29] This is clear from the history of linguistics. Everyone agrees that some linguistic regularities are conventional in at least the sense that other psychologically or biologically possible regularities would have served equally well. But, from the beginning, linguists have disagreed over exactly which regularities are conventional in this sense and which derive from our psychological or biological nature. Some have apparently held that the association of a word with its referent is established and sustained by God and is, in this respect, non-arbitrary (and perhaps non-natural). Others held that word order has a biological basis. And similar debates continue in contemporary linguistics. This shows that even those who have mastered the practice can without irrationality deny or doubt what these contemporary projects claim they know. But again, this does not in itself tell against the fruitfulness or scientific legitimacy of explanatory projects that ascribe such knowledge in explaining behavior or competence.

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[29] For more on this, see Burge (1975).

A second point to notice about these projects is related to these reasons for counting the knowledge they ascribe to speakers tacit. It is that there is a distinction between the conditions a speaker must satisfy in order to understand a word or sentence, and what this understanding makes available to her for purposes of judgment, reasoning and, what is most relevant for our purposes, the formation of belief. These projects aim to characterize the general psychological, biological or social conditions whose satisfaction by a speaker enables her to understand a word or sentence. To the extent that satisfaction of these conditions is viewed as a matter of having tacit knowledge, these projects view satisfying these conditions as a cognitive achievement. But even if we suppose that this view is correct, it does not follow that the content of this knowledge is also what understanding a word or sentence makes available to a speaker for the purposes of judgment and reasoning.

To see this, consider, again, what it is to understand the word "vixen". As I remarked earlier, understanding it requires being able to use it to talk and think about vixens. Suppose that there are complex social, psychological and biological conditions that a speaker must satisfy if she is to be able to use the word to talk and think about vixens. Some of these may be of a general character while others may be specific to the word "vixen". And suppose that these conditions include having tacit knowledge of the referential properties of the relevant words, in which case satisfying the enabling conditions is to be counted a cognitive achievement. But it does not follow that what satisfying these conditions requires one to know is also what is thereby made available for purposes of judgment and reasoning. That is, it may be

that what sufficient familiarity with "vixen" enables one to grasp is not what sufficient familiarity with it requires one tacitly to know.[30]

This point can be brought out by considering the somewhat analogous case of vision. There are biological and psychological conditions tnat a subject must satisfy in order to have visual experiences. And it may be, as some cognitive scientists have suggested, that these conditions include having tacit knowledge of propositions about the visual experiences themselves. It might be, for instance, that the visual system must be able to distinguish experiences from their causes. It would not follow that the content of this knowledge is also (part of) what is made available to a subject through perception for the formation of belief. Visual experiences do not invariably make reference to, are not invariably about, themselves. Rather, they are about the entities the experience is about. For this reason, visual experience does not by itself enable a subject to form beliefs about that experience. The conceptual resources and abilities required to distinguish experience from the objects of the experience, and so to form beliefs about the experiences, are not among those invariably exercised by a subject in perception.

The point is that what visual experience makes available to a subject for judgment and the formation of belief does not (invariably) enable her to judge and believe propositions about these experiences them-selves. This is so even if having these experiences pre-supposes tacit knowledge of such propositions. The same point applies in the case of

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[30] Likewise, understanding a word might require tacit knowledge of its syntactic, phonetic and morphological properties. But again, this knowledge is not available to a speaker for the purposes of judgement and the formation of belief simply by understanding the word. It is gained only after reflection on the word and its use.

grasping a proposition by understanding a sentence that expresses it. The propositions that linguistic competence make available to a subject for judgment and the formation of belief are, typically, propositions about the referents of her words. They typically are not propositions about the principles underlying or governing this competence. This is so even if such competence requires tacit knowledge of such propositions.

Recognizing the distinction between what a speaker must perhaps tacitly know in order to understand her words and what is thereby made available to her for purposes of thinking and the formation of belief resolves an apparent dispute between Scott Soames and James Higginbotham. Their disagreement rests against much agreement. First, they agree that understanding a word requires satisfying complex conventional standards regarding its use and, second, that this use is governed by propositions about the word's referential and truth-conditional properties. According to Soames, though, what is significant about understanding is that

> in the case of many sentences, we do not grasp the propositions they express prior to understanding the sentences themselves. As a result, coming to understand these sentences does not consist in searching through our stock of propositions to find the ones assigned to them. Rather, coming to understand the sentences is a matter of satisfying conventional standards regarding their use. Just what these standards are is not well understood. However, whatever they are, once they are satisfied, one is counted not only as understanding new sentences, but also as grasping new propositions. As a result, learning a language is not just a matter of acquiring a new tool for manipulating information one already possesses; it is also a means of extending one's cognitive reach.[31]

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[31] Soames (1989), 589.

Commenting on this passage, Higginbotham notes that the "real clash" between Soames' view and his own is that, unlike Soames, he thinks that "coming to satisfy these conventional standards regarding the use of sentences depends upon coming to know about reference".[32]

But this clash is only apparent, and the appearance results from differences in concern. Soames' primary concern is with the extent to which learning a language enriches the range of propositions a subject is able to express and entertain. Soames want to emphasize the point that learning a language enriches a subject's resources for acquiring non-linguistic knowledge by enabling her to think and talk about the world. Higginbotham need not deny this point about the role language plays in our acquisition of non-linguistic knowledge, any more than a cognitive scientist who believes that a subject's visual system tacitly knows propositions need deny that perception is a source of knowledge about the world. But in emphasizing this point Soames downplays the extent to which acquiring these new resources may itself be a cognitive achievement, even if one involving only tacit knowledge. It is Higginbotham's view that there are genuinely intellectual or cognitive mechanisms and capacities that underlie or govern a subject's use of language in the acquisition of knowledge. Soames need not deny this point any more than one who holds that perception is a source of knowledge need deny that perception involves biological and psychological processes of a cognitive nature.

I will now summarize my discussion of premise (A) of the Argument from Understanding. It maintains that understanding a sentence requires knowing its referential and truth conditional properties. I distin-

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[32] Higginbotham (1991), 287.

guished a strong and a weak version of this premise and argued in section 2 that the strong version is false: understanding a sentence does not require *explicit* knowledge of its referential and truth conditional properties. I have argued, in this section, that the weak version is inadequate for the purposes of (AU): even if understanding a sentence does require *tacit* knowledge of such propositions this knowledge is not available to a speaker for purposes of reasoning and the formation of doubt and belief. Acquiring explicit knowledge of the propositions governing the use of our sentences in expressing what they do requires theorizing about how language works. The fundamental difficulty with premise (A) is that it suggests that this knowledge is somehow made available to a speaker in understanding.

4. Before considering premise (B) of the Argument from Understanding, I will discuss briefly the role meta-linguistic reasoning may play in doubting necessary truths. And I will consider one philosophical motivation for holding that meta-linguistic reasoning and knowledge play a special role in communication and inquiry.

Doubt concerning an object-level necessary truth may be accompanied by meta-linguistic doubts or beliefs. One who understands (2), but is unsure whether it is true may also doubt whether (11) or (12) are true.

(2) A vixen is a female fox.

(11) "Vixen" refers to female foxes.

(12) "Vixen" and "female fox" are co-referential.

And these meta-linguistic doubts may be among the reasons the speaker would offer for her reservations concerning (2). Perhaps someone she trusts told her that "vixen" and "female fox" are not co-referential, or

that "vixen" refers also to female weasels. She may reserve judgment about whether vixens are female foxes on the basis of beliefs or doubts about what he words refer to. The meta-linguistic and object-level doubts are different. The former are about words and concern a contingent truth, while the latter ones are not about words and concern a necessary truth. Still, the former doubts may be the reason for the latter ones.

But the meta-linguistic doubts need not be (among) the reasons for the object-level doubt. A speaker might acknowledge concern over the truth of (11), but deny that that is the reason for doubting (2). It may even be that her meta-linguistic doubts derive from her doubts about (2). That is, it might be because she is unsure whether (2) is true that she reserves judgment as to the truth of (12). She might, in support of the former uncertainty, cite further non-linguistic doubts. She may, for instance, believe that fur coats are often made with the fur of vixens, but doubt whether fur coats are made from the fur of female foxes. Or, to change examples, one may doubt whether Hesperus is visible in the morning on the grounds that though one knows that Phosphorus is visible in the morning one is unsure whether Hesperus is Phosphorus. Though the two doubts are different (in one case what is doubted is necessary, in the other contingent), doubts concerning what is necessary may be grounds for doubting what is contingent.

But doubt concerning a necessary truth need not even be accompanied by metalinguistic doubts or beliefs at all. A subject might lack the resources to formulate or entertain meta-linguistic doubts. One might, for instance, have the resources to doubt whether a vixen is a female fox without having the resources to doubt whether "vixen" refers to fe-

male foxes. These resources are typically acquired only long after one has the resources to entertain object-level propositions. And there seems little reason to suppose that entertaining the object-level doubts requires the resources needed to entertain the meta-linguistic doubt. This point suggests that there is no difference relevant for the determination of truth value between entertaining a contingent proposition and entertaining a necessary one. They are, as it were, given to us in thought in the same way.

The idea that meta-linguistic knowledge and reasoning play a special role in our knowledge of necessary truths and in communication and joint inquiry was motivated by the doctrine that agreement on meaning must be independent of agreement on truth. Carnap, for instance, wrote that it "seems to me obvious that, if two men wish to find out whether or not their views on certain objects agree, they must first of all use a common language to make sure that they are talking about the same objects."[33] And C.I. Lewis expressed a similar theme when he wrote that in

> scientific classification the search is... for *things worth naming*. But the naming, classifying, defining activity is essentially prior to investigation. We cannot interrogate experience in general. Until our meaning is definite and our classification correspondingly exact, experience cannot conceivably answer our questions.[34]

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[33] Carnap (1963b), 929; cf. Carnap (1950), §2.

[34] Lewis (1925), 19. More recently, this conviction appears to be expressed by Dummett when he writes that in order to justify accepting statements as true we must first "determine... the senses of the statements", and glosses this as the need to "fix definite senses for the relevant expressions in order to confer a clear content on the question whether we are justified in accepting the disputed statements as true". These remarks occur in the context of a discussion of what justifies distinguishing sense and reference. Their point appears to be that agreement on sense must be independent of agreement on fact, and hence

Both passages suggest the view that communication and joint inquiry require that we be able to agree on the truth value of propositions about what our words refer to or require for truth independently of any agreement on the truth value of what we might use those words to say. In the case of the word "vixen" the view is that it must be possible to reach agreement on the truth value of what (6) says independently of agreement on the truth value of what a sentence that uses the word, such as (5), says.

    (6) "Vixen" refers to vixens.

    (5) A vixen is a small mammal.

Otherwise, it was alledged, it would be impossible to determine whether a disagreement over whether (5) expresses a truth stemmed from a disagreement over the facts-- over, say, the size of vixens-- or over what is meant by the word "vixen"-- over, say, what it refers to.

In response to this, Quine charged that the alleged need on which the doctrine rested had not been sufficiently demonstrated.[35] Quine did not dispute the virtue of prior agreement on a neutral framework in settling disputes. Nor did he deny the fruitfulness of the move from "talking in certain terms to talking about them."[36] He agreed that misunderstandings can sometimes be overcome by talking about the words we use. But he rejected the idea that this requires a sharp distinction between agreement on meanings or on a linguistic framework and agreement on facts. And he offered a picture of scientific inquiry according to which improved insight into the meanings of our words, into our concep-

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sense must be distinct from reference, if it is to be possible to justify accepting a statement as true. Dummett (1981), 104-5.
[35] Quine (1960), §F33, 56.
[36] Quine (1960), §56.

tual scheme, is not independent of improved knowledge of the subject

matters we use these words to think and talk about.[37]

The considerations of section 2 support Quine's view. Knowing the

referential and truth conditional properties of our words and sentences

depends on understanding those words and sentences. Knowing what (6)

says requires understanding the word "vixen".

(6) "Vixen" refers to vixens.

For "vixen" is used in stating (6). Intellectual abilities of the kind

required to theorize about what our words refer to and about what they

require for truth exploit knowledge involved in using those words to

talk and think about their referents. This suggests that agreement on

the semantic properties of our words depends on agreement on the truth

value of object level sentences: it is because we can agree on what vix-

ens are that we can agree on the semantic properties of the word

"vixen". This agreement does not require agreement on characterizations

of the word's referent. Agreement on applications of the word may be

enough. That is, the agreement need not be over what it is for some-

thing to be a vixen; instead, it might be over whether "vixen" correctly

applies to certain (perceptually available) entities. Nor does the

agreement have to cover all actual applications. There may be recog-

nized disagreements in fringe cases. But, plausibly, there must be

agreement on unproblematic applications. The general point is that

agreement or disagreement over the truth value of meta-linguistic propo-

sitions may depend on agreement on that of object-level propositions.

