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The Truth about Moods

If music be the food of love, play on.
— Shakespeare, Twelfth Night

abstract

Assertoric sentences are sentences which admit of truth or falsity. Non-assertoric sentences, imperatives and interrogatives, have long been a source of difficulty for the view that a theory of truth for a natural language can serve as the core of a theory of meaning. The trouble for truth-theoretic semantics posed by non-assertoric sentences is that, prima facie, it does not make sense to say that imperatives, such as 'Cut your hair' or interrogatives such as 'What time is it?' are true or false. Thus, the vehicle for giving the meaning of a sentence by using an interpretive truth theory, the T-sentence, is apparently unavailable for non-assertoric sentences. This paper shows how to incorporate non-assertoric sentences into a theory of meaning that gives central place to an interpretive truth theory for the language, without, however, reducing the non-assertorics to assertorics or treating their utterances as semantically equivalent to one or more utterances of assertoric sentences. Four proposals for how to incorporate non-assertoric sentences into a broadly truth-theoretical semantics are reviewed. The proposals fall into two classes, those that attempt to explain the meaning of non-assertoric sentences solely by appeal to truth conditions, and those that attempt to explain the meaning of non-assertoric sentences by appeal to compliance conditions, which can be treated as one variety of fulfillment conditions for sentences of which truth conditions are another variety. The paper argues that none of the extant approaches is successful, but develops a version of the generalized fulfillment approach which avoids the difficulties of previous approaches and still exhibits a truth theory as the central component of a compositional meaning theory for all sentences of natural languages.

1. Introduction

Assertoric[1] sentences are sentences which admit of truth or falsity. Non-assertoric sentences, imperatives and interrogatives (as well as molecular sentences combining sentences in different moods), have long been a source of difficulty for the view that a theory of truth for a natural language can serve as the core of a theory of meaning. The trouble for truth-theoretic semantics posed by non-assertoric sentences is that, prima facie, it does not

make sense to say that imperatives, such as 'Cut your hair' or 'Do not multiply entities beyond necessity', or interrogatives such as 'What time is it?' or 'Who will be the next President?' are true or false. Thus, the vehicle for giving the meaning of a sentence by using an interpretive truth theory, the T-sentence, is apparently unavailable for non-assertoric sentences. My aim in this paper is to show how to incorporate non-assertoric sentences into a theory of meaning that gives central place to an interpretive truth theory for the language, without, however, reducing the non-assertorics to assertorics or treating their utterances as semantically equivalent to one or more utterances of assertoric sentences.

To begin, I will explain how I wish to understand the project of giving a theory of meaning for a natural language by using a truth theory (section 2), and then review the difficulty posed by non-assertoric sentences, and set it against the background of a taxonomy of the uses of language in performing speech acts and some reflections on the relation between the taxonomy and the sentential moods (section 3). In developing the approach I will urge, I will review four proposals for how to incorporate (*prima facie*) non-assertoric sentences into a broadly truth-theoretical semantics. These proposals fall into two classes, those that attempt to explain the meaning of apparently non-assertoric sentences solely by appeal to truth conditions, and those that attempt to explain the meaning of non-assertoric sentences by appeal to a notion of compliance conditions. The first approach attempts to give the semantics of imperatives and interrogatives solely by appeal to the resources already provided within the framework of an interpretive truth theory. The second approach aims to provide a treatment of non-assertoric sentences in the framework of a theory of generalized fulfillment conditions for sentences which admit of subvarieties, one of which is truth conditions. In the truth conditional approach, I examine the performative paraphrase approach, championed by David Lewis, though the proposal antedates[2] his "General Semantics" (p. 208) in which he takes it up (section 4), and the truth conditional paratactic approach, developed by Donald Davidson in "Moods and Performatives" (section 5). In the generalized fulfillment condition approach, I examine two proposals of Colin McGinn's (section 6), a fulfillment condition paratactic approach and fulfillment condition operator approach. I will argue that none of these approaches is successful. I will develop a version of the generalized fulfillment approach which avoids the difficulties of previous approaches and still exhibits a truth theory as the central component of a compositional meaning theory for all sentences of natural languages (sections 7 & 8). Finally, I show how to integrate this into a generalization of the kind of theory of meaning described in section 2