Quine's view is also supported by the fact that there are beliefs ex-

pressible with the word "vixen" that a speaker who understands it is ex-

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[37] Quine (1960), §4.

pected by others in her community to have. It is difficult to specify exactly what minimal competence requires. But it may be that to count as understanding the word "vixen" a speaker is expected to believe, for instance, that a vixen is a small animal resembling a dog; that vixens live in northern climates; that their fur is commercially valuable; and so on. Other things being equal, a speaker who lacked these beliefs would not be counted as understanding the word "vixen". Having certain beliefs expressible with a word may count among members of the community as a criterion for understanding that word. Because these propositions are what speakers most competent with the word are expected to believe, and since they are what would be cited in explaining the word's meaning and in conveying its use, they constitute, in one sense, that word's linguistic meaning. Speakers who believed some but not all of these propositions may be counted as having only an incomplete knowledge of the word's linguistic meaning. Improving one's knowledge of a word's linguistic meaning might thus require learning about what the word is used to talk about.

Whether a speaker has the expected beliefs is, however, only a defeasible test for understanding. This is so for two reasons. One is that the community may in the light of new information revise its expectations. Some of the beliefs shared by members of a linguistic community and which they count as criterial for understanding might, for instance, be found to be false. One can imagine speakers in a community being expected to believe that vixens belong to the same species as bears, and counting failure to believe this a sign of incomplete (or even lack of) understanding of their word for vixens. Were this mistake to be discovered belief in that proposition would no longer be counted criterial for

understanding. One would then count as understanding the word while not believing that foxes, and so vixens, are of the same species as bears. So whether a speaker has the expected beliefs is only a defeasible test for understanding since some of the beliefs may be rejected without affecting understanding.

A second, and related, reason for holding that whether a speaker has the expected beliefs is only a defeasible test for understanding is that speakers can question whether the propositions they are expected to believe are in fact true without thereby ceasing to count as understanding the word. Speakers rely on their understanding of the word in challenging or questioning the truth of propositions conventionally counted central to the word's linguistic meaning and criterial for understanding. This is clearest, perhaps, in the case where the relevant proposition is only contingently true. One consequence of the discussion in this paper is that the point applies even if the relevant proposition is a necessary truth.[38]

5. I have argued that premise (A) of the Argument from Understanding should be rejected. But someone sympathetic to the argument might at this point retrench and maintain that her real interest is in defending the thesis that the truth value of sentences expressing necessary truths can be determined on the basis of linguistic knowledge alone, regardless of whether this knowledge is involved in understanding. That is, she might reply that her real interest is in defending (D).

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[38] The discussion of the previous four paragraphs is indebted to Tyler Burge's discussion in his (1986b), §§ I and IV. But the central points are also found in Wittgenstein (1953), especially § 79, and in Putnam (1970) and (1975).

(D) Linguistic knowledge suffices to determine the truth

value of a sentence that expresses a necessary truth.

The aim of this section is to argue that premise (B) provides no support

for (D).

Some passages quoted above indicate that Carnap advocated a version

of (D). But he was not alone in advocating (D). John Wisdom, for in-

stance, wrote that necessary statements

> connect abstract things and are therefore purely verbal in a
> way in which 'He asserted Africa is hot' is not; that is,
> they are purely about the use of the expressions they con-
> nect. And what they assert must be known to the hearer if he
> understands them. Hence, if he denies them, the speaker
> says the hearer does not understand. This is characteristic
> of necessary statements. Logically necessary statements are
> checked by the actual usage of language and to this extent
> may be called true and false. Metaphysically necessary
> statements only have excuses in the actual use of language
> and so can only be called "excusable" and "inexcusable".[39]

I take it that in saying that certain necessary statements are "checked

by the actual usage of language" Wisdom intends that their truth value

can be determined on the basis of the referential and truth conditional

properties of sentences that express them. This view also seems to have

been Carl Hempel's. Concerning the proposition that 2+2=5, he says that

it

> merely states that any set consisting of 3+2 objects may
> also be said to consist of 5 objects. And this is so be-
> cause the symbols "3+2" and "5" denote the same number: they
> are synonymous by virtue of the fact that the symbols "2",
> "3", "5", and "+" are *defined* (or tacitly understood) in
> such a way that the ... identity holds as a consequence of
> the meaning attached to the concepts involved in it....

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[39] Wisdom (1938), 63 n.1. This passage makes clear that Wisdom also ac-
cepted a version of (C). For a sustained treatment of Wisdom's view,
see Lewy (1976).

> The statement that 3+2=5, then, is true for similar rea-
> sons as, say, the assertion that no sexagenarian is 45 years
> old. Both are true simply by virtue of definitions or of
> similar stipulations which determine the meaning of the key
> terms involved. Statements of this kind share certain im-
> portant characteristics: Their validation naturally requires
> no empirical evidence; they can be shown to be true by a
> mere analysis of the meaning attached to the terms which oc-
> cur in them.[40]

I take it that in saying that the sentences in question can "be shown to

be true by a mere analysis of the meaning attached to the terms which

occur in them", Hempel intends that their truth value can be determined

on the basis of knowledge of their referential and truth-conditional

properties.

These passages suggest what might called the <u>Argument from Linguistic

Knowledge</u>.

(<u>ALK</u>) (B) Knowing the truth conditions of a sentence that expresses a
          necessary truth suffices to determine its truth value.
      (E) But the truths conditions of a sentence that expresses a
          necessary truth can be determined on the basis of linguistic
          knowledge alone.
      (D) Hence, linguistic knowledge suffices to determine the truth
          value of a sentence that expresses a necessary truth.

The argument is valid. My primary interest here is with (B). I will

first consider some reasons offered in its support and argue that they

are not convincing, and then advance two arguments against it. But I

will begin with some general remarks about (E).

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[40] Hempel (1945), 379. A.J. Ayer was another prominent advocate of this
view: "Our knowledge that no observation can ever confute the proposi-
tion "7+5=12" depends simply on the fact that the symbolic expression
"7+5" is synonymous with "12", just as our knowledge that every oculist
is an eye doctor depends on the fact that the symbol "eye-doctor" is
synonymous with "oculist". And the same explanation holds good for ev-
ery other *a priori* truth." (1946), 85.

Assessing (E) raises difficult questions about what exactly is to count as linguistic knowledge. But for present purposes these questions need not detain us. I will grant that knowing a word's or sentence's referential and truth conditional properties counts as linguistic knowledge. But I will assume that knowing of a sentence that it is true or that it is false does not count as linguistic knowledge since if it did the conclusion of (ALK) would follow trivially from the concept of linguistic knowledge. Indeed, it would follow trivially from (D1).

> (D1) The truth value of *any* sentence can be determined on the
>
> basis of linguistic knowledge alone.

I am assuming that (D) is a controversial thesis and that (ALK) is intended as a non-trivial defense of it.

Before considering support for (B), two points about it should be noted. First, neither Carnap nor the other authors explains just how we are to understand the claim that the truth value can be "determined" or "checked" by linguistic knowledge alone. I take it the point concerns how a belief that a certain sentence is true can be justified, and not merely how such a belief can be acquired. This is especially important since sentences such as (17) are sometimes used to convey or communicate what is expressed by sentences like (2).

> (17) "Vixen" means the same as "female fox".

> (2) A vixen is a female fox.

That is, even though (17) and (2) express different propositions, one might use, and one often does use, (17) as a way of communicating that a vixen is a female fox. But to conclude from this alone that (17) justifies believing what (2) says is, at worst, to confuse the justification of a belief with its acquisition and, at best, to beg the question. The

idea behind (B), presumably, is that certain knowledge can justify believing of a sentence that expresses a necessary truth that it is true.

Second, (B) entails that this knowledge alone justifies believing what is expressed by a sentence that expresses a necessary truth. For whatever justifies believing of a sentence that it is true also justifies believing what that sentence says, for the sentence is true only if what it expresses is true. This is so even if one does not know what proposition the sentence expresses. If, for instance, some piece of evidence justifies believing what (18) says, then it also justifies believing what (2) says.

(18) "A vixen is a female fox" is true.

(2) A vixen is a female fox.

This point would surely be accepted by the proponents of (ALK) already mentioned, since their ultimate aim is to defend the claim that linguistic knowledge can justify mathematical and logical beliefs, and not simply that it can justify meta-linguistic beliefs about the truth values of sentences. So if (B) is true, then linguistic knowledge can justify believing what is expressed by a sentence that expresses a necessary truth. I will argue below that supposing this leads to implausible consequences, and so should be rejected.

Some apparently hoped to support (B) by arguing that sentences that express necessary truths are somehow about or record linguistic usage. Carnap, for instance, remarks that the sentence "The evening-star and the morning-star are identical" is not about the planet Venus

> for it is easy to see that it does not assert any quality
> whatever of that planet. It asserts only something about

the two designations, namely that they designate the same thing, or, expressed in syntactical terms, that they are synonymous.[41]

A.J. Ayer expressed a similar view in his _Language, Truth and Logic_.

> We have already explained how it is that these analytic propositions are necessary and certain. We saw that the reason why they cannot be confuted in experience is that they do not make any assertion about the empirical world. They simply record our determination to use words in a certain fashion. We cannot deny them without infringing the conventions which are presupposed by our very denial, and so falling into self-contradiction. And this is the sole ground of their necessity.[42]

And John Wisdom claimed that necessarily true propositions are "purely verbal" because they are "purely about the use of the expressions they connect."[43] These remarks suggest the view that sentences that express necessary truths are somehow about or record linguistic usage. If a sentence that expresses a necessary truth expresses a proposition that is, or that is equivalent to, some proposition about a word's usage or referential properties, then linguistic knowledge would alone suffice to determine such a sentence's truth value. However, as Ayer admitted in the preface to his book's second edition, since true propositions about a word's use or referential properties are contingent, necessarily true propositions are not about the usage of words.[44]

Other support for (B) is suggested by a discussion of Carnap's. As was noted in section 2, Carnap held that any adequate analysis of the

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[41] Carnap (1935), 66; cf. Carnap (1937), §§72-81.
[42] A.J. Ayer (1946), 84; cf. Lewis (1925), 16.
[43] Wisdom (1938), 63, n.1. This view is also suggested by Hempel's remark, in the passage quoted above, that the proposition that 2+3=5 states something about what can truly be said about a certain set of things, and by remarks of Lewis' in his (1925), 16.
[44] Ayer (1946), 16; cf. Lewy (1976), ch. 1.

notion of a necessary, logical or analytic truth must satisfy what he

calls "convention 2.1". It maintains that, for any such truth, that it

is true can be established solely on the basis of the linguistic rules

governing a sentence that expresses it. Convention 2.1 is thus a

relative of (B)'s. Carnap argues that the following is an adequate

analysis of logical or analytic truth.

> Definition: A sentence S is L-true (in a system)$=_{df}$ S
>   holds in every state description (of that system).
> The following consideration shows that the concept of L-
> truth thus defined is in accord with the convention 2.1 and
> hence is an adequate explicatum for logical truth. If S
> holds in every state-description, then the semantical rules
> of ranges suffice for establishing this result. [For exam-
> ple, we see from the rules of ranges mentioned above that
> 'Pa' holds in certain state-descriptions, that '-Pa' holds
> in all the other state-descriptions, and that therefore the
> disjunction 'Pa V -Pa' holds in every state-description.]
> Therefore, the semantical rules establish also the truth of
> S because, if S holds in every state-description, then it
> holds also in the true state-description and hence is itself
> true.[45]

Carnap's proposal is that (B) is supported by noting a special feature

of necessary truths, namely that a necessary truth is true in all state

descriptions, or, in what Carnap explains is an equivalent formulation,

with respect to all possible worlds. Related to this is C.I Lewis' sug-

gestion that it is because necessary truths exclude no possibility or

rule nothing out that they can be known on the basis of definition alone

and are for that reason knowable a priori.[46] These suggestions support

(B) only if we also assume (F).

   (F) If a sentence expresses a necessary truth (or excludes no

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[45] Carnap (1956), 11. I discuss his example below.
[46] Lewis (1925), 18.

possibility), then this can be determined on the basis of its referential and truth conditional properties.

Plainly, (F) entails (B). For if one can determine on the basis of a sentence's referential and truth conditional properties that what it expresses is true with respect to all possible worlds, then one can also determine on that basis that what it expresses is true.

In order to assess (F) it is crucial to notice that it is the conjunction of two theses.

(F1) If a sentence expresses a necessary truth, then its modal value can be determined on the basis of its referential and truth conditional properties.

(F2) If a sentence expresses a necessary truth, then its truth value can be determined on the basis of its referential and truth conditional properties.

To know a proposition's modal value is to know either that it is contingent or that it is necessary. It is important to notice that (F1) is independent of (B). For one can know a proposition's modal value without knowing its truth value. This is plausibly the case with respect to complicated mathematical propositions. In such a case, one might be justified on general philosophical grounds in believing that the proposition is either necessarily false or necessarily true even though one is not justified in believing either that it is true or that it is false. And one can know a proposition's truth value without knowing its modal value. One can, for instance, know that the proposition that Quine is human is true while not knowing whether it is a necessary truth. So (F1) provides no support for (B). But (F2) is merely a reformulation of (B). So Carnap's suggestion for supporting (B) begs the question at issue.

One might at this point reply that Carnap's suggestion is that to know the truth conditions of a sentence that expresses a necessary truth just is to know that it is true with respect to all possible worlds. The reply contends that (G) is a correct analysis of the notion of knowing the truth conditions of a sentence that expresses a necessary truth.

    (G) To know the truth conditions of a sentence that expresses a necessary truth is to know that it is true with respect to all possible worlds.

Plainly, (G) does entail (B). For if to know (2)'s truth conditions is to know that it is true with respect to all possible worlds, then knowing its truth conditions does suffice to determine its truth value. However, if we assume (G) then the second premise of (ALK) by itself entails the argument's conclusion. For (E) would then maintain that linguistic knowledge suffices to determine, of a sentence that expresses a necessary truth, that it is true with respect to all possible worlds. But this entails that linguistic knowledge suffices to determine such a sentence's truth value. So if (G) is adopted, (E) begs the question. If (ALK) is to constitute a non-trivial defense of (D), and (G) is true, then some independent support must be provided for (E).

What about the example Carnap discusses in the passage quoted above? Carnap claims that on the basis of the following rules we can establish that the sentence "Pa V -Pa" is true.

    i) A sentence "-S" holds in a given state description if and only if "S" does not hold in it.

    ii) A sentence "S_1 V S_2" holds in a state description if and only if either "S_1" holds in it or "S_2" holds in it or both do.[47]

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[47] Carnap (1956), 9; for simplicity, I have re-numbered the rules.

From ii) it follows that that sentence holds in a state-description if and only if either "Pa" holds in it or "-Pa" does, or both hold in it. And from this together with i) it follows that that sentence is true in a state-description if and only if either "Pa" holds in it or "Pa" does not hold in it. Presumably, Carnap assumes that that condition is satisfied by every state description, and that it follows that the sentence "Pa V -Pa" is true in every state description. But what justifies this assumption? That is, how do we know that (13) is true with respect to every state description?

(13) Either "Pa" is true or it is not the case that "Pa" is true. Perhaps Carnap would say that we can determine this simply on the basis of the rules for "-" and "V". But (13) makes no reference to these terms. Though these rules tell us what proposition it expresses, it is not clear that they also tell us that that proposition is true.

Support for (B) (or even for (C)) might be thought to derive from the fact that in the case of sentences that express simple necessary truths, for instance, simple logical or arithmetical truths, understanding does appear to suffice to determine that they are true. In the case of sentences like (14) and (15), for instance, an expressed doubt about whether what they express is true would likely be counted a sign of misunderstanding.

(14) A vixen is a vixen.

(15) 2+2=4

Likewise, one might hold that anyone who knew that "vixen" and "female fox" are co-referential but expressed a doubt about (2) would also be suspected of a misunderstanding on the grounds that it is obvious that

if "vixen" and "female fox" are co-referential then (2) is true. Two points should be made in reply to this suggestion.

First, as Quine noted, even if this suggestion is right, it does not follow that linguistic knowledge or understanding suffices to justify the belief.[48] It may still be that knowing that they are true requires knowing obvious features of the way things are. The inclination to suspect a misunderstanding in the case of such doubts may be justified on the grounds that no one sophisticated enough to understand these sentences would not already know enough about how things are to recognize them as true. Furthermore, the inclination to suspect a misunderstanding when faced with a doubt is not restricted to apparent doubts about simple necessary truths. An expressed doubt as to whether (16) expresses a truth would also likely be counted a sign of misunderstanding.

> (16) Most humans have two arms.

But the reason need not be that understanding (16) suffices to determine that it is true. It might instead be that anyone sophisticated enough to understand (16) would likely already know enough about how things are to recognize it as true.

This suggests a second, methodological, point. A defense of (D) ought not to rely on appeals to sentences that express obvious necessary truths since there are independent difficulties concerning what justifies believing the obvious. For one might hold that belief in what is obvious does not require justification, or requires only justification of such a kind that linguistic knowledge neither strengthens nor adds to one's justification or warrant for believing what is obviously true. Since (D) is intended to apply to all sentences

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[48] Quine (1963), esp. § III.

expressing necessary truths, and in order to avoid begging these difficulties, a defense of (D) ought to consider only examples involving sentences that express non-obvious necessary truths.

I will now advance two arguments against (B). Both proceed by drawing out implausible consequences from its adoption. The first argument concerns the following principle about justification.

> (P1) If some evidence, E, justifies believing some proposition, P, then this is so regardless of the language used to state E or to express P.

> (19) Spot is on the mat.

> (20) Spot est sur le tapis.

(P1) is extremely plausible. If, for instance, seeing Spot on the mat justifies one in believing what (19) says, and if (19) and (20) say the same thing, then, surely, that observation also justifies believing what (20) says.

Now consider (2'), which is an exact translation into French of (2), and (8'), which is an exact translation into French of (8).[49]

> (2') Une renarde est un renard qui est femelle.

> (8') "A vixen is a female fox" est vraie si et seulement si une renarde est un renard qui est femelle.

If (B) is true, then since knowing what (8) says justifies believing what (2) says, knowing what (8') says must also justify a speaker of French in believing what (2') says. But, it seems plausible to suppose, this is not the case. For Pierre could not justify believing what (2') says by citing the truth of (8'). For the former is a proposition about

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[49] What follows is a variation of an argument given by Casimir Lewy against the claim that the truth of (2) follows from the truth of metalinguistic propositions about the referential properties of its constituent words. Lewy (1976).

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vixens, whereas the latter is a proposition about the way English works.
What (2') says would have been true even had English not existed. And
so, since (P1) is a plausible principle about justification, (B) should
be rejected.

One might reply that the relevant linguistic knowledge is not knowl-
edge of what (8) says, but rather knowledge of the referential proper-
ties of (2)'s constituent words. That is, the reply is that knowing (6)
and (21) justifies believing what (2) says.

(6) "Vixen" refers to vixens.

(21) "Female fox" refers to female foxes.

(2) A vixen is a female fox.

But the same considerations as above indicate that knowing what (6) and
(21) say does not justify believing what (2) says. (6') and (21') are
exact translations of (6) and (21), respectively.

(6') "Vixen" signifie les renardes.

(21') "Female fox" signifie les renards qui sont femelles.

(2') Une renarde est un renard qui est femelle.

If (B) is true, then knowing what (6') and (21') says justifies believ-
ing what (2') says. But, surely, one could not justify believing what
(2') says by citing the truth of (6') and (21'). For these express
propositions about English words, whereas (2') expresses a proposition
about vixens. It would have been true even had English not existed.
Since (P1) is a plausible principle about justification, (B) should be
rejected.

Before commenting on this argument, I will advance a second argument for the same conclusion.[50] It concerns the following principle about justification.

> (P2) Evidence of type E can justify believing a proposition only if evidence of that type can also justify abandoning a belief in that proposition.

> (22) Spot is on the mat.

To see the plausibility of (P2), consider the case of observational evidence. According to (P2), observation can justify believing what (22) says only if observation can also justify rejecting what it says. One who held that observation can justify believing what (22) says but denied (P2) would have to maintain, implausibly, that observing Spot on the mat would justify believing what (22) says even though observing Spot on the sofa would not necessarily justify abandoning that belief. What is more, as Casullo has noted, some defenders of (B) presupposed (P2) in arguing that experience can not justify a mathematical or logical belief. Both Hempel and Ayer, for instance, argued for this by defending the claim that experience can not justify abandoning such a belief.[51] But this claim supports the view that experience can not justify such a belief only if (P2) is true. So both Hempel and Ayer would accept (P2).

Since it is a matter of convention that a sentence or word has the truth conditional and referential properties it has, (P2) entails that knowledge of such conventions can justify believing what is expressed by a sentence expressing a necessary truth only if knowledge of linguistic convention can also justify abandoning such a belief. But it is implau-

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[50] What follows relies on the discussion in Casullo (1992).
[51] Hempel (1945), 378; Ayer (1946), 75-77.

sible to suppose that abandoning the belief that a vixen is a female fox could be justified on the basis of linguistic conventions alone. To see this, suppose we adopt (23) as a convention.

(23) "Female fox" refers to male foxes.

Surely, adopting (23) would not in itself justify abandoning the belief that a vixen is a female fox. But if adopting (23) would not justify abandoning what (2) says, it is not clear what convention would. From this together with (P2) it follows that no linguistic conventions could justify accepting that belief either. So (B) should be rejected.

One might respond that a convention such as (23) is irrelevant for the purposes of justifying believing what (2) says since if we adopted it (2) would express, not the proposition that a vixen is a female fox, but rather the proposition that a vixen is a male fox. In effect, this response maintains that only conventions in conformity with actual usage or meaning are relevant to justifying believing necessary truths. But rather than supporting (B) this response threatens to undermine it. For conventions that appear to justify abandoning what (2) says are, like (23), ones the respondent will count as not conforming with actual usage and meaning and so as justificationally irrelevant. If so, however, this reply undermines (B) by running afoul of (P2). For if no conventions justify abandoning the belief that a vixen is a female fox, then, according to (P2), none justifies believing it either. This response is therefore not open to a proponent of (B).

These two arguments against (B) share a common theme. (B) maintains that certain non-linguistic beliefs can be justified on the basis of linguistic knowledge. The arguments throw doubt on this by drawing out implausible consequences from its adoption. The first argument shows

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that if (B) is true then non-linguistic beliefs about how things are can be justified by knowledge of how a particular language works to express that belief. The second argument shows that if (B) is true then abandoning such beliefs can be justified on the basis of arbitrary linguistic stipulations. Since both consequences are implausible (B) should be rejected.

In this section I have argued that (B) provides no support for (D). It is important to distinguish (D) from the thesis that sentences that express necessary truths are analytic: true in virtue of meaning, definition or linguistic stipulation. Whereas the former concerns our knowledge of the truth value of such truths the latter concerns, roughly speaking, the nature of their truth. I think it is widely assumed that Quine's criticisms of Carnap served to undermine both theses at once. What is more, I think it is widely assumed that these criticisms depended on viewing meaning and reference as somehow illegitimate or unstable, and that one could not accept these notions without inheriting a commitment to Carnap's epistemological and metaphysical views. The considerations advanced in this section indicate that both assumptions are mistaken. For, first, the considerations I have advanced here concerning (D) do not require abandoning the thesis that necessary truths are analytic.[52] And, second, these considerations do not support or rely on Quinean skepticism with respect to reference and meaning; indeed they rely on these very notions in arguing against (B).

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[52] For more on this, see Casullo (1992).

Chapter 3

Frege on Analysis and Understanding

Two strands in Frege's view of the analysis of Thoughts are familiar.
First, Frege developed a language for expressing Thoughts that, he be-
lieved, revealed their logical structure more clearly than did ordinary
languages. In particular, he believed his Begriffschrift clearly re-
vealed previously unrecognized quantificational structures in Thoughts.
And, second, Frege believed that constituent Senses of a Thought were of
two radically different sorts. Some were "saturated" or "complete"
while the rest were "unsaturated" or "incomplete". Both strands have
been widely discussed.

Two other strands in his view are, I think, less well known. First,
Frege believed that analysis was important from a scientific point of
view. He believed that the analysis of Thoughts played an important
role in the construction and development of scientific theories. What
is more, he believed it played this role, not only in the construction
and development of the natural sciences, but also in that of the science
of mathematics and logic. In this respect, Frege viewed the methodology
of chemistry and physics as the same as that of mathematics and logic.

Second, Frege believed that analyzing a Thought into constituent
Senses may yield improved grasp or understanding of it. Frege tied
advances in theorizing about a subject matter to improved understanding
or grasp of Thoughts about that subject matter. As Tyler Burge has
remarked, Frege believed that "logical analysis was not separable from

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the acquisition of logico-mathematical knowledge... one attained insight

into the relevant concepts or senses only through developing a theory

and seeing it work."[53]

My aim here is to examine these two strands in Frege's view. I begin

by discussing, in general terms, Frege's views on the analysis of

Thoughts. I then turn, in section 2, to consider the role Frege saw

analysis playing in the construction and development of scientific theo-

ries. In section 3, I examine the epistemological roles Frege assigned

it, and discuss its relations to the scientific role. I conclude by

speculating, in more general terms, about what these views on analysis

suggest about Frege's conception of Sense.

1. Frege held that in thinking and speaking we think and express

Thoughts. Thoughts and their constituents are representations or, as

Frege called them, "senses" or "modes of presentation". A Thought is a

representation of the way things might be, and so is true if they are

that way. A constituent of a Thought is a representation of an object

or function, and refers to that object or function. Familiarly, Frege

distinguished Thoughts and Senses from sentences or words that may ex-

press them as well as from psychological states whose contents they may

be. And he distinguished Senses from what they are representations of.

He considered Senses to be abstract and non-linguistic. And, famously,

he held that different Senses may be representations of the same thing.

Frege believed that complex Senses can be analyzed into constituent

Senses. For instance, the Sense of the phrase "the capital of Sweden"

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[53] Burge (1984), 33. The present work articulates and supports certain
strands in an interpretation of Frege that Burge has developed in sev-
eral recent works. Cf. (1986a), (1990), (1992).

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is complex. It can analyzed into the Sense of the functional expression "the capital of" and that of the name "Sweden". The analysis of a complex Sense is governed by the principle that a Sense is analyzable into saturated and unsaturated parts.(PW254) The sense of "Sweden" is complete or saturated, while that of "the capital of" is incomplete or in need of saturation. Analysis thus reveals an internal structure in the Sense. And the structure is that of the saturation of certain constituents by others.

Analysis also reveals what objects and functions a Sense is about. For instance, the Sense of the phrase "the capital of Sweden" is a representation of Stockholm. By analyzing that Sense into constituents, it is revealed to be about Sweden and the function referred to by the Sense of "the capital of". Frege held that the referent of a complex Sense is determined by those of its constituents. So if the analyzed Sense has a referent, so must each of its constituents. A saturated constituent is a Sense of an object and an unsaturated constituent is a Sense of a function.[54] In this way, analysis articulates that on which a Thought's truth value depends.

The referents of all but one of a Sense's constituents together with that of the analyzed Sense do not determine the referent of its remaining constituent. Consider the Thought that Cato is a man. Its referent is the True, and Cato is the referent of one of its constituents. These do not suffice to determine the referent of the remaining constituent. For, obviously, Cato falls under more than one concept. Any one of these concepts will, together with Cato, determine the value the True.

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[54] I will restrict attention in what follows to Senses that have a referent.

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By contrast, a complex Sense together with all but one of its constituent Senses does determine the remaining constituent. A Sense is a mode of presentation of an object or function. Frege held that there may be different Senses of a single object or function. And, he held, substituting one such Sense for another in a complex Sense yields a different mode of presentation of the same object or function. So for a given Sense together with all but one of its constituents, there is but one Sense that together with these constituents will yield the given Sense.

Frege held that complex Senses admit of more than one analysis. The logical structure revealed by one analysis will not be that revealed by another. And the objects and functions revealed by one analysis will not be those revealed by another analysis of that Sense. Frege seems to have had two models of this in mind.

On one model, a complex Sense admits of more than one analysis if the constituent Senses revealed by one analysis in turn admit of analysis. This model is discussed in the following passage.

> A saturated part obtained by analyzing a Thought can sometimes itself be split up in the same way into a part in need of supplementation and a saturated part. The sentence 'The capital of Sweden is situated at the mouth of Lake Malar' can be split up into a part in need of supplementation and the saturated part 'the capital of Sweden'. This can further be split up into the part 'the capital of', which stands in need of supplementation, and the saturated part 'Sweden'. Splitting up the Thought expressed by a sentence corresponds to such a splitting up of the sentence. (PW255; Cf. CP281)

We can, Frege says, analyze the Thought expressed by "The capital of Sweden is situated at the mouth of Lake Malar" into saturated and unsaturated Senses in (at least) the following ways:

i) the complete Sense of 'the capital of Sweden' and the unsaturated Sense of 'is situated at the mouth of Lake Malar';

ii) the saturated Sense of 'Sweden' and the unsaturated Senses of 'the capital of' and 'is situated at the mouth of Lake Malar';

iii) the saturated Senses of 'Sweden' and 'the mouth of Lake Malar' and the unsaturated Senses of 'the capital of' and 'is situated at';

iv) the saturated Senses of 'Sweden' and 'Lake Malar' and the unsaturated Senses of 'the capital of', 'is situated at' and 'the mouth of' .

The first analysis reveals the Thought to be about an object, the capital of Sweden, and a function, *is situated at the mouth of lake Malar*. The fourth analysis, by contrast, reveals it to be about two objects, Sweden and Lake Malar, and three functions, *the capital of*, *is situated at*, and *the mouth of*.

On this model, though a complex Sense admits of different analyses each analysis can be recovered from another either by further analysis of some of its constituents, or by the saturation of some of these by others. This model for the multiple analyzability of a complex Sense is, I think, relatively clear and not terribly unnatural. One may balk at the liberalness of Frege's ontological scruples. One may feel that taking phrases such as 'is situated at' to refer to entities is unjustified. But Frege thought that they did refer and this is not the place to consider his views on reference and existence.

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Frege's second model of the multiple analyzability of Sense is more
difficult to describe. It makes a famous appearance in the Foundations
of Arithmetic.

> The judgement "line *a* is parallel to line *b*" , or, using
> symbols, "*a//b*", can be taken as an identity. If we do
> this, we obtain the concept of direction, and say: "the di-
> rection of line *a* is identical with the direction of line
> *b*". Thus we replace the symbol // by the more generic symbol
> =, through removing what is specific in the content of the
> former and dividing it between *a* and *b*. We carve up the
> content in a way different from the original way, and this
> yields us a new concept.(FA, §64; Cf. §57; Cor.101)

The Thought that line a is parallel to line b can, Frege is saying, be
analyzed in two ways. One analysis reveals it to be about two objects,
the line a and the line b, and a function, *is parallel to*.   Another re-
veals it to be about two objects, the direction of line a and the direc-
tion of line b, and a function, *is identical with*. The two analyses,
Frege says, "carve up" the same Thought in different ways.

This model re-appears in a passage, after Frege's discovery of the
distinction between Sense and reference, in 'On Concept and Object'.

> In the sentence "There is at least one square root of 4", we
> are saying something, not about (say) the definite number 2,
> nor about -2, but about a concept, *square root of 4;* viz.
> that it is not empty. But if I express the same Thought
> thus: "The concept *square root of 4* is realised", then the
> first six words form the proper name of an object, and it is
> about this object that something is being said. But notice
> carefully that what is being said here is not the same thing
> as was being said about the concept.(CP188)

The Thought that there is at least one square root of four can, Frege is
saying, be analyzed in different ways. One analysis reveals it to be

about a concept, *square root of four*, and a second level function, *is realised*. Another analysis reveals it to be about an object, the concept *square root of four*, and a concept, *is realised*. Commenting on this passage in an earlier draft, Frege remarked that the Thought that there is at least one square root of four, "being analyzed differently, is construed in a different way" (PW110). This model of analysis appeared earlier in 'On Function and Concept' (CP143), and then once later in a letter of 1919.(Cor98)

On this model of analysis, as on the first, a Thought can be analyzed, or carved up, into constituent Senses. And, as on the first model, analysis of a thought reveals a structure of saturation of some constituents by others. But, unlike the first, on this model the structure revealed by an analysis may not be recoverable from that revealed by other analyses through further analysis or saturation alone. Different analyses of a Thought may reveal radically different structures; structures not related to each other in any straightforward fashion. What is more, different analyses may reveal a Thought to be about radically diverse objects and functions.

It may be tempting to conclude from Frege's acceptance of this second model of analysis that he regarded Senses as essentially structureless, or that he saw their structure as somehow dependent on our interactions with them.[55] But this temptation should be resisted. Frege considered

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[55] Steven Wagner (1983), for instance, claims that Frege considered Senses to be unstructured. On his interpretation, Frege held that since "our reason can work only with structured entities, we must structure a content in the process of grasping it." (8) We do so, he explains, by grasping a Sense via a structured sentence. Wagner interprets Frege as holding that each sentential "structure is the mind's contribution, introduced as one among several which could equally well permit a grasp of something intrinsically unstructured." In some early works Frege does characterize the analysis of a content as concept "formation" (PW 16; Cor.101). But these remarks should be understood as claims about the

Senses to be non-spatial (CP369-70), a-temporal (CP369-70), and a-causal (BL23; PW137-8; CP230,371). Throughout his career he is at pains to distinguish Thoughts from anything that might be the contents of consciousness and from sentences. He regarded Thoughts as independent of our or anybody's grasp of them. (CP134; PW3,132-3,137,198,251) And he held that logical relations between Thoughts are timeless and independent of our recognition of them. (FA§80) That a Thought admits of some analysis is not, on Frege's view, a fact about our grasp of it. It is, rather, an objective fact about the Thought itself.

But Frege was sensitive to the fact that his second model of the analyzability of a Thought might appear surprising.

> This will be surprising only to somebody who fails to see that a Thought can be split up in many ways, so that now one thing, now another, appears as subject or predicate. The Thought itself does not yet determine what is to be regarded as the subject. If we say 'the subject of this judgement', we do not designate anything definite unless at the same time we indicate a definite kind of analysis; as a rule, we do this in connection with a definite kind of wording.(CP188)

But he seemed to have thought that what occasioned this surprise did not require detailed discussion. For when he does discuss this model of analysis his tone is informal. He treats it as uncontroversial. I suspect he held it was an insensitivity to the gulf between language and Thought that prevented a recognition of the multiple analyzability of a Thought.

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discovery of concepts (later, Senses)-- not about the ontological status of concepts themselves. (Cf. FA, vii, §26; CP133)

Indeed, Frege's remarks on analysis clearly reveal how wide he viewed the gulf between language and Thought. Several aspects of this view are familiar. Frege believed that ordinary language was only an imperfect instrument for expressing Thoughts and that it obscures underlying logical form.(Cor67-68) And he believed that there were some Thoughts that ordinary languages could not express.(CP183-194; PW87-117,119-120,192-3, 255; Cor136-7) Though he believed his conceptual notation could overcome some of these limitations (Cor136), even this notation could only reveal at most one analysis of a given Thought. As we will see in the third section, Frege's views an analysis also reveal how he viewed the gulf between actual understanding and linguistic practice, on one hand, and Thought on the other. But first I want to consider the scientific role he saw analysis playing.

2. Frege produced no extended work on the nature of scientific theories or of scientific development. But remarks on these topics occur throughout his published and unpublished writings. They suggest a conception of scientific development that Frege retained throughout his career. It is a conception on which analysis of Thoughts plays a central role.

The broad outlines of Frege's conception of science are well known. Frege was a foundationalist. He considered it the task of a science to discover "primitive" truths governing its subject matter and from which the other truths about the subject matter can be derived.(FA §3n.1) In 1881, he wrote that

> it is a basic principle of science to reduce the number of
> axioms to the fewest possible. Indeed the essence of expla-

nation lies precisely in the fact that a wide, possibly un-surveyable, manifold is governed by one or a few sentences. The value of an explanation can be directly measured by this condensation and simplification: it is zero if the number of assumptions is as great as the number of facts to be ex-plained.(PW36)

Three decades later he wrote that

[s]cience demands that we prove whatever is susceptible of proof and that we do not rest until we come up against some-thing unprovable. It must endeavour to make the circle of primitive truths as small as possible.(PW204)

In modelling the task and methods of the natural sciences on those of

mathematics, Frege allied himself with the Rationalist tradition.

Frege believed that the demand for axiomatization had several justi-

fications. First, he held that axiomatization yields theoretical sys-

tematization and simplicity which are themselves worthy goals.(FA§2)

Second, by showing that a truth can be proven from more general truths

it serves epistemological ends as well since the primitive truths gov-

erning the subject matter are, he held, that on which the justification

for assertions about it depends.(FA§2, PW204) But, more important for

our interests, Frege also believed that axiomatization provides

foundational insight into the subject matter. It provides this insight

in two ways.

First, foundational knowledge of a subject matter is attained by un-

covering a small number of general truths or laws governing it. Frege

continues the second passage quoted above by remarking that

the whole of mathematics is contained in these primitive truths as in a kernel. Our only concern is to generate the

whole of mathematics from this kernel. The essence of math-
ematics has to be defined by this kernel of truths, and un-
til we have learnt what these primitive truths are, we can-
not be clear about the nature of mathematics. If we assume
that we have succeeded in discovering these primitive
truths, and that mathematics has been developed from them,
then it will appear as a system of truths that are connected
with one another by logical inference.(PW205; Cf. FA §§2,4;
CP112-114)

An attempted axiomatization of some subject matter is complete and cor-

rect only if from it all (and presumably only) the particular truths of

that subject can be derived. In this sense the axioms can be said to

'contain' the essence of the subject matter. And for this reason, lay-

ing out the primitive truths yields foundational insight by revealing

how a possibly diverse phenomena is governed by a few simple laws. This

account of how scientific theorizing provides insight is familiar to us

from the development in this century of the deductive-nomological model

of scientific explanation.

Frege believed that axiomatization provides foundational knowledge in

yet a further respect. He held that correct axiomatization reveals what

the science is ultimately about. The objects and functions referred to

by its primitive truths will be that subject matter's primitive ele-

ments, its "building blocks".(CP113-14) The nature and boundaries of a

science are determined by the nature of its building blocks. Geometry

is restricted to what is spatial, Frege explains, because its primitive

elements are spatial configurations.(CP114) Arithmetic, by contrast, is

of a logical nature because, Frege believed, its elements are themselves

logical. Frege remarks that one aim of axiomatization is to provide a

clear grasp of these primitive elements.(FA §1, CP133)

Throughout his career, Frege held that the discovery of primitive truths, and of the primitive concepts and objects of a science, proceeded only after extended scientific work.

> What is known as the history of concepts is really a history either of our knowledge of concepts or of the meanings of words. Often it is only after immense intellectual effort, which may have continued over centuries, that humanity at last succeeded in achieving knowledge of a concept in its pure form, in stripping off the irrelevant accretions which veil it from the eyes of the mind.(FAvii; Cf. CP133)

He criticizes one author for trying to uncover the primitive concepts of Analysis by examining that science's historical genesis.

> His opinion that historical insight alone can first disclose what has a claim to being a logical presupposition of the science... is an erroneous one. On the contrary, those logical foundations are perhaps always discovered only later on, after a considerable amount of knowledge has been accumulated. From the logical point of view, the historical starting-point appears as something accidental.(CP109; Cf. CP135-6, 182-3; PW209-11)

The primitive laws governing a subject matter are, on Frege's view, discovered. And they are discovered typically only after a great deal of scientific work.

Frege is explicit that analysis plays the primary role in yielding such foundational knowledge. In a late work Frege makes this point in the context of a discussion of mathematics.

> In the development of a science it can indeed happen that one has used a word, a sign, an expression, over a long period under the impression that its sense is simple until one succeeds in analyzing it into simpler logical constituents.

By means of such an analysis, we may hope to reduce the number of axioms; for it may not be possible to prove a truth containing a complex constituent so long as that constituent remains unanalysed; but it may be possible, given an analysis, to prove it from truths in which the elements of the analysis occur.... Thus what seemed to be an axiom before the analysis can appear as a theorem after the analysis. (PW209)

By analyzing a Thought one may come to see how its truth can be proved from that of simpler Thoughts. A Truth that was, prior to analysis, held to be independent of certain other Truths may be seen, after analysis, to follow from them.

In the same way, Frege held, the primitive concepts and objects of a science are not among the original data. In a review of a book on the law of inertia, Frege expresses agreement with the author's contention

"that elementary concepts are not the original data of a science", or as I should like to express it, that they must first be discovered by logical analysis. Similarly, the chemical elements are not the original data of chemistry, but their discovery indicates an advanced stage of the development of the science. What comes first in the logical and objective order is not what comes first in the psychological and historical order. (CP135-6; Cf.CP182)

Rather, on Frege's view, the primitive elements of a science are typically arrived at only after extended attempts to discover and articulate the primitive truths. And Frege is explicit that this work involves analysis of Sense.

What is more, Frege appears to hold that there is no guarantee that a particular project of analysis will yield the primitive truths or elements of the science. In a passage that echoes that from the _Foundations of Arithmetic_ quoted above, Frege writes that

I see no great need for being able to talk about the history
of the development of a concept, and I find there is good
reason to avoid this phrase. If we said instead 'history of
attempts to grasp a concept' or 'history of the grasp of a
concept', this would seem to me much more to the point; for
a concept is something objective: we do not form it, not
does it form itself in us, but we seek to grasp it, and in
the end we hope to have grasped it, though we may mistakenly
have been looking for something where there was nothing.
(CP133)

This is related to Frege's repeatedly expressed view that the truth of a

Thought is fully independent of whether we believe it to be true. Frege

thought that there was no contradiction in supposing us all to believe

to be true what is in fact false.(CP134) There is, on his view, no

guarantee that we will succeed in discovering the primitive laws for

which we are searching. This passage is ironic in light of Frege's

eventual belief that in looking for a concept of a value range he too

had in effect been looking for something "where there was nothing".

Frege saw this model of scientific development and discovery as

applying to the science of arithmetic. After discussing the

mathematical and philosophical motives that prompted his inquiries into

the foundations of arithmetic, Frege says that satisfying them requires

proving the "fundamental propositions of arithmetic.. with utmost

rigour".(FA§4) And, he continues,

[i]f we now try to meet this demand, we very soon come to
propositions which cannot be proved so long as we do not
succeed in analyzing concepts which occur in them into sim-
pler concepts or in reducing them to something of greater
generality. Now here it is above all Number which has to be
either defined or recognized as indefinable. This is the
point which the present work is meant to settle. On the

outcome of this task will depend the decision as to the nature of the laws of arithmetic. (FA§4)

Frege believed that the laws of arithmetic are laws of logic (CP145), and that the primitive objects and functions mentioned in the laws of arithmetic are of a "purely logical nature" (CP114). Foundational insight into the nature of arithmetic and knowledge of its primitive concepts and objects require discovering through analysis the most general truths from which all arithmetical truths can be derived. Analytical insight into mathematical truths brings with it, on Frege's view, foundational mathematical knowledge.

Interestingly, Frege extended this account of scientific development and discovery to the science of logic. Frege considered logic the science of the most general features of reality. Its aim, on his view, is to discover the laws of Truth.(PW128) These concern, he says, not "what happens but what is." (CP351; Cf. PW128,145,148; BL12) In an unpublished essay on logic, Frege says that a proper development of logic first requires overcoming obstacles ordinary language places in the way of a clear view of the nature of logic. But, he continues, this is only a first phase for

> [w]hat we obtain will generally turn out to be complex; we
> have to analyse this, for here as elsewhere we only attain
> full insight by pressing forwards until we arrive at what is
> absolutely simple. In this respect, too, logic, because of
> its attachment to language and grammar, has fallen short in
> a number of ways. The laws of logic are themselves truths
> and here again there arises the question how a judgement is
> justified. If it is not justified in terms of other truths,
> then logic doesn't need to bother itself with it any fur-
> ther. If, on the other hand, a law of logic can be reduced
> to other laws by a process of inference, then it is evi-

dently the task of logic to carry out this reduction; for it is only by doing this that we can reach a vantage point from which we can take a conspectus of the laws of logic, and not count as many a law that is one and the same.(PW6)

There is a great deal in this passage. Frege draws several parallels between the science of logic and the natural sciences. First, he explicitly compares the foundational character of logic to that of other sciences. In logic, as "elsewhere", insight is gained only by uncovering primitive truths. He suggests further that, as with other sciences, discovering the basic laws of logic might require substantive theoretical, especially analytical, work. The idea seems to be that it may not be obvious when one has reached the primitive truths of logic.

What is more, Frege suggests that, as in the case of other sciences, logic cannot provide the justification for believing what it takes to be the primitive truths.(BLxvii) A proposed axiomatization of logic is justified, on Frege's view, only if it provides a fruitful and systematic explanation of the phenomena. For, he maintained, "fruitfulness is the acid test of concepts, and scientific workshops the true field of study for logic." (PW33) Moreover, Frege evidently believed that it is possible for us to be mistaken about whether some Thought is a primitive law of logic, just as it is possible for us mistakenly to believe of a truth that it is a primitive law of chemistry.

The primitive concepts and objects of logic are, Frege held, typically discovered only after extensive analytical work. In 'Function and Concept' he says that a definition of the concept of an object is "impossible, since we have here something too simple to admit of logical analysis".(CP147; Cf.CP183, 281, 292; Cor.142)) In 'On Concept and Ob-

ject', he calls the concept of a concept logically simple, and remarks that

> [o]ne cannot require that everything shall be defined, any more than one can require that a chemist shall decompose every substance. What is simple cannot be decomposed, and what is logically simple cannot have a proper definition. Now something logically simple is no more given us at the outset than most of the chemical elements are; it is reached only by means of scientific work.(CP182; Cf. CP133)

Frege's point is that we obtain a grasp of the primitive concepts of logic, presumably the concepts *concept*, *function*, (CP133) and *object*, and of the primitive objects of logic, presumably ranges of values (and so numbers and truth values) (Cor.141), only after extended analytical work. As in the case of mathematics, Frege saw analytical insight into Senses as yielding foundational knowledge.

In connection with this, it is worth considering several curious passages. They provide a case study of Frege's method. They suggest, I think, that Frege believed for a time that he had discovered the concept of a value range through the analysis of Thoughts. And he may have thought that this analysis justified counting the concept of a value range a concept belonging to the science of logic.

In a passage from 'On Concept and Object', Frege says that the Thought expressed by "There is at least one square root of four" is also expressed by "The concept *square root of four* is realised". Frege comments that when the Thought is expressed in this second way "the first six words form the proper name of an object, and it is about this object that something is being said." (CP188; Cf. PW122) Analysis thus reveals that Thought to be about an object named by "the concept *square root of*

four." Presumably, Frege would have held that any existential claim would admit of a similar analysis. But it is tempting to try to extend the point further. Consider the Thought expressed by "Cato is a man". Would Frege allow that it is also expressed by "The concept *man* is realised by Cato" or by "Cato falls under the concept *man*"? If so, then (assuming that it is true or false) this Thought too is about an object other than Cato; namely, the object referred to by "the concept *man*." And this would then appear to be generalizable to virtually all Thoughts.

Frege does not say just what objects expressions like '"the concept *square root of four*" refer to. But there is some reason to think he thought they referred to value ranges. To begin with, Frege held that the objects named by expressions of the form "the concept *x*" are of importance in logical discussions. In 'On Concept and Object', he says that in

> logical discussions one quite often needs to say something
> about a concept, and to express this in the form usual for
> such predications--viz. to make what is said about the con-
> cept into the content of a grammatical predicate. Conse-
> quently, one would expect that what is meant by the grammat-
> ical subject would be the concept; but the concept as such
> cannot play this part, in view of its predicative nature; it
> must first be converted into an object, or, more precisely,
> an object must go proxy for it. We designate this object by
> prefixing the words 'the concept' (CP186)

In a draft version of this passage, Frege says that the concept

> must first be converted into an object, or, speaking more
> precisely: an object that is connected with it in accordance
> with a rule must be substituted for it, and it is this ob-

ject we designate by an expression of the form 'the concept x'. (PW97)

In order to express certain Truths about functions it is, Frege tells us, necessary to use expressions such as 'the concept *square root of four*'. Tough such expressions refer to objects this does not prevent the sentences from expressing Truths about functions. For the Thoughts they express are also about the functions themselves. Moreover, the association of a function with its proxy is, Frege says, governed by a rule.

Frege does not tell us what this rule is.[56] But it is tempting to speculate that it is the "fundamental law of logic" introduced in 'Function and Concept'(CP142), and that was a precursor to his Basic Law V. Further support for this speculation is found in a later footnote to the draft of 'On Concept and Object', where Frege says that the "question whether one could simply put 'the concept' for 'the extension of the concept' is in my view one of expediency." (PW106) If correct, this speculation confirms the view that Frege believed that the concept of a value range, and particular value ranges, are discovered by analyzing Thoughts. It is by analyzing Thoughts that we discover that in thinking about functions we are committed to their value ranges.

This speculation may explain why Frege believed that the concept of a value range is a concept belonging to logic, a belief crucial to his contention that arithmetic is a part of logic. First, Frege says that

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[56] I think it would be incorrect to assume that the rule is simply that it is that object referred to by the name formed by prefixing "the function" to the concept's name. This would be a rule governing the references of linguistic items, whereas, I suspect, Frege intended a rule that governed the association of non-linguistic functions and objects.

reference to the objects that go proxy for functions is necessary if certain laws of logic are to be stated. But the concepts and objects referred to in the basic laws of a science are, he tells us, the concepts and objects that properly belong to that science.(CP133) So the concept of a value range is a concept belonging to logic.

But second, and perhaps more interestingly, since commitment to functions is involved in all thinking about any subject matter at all, so is commitment to value ranges. In any thinking at all, about any subject at all, we commit ourselves to the existence of the value ranges of the functions we think about. Frege may have thought that this justified counting the concept of a value range a concept belonging to the science of logic.[57] For the justification for counting the concepts of a function and of an object concepts of the science of logic rests, in part, on the fact that all thinking about any subject at all involves commitment to functions and objects.

To my knowledge, Frege's discussion of this is restricted to 'On Concept and Object' and to an earlier draft of that paper. He nowhere else says or suggests that value ranges are the referents of expressions of the form 'the function x'. Frege soon after came to the view that such expressions should be rejected.(PW122) His reason was that they are misleading: they appear to refer to functions, but actually refer to objects. As a result, expressions such as "the value range of the concept *man*" also fail to refer to value ranges. So it is not possible, using ordinary languages, to refer to value ranges either. This does not en-

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[57] Frege also believed that certain value ranges are objects of logic, and that truth values and natural numbers are among these. This last claim was central to his view that arithmetic was a branch of logic. But both claims require further support. (Cf. CP112-114, 163-177; Cor.140-141)

tail, however, that value ranges are not associated with functions according to a rule of logic, or that thinking involves no commitment to value ranges. Eventually, Frege did come to the view that the association of functions and value ranges was not sufficiently clear. But by then he had already rejected the view of 'On Concept and Object' that expressions of the form 'the function x' are useful for logical discourse about functions.

Though Frege never says as much, the unqualified character of his comments about the independence of truth suggest that he believed that there is no guarantee that we will succeed in discovering the primitive laws of logic, or its primitive elements. But the issue is complex. For Frege believed that the laws of logic yield norms that constitute the nature of thinking, asserting and judging. They "prescribe universally the way in which one ought to think if one is to think at all." (BLxv; Cf. PW128) We must, he says, "acknowledge [them] unless we wish to reduce our thought to confusion and finally renounce all judgment whatever." (BLxvii) In an earlier work, Frege had said that to deny the truths of arithmetic, which he held to be truths of logic, would result in such "complete confusion... [that] (e)ven to think at all [would seem] no longer possible." (FA§14) And, as we have seen, Frege believed that judgment involved commitment to objects and functions of a purely logical nature; in particular, to truth values and value ranges.(CP163)

It is clear that Frege believed that there is a constitutive relation of some sort between being a thinker and judger and conformity with the laws of logic. Tyler Burge has suggested that Frege viewed this relation as providing justification for our practices and theorizing: we are justified in thinking in conformity with, and perhaps even in tacitly

acknowledging, the laws of logic because doing so is necessary for being a thinker at all.[58] But Frege does not explicitly tie this constitutive relation to success in theorizing about these basic laws. And he never says that our logical investigations are guaranteed to succeed. More-over, it is not clear whether acknowledgements or commitments of the sorts required to be a thinker or judger do guarantee against error in theorizing about logic. For, in general, successful engagement in a practice does not require or guarantee knowledge of the conditions that make that practice possible. Still, it is clear that Frege never se-riously doubted that we could discover the primitive laws and elements of logic.

I have been focussing thus far on the role Frege saw analysis playing in the development and progress of science. But Frege also believed that definition played an important scientific role. Frege's views on definition are complex. This is not the proper place to treat of them fully. But it is worth noting that throughout his career Frege saw analysis as tied to the formulation of properly scientific definitions.

Familiarly, Frege assigned definition a primary role in his Founda-tions of Arithmetic. He saw that work's task as part of a larger scien-tific project whose ideals are "rigour of proof, precise delimitation of validity, and as a means to this, sharp definition of concepts." (FA§1; Cf. Bg8) Frege viewed this work as an attempt to provide scientifically respectable definitions of certain arithmetical concepts and objects.

Frege explicitly ties the task of providing these definitions to that of analysis. In a passage already quoted, Frege says that in trying to meet the demands of this project propositions are reached "which cannot

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[58] Burge (1992).

be proved so long as we do not succeed in analyzing concepts which occur in them into simpler concepts or in reducing them to something of greater generality."(FA§4) Having thus tied this project to analysis of concepts, Frege continues by saying that the aim of his work is to determine whether the concept of number can be defined or must be recognized as indefinable. It is, I think, this tie between definition and analysis that explains Frege's insistence that proper definitions should prove scientifically fruitful (FA,ix) and extend one's knowledge.(FA§88) Indeed, it is tempting to speculate that at the time of writing _Foundations of Arithmetic_ Frege had not clearly distinguished definition and analysis.

The distinction became clear in his subsequent work as he came to recognize the importance of developing a systematic formulation of scientific theories. This required distinguishing, within a formal system, sentences that express axioms and those that state definitions. (CP272-8, 300-303; Cor. 36-8; PW204-213)[59] Axioms, he held, are true Thoughts. They are the fundamental laws of the science. Definitions, by contrast, are linguistic conventions. They are not asserted, but stipulated. And they serve only pragmatic ends.

> Once a word has been given a meaning by means of a definition, we may form self-evident propositions from this definition, which may then be used in the constructing of proofs in the same way in which we use principles.... Nevertheless, it would be inappropriate to count definitions among principles. [Appended note: What I here call a principle is a proposition whose sense is an axiom.] For to begin with, they are arbitrary stipulations and thus differ from all assertoric propositions. And even when what a definition

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[59] This recognition seems to have been prompted by his study of Hilbert, whom he accused of having confused axioms and definitions. Cf. (Cor.32-52).

has stipulated is subsequently expressed as an assertion,
still its epistemic value is no greater than that of an ex-
ample of the law of identity a=a. By defining, no knowledge
is engendered.... No definition extends our knowledge. It
is only a means for collecting a manifold content into a
brief word or sign, thereby making it easier for us to han-
dle. This and this one is the use of definitions in mathe-
matics.(CP274)

From a logical point of view, Frege came to think, definitions are

"inessential and dispensable." (PW208) They serve only to simplify the

formulation of a theory by reducing the number of words required to ex-

press a Thought. For this reason, any attempt to have definitions play

an ineliminable role is, he warns, mere "sleight of hand".(CP275;

Cor.36)

This view of definition appears to mark a sharp departure from that

expressed in The Foundations of Arithmetic, where definition was counted

a fundamental aim of that work. But as we have already seen, Frege con-

tinued to hold that analysis can extend knowledge by revealing previ-

ously undisclosed ontological commitments. And he continued to see

analysis as tied to definition.

> The mental activities leading to the formulation of a defi-
> nition may be of two kinds: analytic or synthetic. This is
> similar to the activities of the chemist, who either analy-
> ses a given substance into its elements or lets given ele-
> ments combine to form a new substance. In both cases, we
> come to know the composition of a substance. So here, too,
> we can achieve something new through logical construction
> and can stipulate a sign for it.(CP302; Cf. PW209, 211)

But in recognizing the role definition plays in a formal system, Frege

came to regard its tie to analysis as lying outside the systematic for-

mulation of theory. He continues the passage by noting that the

mental work preceding the formulation of a definition does not appear in the systematic structure of mathematics; only its result, the definition, does. Thus it is all the same for the system of mathematics, whether the preceding activity was of an analytic or a synthetic kind; whether the definiendum had already somehow been given before, or whether it was newly derived. For in the system, no sign (word) appears prior to the definition that introduces it. Therefore so far as the system is concerned, every definition is the giving of a name, regardless of the manner in which we arrived at it. (CP302; Cf. CP274n.5, PW209-10)

Frege had not changed his view on the scientific fruitfulness of analysis, or on its relation to definition. But by viewing definition as properly part of a system, he came to view analysis as lying outside the system itself.

As these passages suggest, Frege held that analysis is not the only source of discovery of concepts and objects. Throughout his career, he admitted that concepts and objects can be discovered either through the analysis of denoting Senses into Senses denoting concepts or objects, or through the combination (or "synthesis") of Senses into Senses denoting concepts or objects. (PW17,33-34,46,253; CP302; CN94) But he maintained throughout that the former method typically proved to be the most scientifically fruitful. And he argued that concepts that apply to infinitely many individuals (e.g., that of number) could never be attained through synthesis(PW34), and cautioned against assuming that all individuals can be attained through synthesis since, "some, such as e.g. the numbers, are only yielded by Thought."(PW34)

I have tried to show in this section that Frege retained throughout his career a conception of scientific progress and method on which analysis of Thought played a central role. He viewed analysis as a source

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of foundational insight, yielding knowledge both of the fundamental laws of a subject matter and of its primitive concepts and objects. I now want to turn to consider a further epistemological role Frege saw analysis playing.

3. I have already discussed one epistemological role analysis plays on Frege's view. Frege held that analysis of Thoughts may yield foundational knowledge. But I believe Frege accorded analysis yet a further epistemological role. I believe he saw analysis as yielding improved understanding of Thought. In this way, Frege tied understanding to the acquisition of foundational knowledge. The aim of this section is to examine this aspect of his view. I will then turn, in the final section, to discuss a conception of Sense that I believe is suggested by these views on analysis.

There are two elements to Frege's view on the link between analysis and understanding. First, Frege held that it is possible for a thinker to have only an incomplete understanding or grasp of a Sense. Second, he held that analyzing a Sense may yield a better understanding or grasp of it. Though Frege always discusses these elements together, it is worth separating them out.[60]

The first element already appears in the Foundations of Arithmetic. In discussing the ideals motivating his work, he cites a "sharp grasp (scharf zu fassen) of concepts". (FA§1; Cf. vii) Two sections later he says that providing a rigorous proof of a proposition "also reveals more precisely the conditions restricting [its] validity". Both passages

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[60] I am indebted to the discussion of these issues in Burge (1990), (1992).

suggest that one aim of Frege's project is to provide a clear grasp of concepts. This point is echoed in a passage several years later when Frege again says that one aim of science is to provide a sharp gasp of concepts.(CP133) Frege had not yet distinguished Sense and reference when he wrote these passages. But his view at the time was that what he then called "concepts" are parts of judgable contents. So the point remains that Frege then held that we may judge and so think with contents we only incompletely grasp.

After having distinguished Sense and reference, Frege expressed the idea that a thinker may only incompletely grasp the Sense of her words in several places. In discussing definition and analysis, he says that one use of the analysis preceding definition "is that through it one becomes more clearly aware of the content of what one has connected, albeit only half-consciously, with a certain word." (CP274n.5) And a few years later, in criticizing Hilbert and a follower for having confused axioms and definitions, he writes that "[e]vidently Mr Hilbert himself does not know what he means by the word 'axiom'; and consequently it also becomes quite doubtful whether he knows what thoughts he connects with his propositions; and still more doubtful whether Mr. Korselt knows this?"(CP294; Cf PW138)

But the clearest expression of this view occurs in a late unpublished writing. While discussing the analysis of an expression's Sense, Frege notes that analyzing the sense of an expression sometimes involves constructing a more complex phrase expressing that same Sense. He concedes that it is not always obvious whether the constructed phrase does indeed express the same Sense as the original sign. And he asks,

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> (h)ow is it possible... that it should be doubtful whether a
> simple sign has the same Sense as a complex expression if we
> know not only the Sense of the simple sign, but can recog-
> nise the Sense of the complex one from the way it is put to-
> gether? The fact is that if we really do have a clear grasp
> of the Sense of the simple sign, then it cannot be doubtful
> whether it agrees with the Sense of the complex expression.
> If this is open to question although we can clearly recog-
> nise the Sense of the complex expression from the way it is
> put together, then the reason must lie in the fact that we
> do not have a clear grasp of the Sense of the simple sign,
> but that its outlines are confused as if we saw it through a
> mist.(PW211)

Later in the same work, Frege notes that even the best mathematicians

appear to disagree about the sense of the word "number". It may be, he

remarks, that they are expressing different Thoughts and talking about

different things. But it may also be, he says, that they each have only

an incomplete grasp of the Sense of "number". It may be, he writes,

that

> this man *does* attach the same Sense to the word 'number' as
> that man, only he doesn't manage to get hold of it prop-
> erly... Perhaps the Sense appears to both through such a
> haze that when they make to get hold of it, they miss it.
> One of them makes a grasp to the right perhaps and the other
> to the left, and so although they mean to get hold of the
> same thing, they fail to do so. How thick the fog must be
> for this to be possible! (PW217)

These passages make clear that Frege held that it is possible for one to

grasp, and so think with, a Sense one only incompletely understands.

Such incomplete grasp of a Sense may, Frege holds, prevent one from rec-

ognizing that it is expressed by an expression of a radically different

form. And, it seems, Frege held that even those most knowledgeable

about the subject matter may fail completely to grasp the Sense they

think and express.

Frege even offers an explanation of the phenomenon of incomplete un-

derstanding.

> When we examine what actually goes on in our mind when we
> are doing intellectual work, we find that it is by no means
> always the case that a Thought is present to our conscious-
> ness which is clear in all its parts. For example, when we
> use the word "integral", are we always conscious of every-
> thing appertaining to its Sense? I believe that this is
> only very seldom the case. Usually just the word is present
> to our consciousness, allied no doubt with a more or less
> dim awareness that this word is a sign which has a Sense,
> and that we can, if we wish, call this Sense to mind. But
> we are usually content with the knowledge that we can do
> this. If we tried to call to mind everything appertaining
> to the Sense of this word we should make no headway. Our
> minds are simply not comprehensive enough. We often need to
> use a sign with which we associate a very complex Sense.
> Such a sign seems, so to speak, a receptacle for the Sense,
> so that we carry it with us, while being always aware that
> we can open this receptacle should we have need of what it
> contains. (PW209; Cf CN87)[61]

Some of our thinking involves only incomplete grasp of the Senses we

think with because, Frege claims, Senses are typically too complex to be

fully grasped. But this does not prevent one from thinking with such

Senses. Indeed, Frege implies that it is only because we are able to

think with Senses we only incompletely grasp that we are able to think

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[61] This passage is interesting for two further reasons. First, it
throws light on Frege's views on our need to use language to think. Ap-
parently, Frege did not consider this need to be based solely on the ab-
stractness of Senses; it is also based on the fact that Senses are typi-
cally too complex for our limited minds to grasp fully. (Interestingly,
Frege makes this same point, in virtually the same words, in about 1882,
some 34 years earlier. (CN87)) Second, Frege continues the passage by
claiming that it "follows from this that a Thought... is in no way to be
identified with a content of my consciousness." Frege thus saw the phe-
nomenon of incomplete understanding as telling against psychologism.

the complex Thoughts we do think. For if we were to try to think fully every Sense we grasp we would, he says, "make no headway."

The second element of Frege's view is that analysis may yield improved understanding. This element of Frege's view is typically expressed in connection with the first. Frege continues the passage quoted above about one purpose of definition by saying that the clarification gained through definition is "less a use of the definition than of defining."(CP274) And he continues the first passage in the second paragraph back by remarking that the "effect of logical analysis... will be precisely this-- to articulate the Sense clearly." (PW211) And the remarks quoted in the last paragraph are in the context of a discussion of the usefulness of analysis. These passages make clear, I think, that Frege considered analysis to be a source of improved understanding. One attains an improved understanding of one's Senses by analyzing them into their constituents.

In discussing these passages, Michael Dummett represents Frege as holding that the "labour of analysis will indeed have been fruitful, in that it issued in a clear sense where before there was only a cloudy one; but we should eschew any pretence that the clear sense corresponds to the cloudy sense in any precisely statable manner."[62] I think this is misleading. Frege is at pains to maintain that it is the thinker's grasp of the Sense, and not the Sense itself, that is cloudy or incomplete. In one passage, Frege admits that the fact that Senses are not always immediately clear may suggest that they are somehow altered or affected by our grasp of them. But, he remarks, "what is called the clarity of a Thought in our sense of this word is really a matter of how

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[62] Dummett (1991b), 18.

thoroughly it has been assimilated or grasped, and is not a property of a Thought." (PW138) To my knowledge, Frege never calls a Sense cloudy, vague, or incomplete. It is a thinker's grasp of the Sense that he characterizes as cloudy or incomplete.

Moreover, this connection between analysis and understanding is a natural one for Frege. As we have already seen, Frege held that analysis may reveal what objects and functions a Sense is about. Analysis reveals that on which the truth value of a Thought depends, or the referent of a complex Sense. Moreover, analysis reveals a Sense's constituents. In so doing, it reveals its logical links to these Senses, and to other complex Senses of which these are constituents. Knowledge gained by analyzing a Thought is thus knowledge of the Sense's logical links to other Senses.

Frege recognized that scientific change often involves associating a different sense, and perhaps even a different referent, with an expression already in use. He admits that

> as a science develops a certain system may prove no longer to be adequate, not because parts of it are recognized to be false but because we wish, quite rightly, to assemble a large mass of detail under a more comprehensive point of view in order to obtain greater command of the material and a simpler way of formulating things. In such a case we shall be led to introduce more comprehensive, i.e. superordinate, concepts and relations. What now suggests itself is that we should, as people say, extend our concepts. Of course, this is an inexact way of speaking, for when you come down to it, we do not alter a concept; what we do rather is to associate a different concept with a concept-word or concept-sign-- a concept to which the original concept is subordinate. The sense does not alter, nor does the sign, but the correlation between sign and sense is different. (PW242)

No doubt, Frege would have admitted that such changes may be prompted by analysis. For analysis may reveal ambiguities whose resolution would aid in the presentation of the theory. But there is no reason to think Frege saw the fruitfulness of analysis as restricted to the regimentation of linguistic practices. He explicitly says that analysis may disclose previously unrecognized logical relations between Senses. And this, he says, may yield improved understanding of Thoughts and Senses one has already been thinking with, if only in a cloudy and unarticulated way.

Frege does not have much to say about how to tell when a proposed analysis of Sense is correct. It is clear that he believed that a phrase analyzes the Sense of a term only if it too expresses that Sense. And it is clear the he thought that a failure to recognize this may be due to an incomplete grasp of the Sense. But two related points are suggested by what he says. First, Frege did not assume that attempted analyses of an expression's Sense are immune from error. One might, on his view, only subsequently recognize a proposed analysis as incorrect. Nor did he see a subject's inability correctly to analyze the Sense of a word as precluding her from thinking with that Sense. The assumption is that we all think with, for instance, the Sense expressed by the word "number" even though the analyses we would offer of it would likely be incomplete and partly incorrect.

The second point is that this fallibility parallels a fallibility in our scientific theorizing. Frege held that there is no guarantee that proposed scientific analyses will prove correct or fruitful. One possible source of error is that we may have been looking for something where there was nothing. The Senses we think with may, upon further investi-

gation, prove to be empty. But it may also be that we incorrectly ana-
lyzed a non-empty Sense, and recognize this mistake only after further
investigation. By tying analyses of Sense to the development of a
science, Frege tied the evaluation of such analyses to the evaluation of
scientific proposals. Determining whether we have correctly analyzed
our Senses, and so evaluating our grasp of them, is not, on Frege's
view, independent of recognized success in our scientific theorizing.

None of this is to deny that Frege's view of the link between analy-
sis and understanding raises difficult questions. How, for instance,
does a Sense that a thinker only incompletely grasps come to be ex-
pressed by her words? And how is this conception to be squared with ap-
parently conflicting intuitions about self-knowledge? Frege has almost
nothing to say in response to either question. He seems not to have
thought them of interest. This attitude is perhaps due to his view that
questions about how thinking actually takes place in us, and about what
it is to grasp a Thought belong to psychology and not logic or philoso-
phy.(PW253) Rather than pursue answers to them here, I want to consider
a picture of Thought that, I think, is suggested by Frege's views on
analysis.

4. I have been discussing two strands in Frege's conception of analysis.
One is that analysis is an important tool for discovering the primitive
laws governing a subject matter, and for discovering its primitive ele-
ments. The other is that analysis yields improved understanding of
Senses and Thoughts subjects may already have been thinking with. That
Frege viewed the notion of Sense as playing a fundamental role in a the-
ory of cognition is clear from his characterization of them as "modes of

presentation" and as "cognitive values". What is less familiar is the

way Frege pictured that role. The aim of this final section is to

sketch this picture. But since it is not a picture Frege ever discussed

in detail this section will be more speculative than the rest.

According to this picture, Sense is in two respects dependent on

truth. First, Frege viewed correct analyses or explications of Senses

as non-trivially, or non-degenerately true. He did not share the con-

temporary view that such truths are true vacuously or independently of

matters of fact. Truths of meaning are, on Frege's view, truths of

fact. Analyses that correctly articulate Senses grasped in thinking

about a science's foundations constitute important extensions of our

knowledge. They reveal the science's basic laws and primitive elements.

Indeed, axioms are not merely about the foundations; they are, Frege

later claimed, themselves the foundations.(CP368) In this respect,

then, Frege viewed Sense as dependent on truth in that he viewed concep-

tual insight as inseparable from foundational knowledge.

The second respect in which Frege pictured Sense as dependent on

truth is that he pictured grasp of a Sense as not independent of the use

of that Sense to think about its referent. Senses are ways objects and

functions are presented to thinkers. A subject grasps a Sense only by

using it to think about the object or function of which it is a mode of

presentation. The Senses of a science's non-primitive vocabulary are

grasped only by using the vocabulary to think about the science's sub-

ject matter. And the Senses of a science's primitive vocabulary are

grasped, if ever, only after often prolonged scientific analysis and not

at the outset of scientific theorizing. In either case, complete grasp

of a Sense (grasp that enables a thinker to distinguish co-referring

Senses) is guaranteed only within the context of a complete and systematic formulation of a true theory. By picturing Sense as in this respect dependent on truth, Frege viewed grasp of Sense as a genuine source of knowledge.

In certain respects, Frege's picture of understanding resembles a common sense view of perception. On a common sense view, perception is a source of knowledge: objects and their features are presented in perception. And articulations of the contents of perceptual experiences are not plausibly viewed as insubstantial or non-factual. Frege held that thought is like perception in being a source of knowledge of objects and functions: objects and functions are presented to thinkers in thought. In this way, Frege followed the Rationalist tradition in viewing thinking as a genuine source of knowledge. But, as Burge remarks, Frege's model for thought was not perception or intuition, but theory.[63] For he did not accept the traditional view that understanding involves grasping transparent representations or intuitions. Senses are, on his view, not necessarily transparent to the understanding: they are not always clear to thinkers in every respect. Senses are grasped only within the context of a developing theory, and improved grasp is gained only through analysis. But analyses that aim to articulate Senses are justified by their role in a developed and successful theory about the Sense's subject matter. So improved grasp of a Sense is gained by developing a successful theory about what one thinks about in thinking with it.(CP125, 127)

On this picture, what is essential to a Sense is that it be a (possible) mode of presentation- a way an object or function is pre-

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[63] Burge (1992), 48.

sented to a thinker in the context of scientific inquiry. But Frege accorded Sense a second role.[64] He held that an expression's Sense determines its referent. Though it is not clear exactly what Frege had in mind here, it is clear that he held that expressions with the same Sense have the same referent. According to some interpretations, however, Frege held that Sense determines an expression's referent in that it is what hooks language onto the world, or in that it provides a criterion or means for identifying or recognizing a referent. Some have suggested that this role is primary and have hoped to use it to explain the notion of a mode of presentation. But Frege rarely, if ever, expressed interest in the metaphysical or epistemological questions that typically motivate these accounts of determination. And these accounts throw little light, it seems to me, on Frege's views about the analysis of Sense. They do not explain why held that the analysis of Sense is of scientific value, let alone why he believed analysis yields foundational knowledge. Nor do they explain why Frege held that analysis and the development of scientific theory yield improved grasp of Senses.

I have been suggesting that Frege viewed Sense as in two respects dependent on truth. This view runs sharply counter to more contemporary views whose roots lie in Wittgenstein's early work and in its interpretation by Carnap and others, according to which meaning is viewed as independent of truth in precisely these two respects. First, truths that articulate or analyze Senses or meanings are conceived of as without "factual content", they are counted analytic in the sense of being vacu-

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64 Frege also held that Senses are referents of expressions in indirect contexts. That Senses should play this role is compatible with their being primarily modes of presentation.

ous and true independently of subject matter.[65] Second, agreement on

the meaning of a word or sentence is possible independently of any

agreement on the truth value of propositions the word or sentence might

be used to express.

One motivation for the view that meaning must be independent of truth

in the first respect was that this promised to provide a non-metaphysi-

cal explanation of the necessity. Carnap and others counted truths of

logic and mathematics, as well as truths of meaning, necessary truths.

But, suspicious of the notion of a necessary feature of reality, he

tried to explain necessity as a product of linguistic stipulation or

convention. Necessary truths, he held, are simply true in virtue of

meaning, and are therefore independent of extra-linguistic matters of

fact and so knowledge of necessary truths requires no knowledge of ex-

tra-linguistic matters of fact. In this way, Carnap and others believed

that a commitment to a broadly empiricist epistemology could be recon-

ciled with knowledge of necessary truths.

Frege rarely discussed the notion of necessary truth. What little he

does say suggests that he viewed modal notions as primarily epistemolog-

ical; as concerning the grounds for making the judgment, or the cer-

tainty one has in its truth.(Bg13) Though he was a foundationalist, he

characterized foundational truths in terms of generality, not necessity.

And though he believed these truths were a priori, he characterized the

a priori in terms of derivability from the most general truths and

analyses, and not in modal or epistemic terms.[66] The truths of logic

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[65] See, for instance, Carnap (1963a), 25,47,64; Carnap (1963b), 916;
Ayer (1946) ch. iv; Lewis (1925).
[66] Frege did think that foundational truths played an epistemological
role: they provide the ultimate justification for non-foundational
judgements about the science's subject matter.(FA§3; Cf. Bg13) But he

and arithmetic are foundational and a priori, on his view, because they are the most general truths about reality, not because they are necessary or indubitable. Moreover, as I discussed in section 2, Frege considered the methodology of arithmetic and logic to be substantially the same as that of any other science. And he believed that our theorizing about logic or arithmetic was as open to error as scientific theorizing generally. Unlike Carnap, Frege did not see the truths of logic or arithmetic, or those that analyze Senses or meaning, as distinguished from other truths along modal, methodological or epistemological lines, or as requiring special explanation. In particular, he did not view them, as Carnap and others did, as non-factual, empty or degenerate truths.

The view that meaning must be independent of truth in the second respect mentioned above was motivated by the conviction that that this is required if communication and joint inquiry are to be possible. The idea was that communication and joint inquiry require that we be able to agree on the meanings of our words and sentences independently of any agreement on the truth value of what we might use those words to say since otherwise, it was alledged, there would be no way to distinguish disagreements over how things are being said to be from disagreements over how things are. Carnap, for instance, wrote that it "seems to me obvious that, if two men wish to find out whether or not their views on certain objects agree, they must first of all use a common language to make sure that they are talking about the same objects."[67] And C.I. Lewis expressed a similar theme when he wrote that in

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viewed this as a consequence of their being foundational rather than as what explains their having this status.
[67] Carnap (1963b), 929; Cf. Carnap (1950), §2.

> scientific classification the search is... for *things worth*
> *naming*. But the naming, classifying, defining activity is
> essentially prior to investigation. We cannot interrogate
> experience in general. Until our meaning is definite and
> our classification correspondingly exact, experience cannot
> conceivably answer our questions.[68]

In this way, the legitimacy of scientific theorizing was held to depend

on a sharp distinction between knowledge of meaning and knowledge of

(extra-linguistic) fact,

Frege was more sensitive to this second point. He says in several

places, that no proper analysis or definition can be provided of the

elementary vocabulary of a science (CP147,183,281,301; Cor.37) and ad-

mits that this places obstacles in the way of communication and shared

understanding. But he suggests that these obstacles are overcome only

by shared engagement in the scientific enterprise, and not by agreement

on arbitrary stipulations or conventions.

> We must admit logically primitive elements that are indefin-
> able. Even here there seems to be a need to make sure that
> we designate the same thing by the same sign (word). Once
> the investigators have come to an understanding about the
> primitive elements and their designations, agreement about
> what is logically composite can easily be reached by means
> of definition. Since definitions are not possible for prim-
> itive elements, something else must enter in. I call it ex-
> plication. It is this, therefore, that serves the purpose
> of mutual understanding among the investigators, as well as
> of the communication of the science to others. We may rele-
> gate it to the propaedeutic. It has no place in the system
> of a science; in the latter no conclusions are based on it.
> Someone who pursued research only by himself would not need
> it. The purpose of explications is a pragmatic one; and once
> it is achieved, we must be satisfied with them. And here we
> must be able to count on a little goodwill and cooperative
> understanding, even guessing; for frequently we cannot do

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[68] Lewis (1925), 19.

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without a figurative mode of expression.(CP301; Cf.CP183, 281; Cor.37; PW207)

There is no suggestion in Frege's work of the view, implicit in the above passage from Lewis, that agreement on the meanings or correct analyses of a science's fundamental vocabulary is merely a matter of agreement on stipulations or conventions. Frege held that determining the senses of a science's fundamental vocabulary typically requires prolonged scientific work and is not guaranteed to succeed. The obstacles that this places in the way of communication and shared understanding are overcome, on Frege's view, by shared engagement in the science itself.

In this section, I have sketched a picture of Sense that, I think, is suggested by Frege's views on the analysis of Sense discussed in sections 2 and 3. According to this picture, Sense is dependent on truth in two respects. First, correct analyses of Senses are viewed, not as trivial or non-factual truths, but as substantive even foundational truths. Second, agreement on the senses of words is not independent of agreement on the truth value of what these words can be used to say. Though this picture conflicts with what has become the dominant one in this century, it promises to throw light on Frege's view that the objects and functions of arithmetic are given to us in thought, and may be of some independent interest as well.

Bibliography

Austin, J.L. -(1961) <u>Philosophical Papers</u>, (Oxford: Oxford University
          Press).

Ayer, A.J. -(1946) <u>Language, Truth and Logic</u>, 2nd ed., (New York:
          Dover).

Bell, D. -(1987) 'Thoughts', <u>Notre Dame Journal of Formal Logic</u>, Vol.
          28, No.1, 36-50.

Burge, T.-(1975) 'On Knowledge and Convention', <u>Philosophical Review</u>,
          Vol. LXXXIV, 249-255.

      -(1984) 'Frege on Extensions of Concepts, from 1884 to 1903',
          in <u>The Philosophical Review</u>, XCIII, No.1, 3-34.

      -(1986a) 'Frege on Truth', in L. Haaparanta and J.Hintikka
          (eds.) <u>Frege Synthesized</u>, (Holland: Reidel), 97-154.

      -(1986b) 'Intellectual Norms and Foundations of Mind', <u>Mind</u>
          Vol. LXXXIII, No.12, 697-720.

      -(1989) 'Wherein is Language Social?', in A. George (ed.)
          <u>Reflections on Chomsky</u>, (Oxford: Basil Blackwell),
          175-191.

      -(1990) 'Frege on Sense and Linguistic Meaning', in D. Bell
          (ed.) <u>The Analytic Tradition</u>, (Oxford: Basil Blackwell),
          30-60.

      -(1991) 'Vision and Intentional Content', in E. Lepore (ed.)
          <u>John Searle and his critics</u>, (Cambridge, MA:
          Basil Blackwell), 195-213.

      -(1992) 'Frege on Knowing the Third Realm', <u>Mind</u>, vol. 101,
          633-650.

Carnap, R. -(1935) <u>Philosophy and Logical Syntax</u>, (London: Kegan Paul,
          Trench, Trubner & Co.).

      -(1937) <u>The Logical Syntax of Language</u>, A. Smeaton (trans.),
          (New York: Harcourt, Brace and Company).

      -(1948) <u>Introduction to Semantics</u>, (Cambridge, MA: Harvard
          University Press).

      -(1950) 'Empiricism, Semantics and Ontology', <u>Revue</u>

Internationale de Philosophie, No. 4, 20-40; reference
is to its reprint in his (1956), 205-221.

-(1952) 'Meaning Postulates', Philosophical Studies, No. 3,
65-73; reference is to its reprint in his (1956), 222-
229.

-(1956) Meaning and Necessity, 2nd ed., (Chicago: University
of Chicago Press).

-(1963a) 'Intellectual Autobiography', in P.A. Schilpp (ed.)
The Philosophy of Rudolf Carnap, (LaSalle: Open
Court), 3-84.

-(1963b) 'Replies and Systematic Exposition' in P.A. Schilpp
(ed.) The Philosophy of Rudolf Carnap, (LaSalle: Open
Court), 3-84.

Casullo, A. -(1992) 'Analyticity and the A Priori', in P. Hanson and
B. Hunter (eds.) Return of the A Priori, (Calgary:
University of Calgary Press), 113-150.

Clark, E.V. and Clark, H.H. -(1979) 'When Nouns Surface as Verbs',
Language, 55, (1979), 767-811.

Davis, S. -(1991) Pragmatics: a reader, (Oxford: Oxford University
Press).

Dummett, M. -(1981) Frege: philosophy of language, 2nd ed., (Cambridge,
MA: Harvard University Press).

-(1988) 'The Origins of Analytical Philosophy, Part 1',
Lingua e Stile, XXIII, no. 1., March, 3-49.

-(1991a) The Logical Basis of Metaphysics, (Cambridge, MA:
Harvard University Press).

-(1991b) 'Frege and the Paradox of Analysis', in his Frege
and other Philosophers, (Oxford: Oxford University
Press), 17-52.

Frege, G. (Bg) Begriffschrift, a formula language, modeled upon that of
arithmetic, for pure thought., S. Bauer-Mengelberg
(trans.), in J. van Heijenoort (ed.) Frege and Godel: two
fundamental texts in mathematical logic, (Cambridge, MA:
Harvard University Press, 1970).

(FA) Foundations of Arithmetic, J.L. Austin (trans.),
(Evanston: Northwestern University Press, 1953).

(BL)   The Basic Laws of Arithmetic, M. Furth (trans.),
        (Berkeley: University of California Press, 1964)

(CN)   Conceptual Notation and related articles, T. Bynum
        (trans., ed.), (Oxford: Oxford University Press, 1972)

(PW)   Posthumous Papers, H. Hermes, F. Kambartel, F Kaulbach
        (eds.), P. Long and R. White (trans.), (Chicago:
        University of Chicago Press, 1979)

(Cor.) Philosophical and Mathematical Correspondence, H. Kaal
        (trans), B. McGuiness (ed.), (Chicago: University of
        Chicago Press, 1980)

(CP)   Collected Papers, M. Black et. al. (trans.), B.
        McGuiness (ed.), (Oxford: Basil Blackwell, 1984).

Grice, H.P. -(1989) Studies in the Way of Words, (Cambridge, MA: Harvard
        University Press).

Hempel, C.G. -(1945) 'On the Nature of Mathematical Truth', The American
        Mathematical Monthly, vol. 52, 543-556; reference is to
        its reprint in P. Benacerraf and H. Putnam (eds.)
        Philosophy of Mathematics 2nd ed., (Cambridge: Cambridge
        University Press, 1983), 377-393.

Higginbotham, J. -(1989) 'Knowledge of Reference', in A. George (ed.)
        Reflections on Chomsky, (Oxford: Basil Blackwell), 175-
        191.
        -(1991) 'Truth and Understanding', Iyyun; the Jerusalem
        Philosophical Quarterly, 40, 271-288.

Katz, J. -(1972) Semantic Theory, (New York: Harper and Row).

Kripke, S. -(1977) 'Speaker's Reference and Semantic Reference', Midwest
        Studies in Philosophy, 2, 255-276; reprinted in Davis
        (1991), 77-96.

Lemmon, E.J. -(1966) 'Sentences, Statements, and Propositions',
        reprinted in J. Rosenberg and C.Travis, (eds.) Readings
        in the Philosophy of Language, (Englewood Cliffs:
        Prentice-Hall, 1971), 233-250.

Lewis, C.I. -(1925) 'A Pragmatic Conception of the A Priori', Journal of
        Philosophy, Vol. XX, No. 7, 169-77; reference is to its
        reprint in P. Moser (ed.) A Priori Knowledge, (Oxford:
        Oxford University Press, 1987), 15-25.

Lewis, D. -(1969) <u>Convention,</u> (Cambridge, MA: Harvard University Press).

Lewy, C. -(1976) <u>Meaning and Modality,</u> (Cambridge: Cambridge University Press).

Lycan, W.G. -(1986) <u>Logical Form in Natural Language,</u> (Cambridge, MA: MIT Press).

Putnam, H. -(1970) 'Is Semantics Possible', in H. Keifer and M. Munitz (eds.) <u>Language, Belief and Metaphysics,</u> (New York: State University of New York); reprinted in his <u>Mind, Language and Reality, philosophical papers vol. 2,</u> (Cambridge: Cambridge University Press), 139-152.

-(1975) 'The Meaning of 'meaning'', in K. Gunderson (ed.) <u>Language, Mind and Knowledge,</u> (Minneapolis: Minnesota University Press); reprinted in his <u>Mind, Language and Reality, philosophical papers vol. 2,</u> (Cambridge: Cambridge University Press), 215-271.

Quine, W.V.O. -(1960) <u>Word and Object,</u> (Cambridge, MA: MIT Press).

-(1963) 'Carnap and Logical Truth' in P.A. Schilpp (ed.) <u>The Philosophy of Rudolf Carnap,</u> (LaSalle: Open Court), 385-406; reprinted in his <u>The Ways of Paradox,</u> revised and enlarged, (Cambridge, MA: Harvard University Press, 1976), 107-132.

Recanati, F. -(1988) 'The Pragmatics of What is Said', <u>Mind and Language,</u> Vol. 4, No. 4; reprinted in Davis (1991), 97-120.

Searle, J. -(1969) <u>Speech Acts,</u> (New York: Cambridge University Press).

-(1979) 'Literal Meaning', in <u>Expression and Meaning,</u> (Cambridge: Cambridge University Press), 117-136.

Soames, S. -(1989) 'Semantics and Semantic Competence', in J.E. Tomberlin (ed.) <u>Philosophical Perspectives 3: Philosophy of Mind and Action Theory,</u> (Altascadero, Cal: Ridgeview), 575-596.

Travis, C. -(1975) <u>Saying and Understanding,</u> (Oxford: Basil Blackwell).

Wagner, S. -(1983) 'Frege's Definition of Number', <u>Notre Dame Journal of Formal Logic,</u> Vol. 24, No. 1, 1-21.

Wisdom, J. -(1938) 'Metaphysics and Verification', <u>Mind,</u> vol. XLVII; reference is to its reprint in his <u>Philosophy and</u>

        Psycho-Analysis, (Oxford: Basil Blackwell, 1953), 51-101.

Wittgenstein, L. -(1953) _Philosophical Investigations_, G.E.M. Anscombe

        (trans.) (New York: Macmillan).

Ziff, P. -(1960) _Semantic Analysis_, (Ithaca: Cornell University Press).