(section 9), review some open questions about the legitimate combinations of sentences of different moods in molecular sentences and the range of mood devices found in natural languages (section 10), and conclude and summarize (section 11). Sections 3, and 7–9, present the main positive proposal, and can be read independently of the criticism of other approaches.[3]

2. Truth-theoretic semantics

The project of a theory of meaning for a natural language is to

(R) provide, from a specification of the meanings of a finite number of primitive expressions and a finite number of rules, a specification of the meaning of any of the infinite number of sentences of the language.[4]

For assertoric sentences, this requirement can be met for a language L provided that one has an interpretive truth theory T for L and one can deduce from T's axioms by way of a canonical proof procedure a T-sentence for each of the sentences of L. A T-sentence will be a sentence of the form,

(T) ϕ is true$_{[s,t]}$ in L iff p,

which is interpretive. (I indicate the relativization of the truth predicate to speaker s and time t by the subscript expression '$[s,t]$', read as 'as potentially spoken by s at t'. These subscripted variables (here and elsewhere below) should be regarded as being bound by universal quantifiers which take wide scope over the biconditionals in which they appear. Relativizing the truth predicate to speakers and times is necessary for natural languages to accommodate deictic or indexical elements in natural language sentences.) A sentence of the form (T) will be *interpretive* provided that the sentence that goes in the place of 'p' provides in the context an interpretation of the sentence of L that the term that replaces 'ϕ' denotes, for example,

'Caesar crossed the Rubicon' is true$_{[s,t]}$ in English iff there is a $t' < t$ such that Caesar crosses the Rubicon at t'.

A theory T for a language L is an *interpretive theory* provided that it meets conditions (I) and (II):

(I) Requirement on base clauses: the expressions used to provide satisfaction conditions or referents for non-recursive terms provide in the context of the axiom an interpretation of the expressions for which they provide satisfaction conditions or referents. For example, where 'f' ranges over functions assigning objects to variables,

$(\forall f)$('x is red' is satisfied$_{[s,t]}$ by f in English iff f('x) is red at t).

The right hand side of this biconditional provides an interpretation of the open sentence on the left in the context because it uses a predicate which is the same in meaning as the one for which satisfaction conditions are being given, and makes explicit the relativization to the time of utterance.

(II) Requirement on recursive clauses: the rules specified by the axioms for recursive terms exhaust the contribution of the expression for which recursive satisfaction are being given to the truth conditions of the sentences in which it appears, and use a recursive expression which has the same role in the metalanguage as the role of the expression for which satisfaction conditions are being given in the object language. For example,

$(\forall f)$('ϕ and ψ' is satisfied$_{s,t}$ by f in English iff 'ϕ' is satisfied$_{s,t}$ by f and 'ψ' is satisfied$_{s,t}$ by f).

It is clear that if interpretive axioms can be given for all primitive expressions in a language, a proof procedure can be constructed in a suitably formalized theory[5] which will draw only on the content of the axioms to prove T-sentences which will be interpretive.

Suppose we have an interpretive truth theory T for L. Then the following will be the form of a theory of meaning that meets requirement (R) for assertoric sentences:

(i) T is an interpretive truth theory for L;
(ii) The axioms of T are (A1) ..., (A2) ..., ...;
(iii) Axiom (A1) of T means that ..., axiom (A2) of T means that ..., ...;
(iv) The following proof procedure is a canonical proof procedure[6] for T: ...;
(v) For all sentences ϕ of L, all instances of the following schema in the place of 'p' are true:

if

'ϕ is true$_{s,t}$ in L iff p' is canonically provable from an interpretive truth theory for L,

then

ϕ means$_{s,t}$ in L that p.

Knowledge of a theory of this form for a language is sufficient to enable one to give a specification of the meaning of, and to understand, any of its assertoric sentences.[7]

A theory of this form is a compositional meaning theory for L which enables its possessor to interpret any assertoric sentence of the object language on the basis of his knowledge of the theory. But it is not intended to be a theory also of how the primitive terms in the object language come to have their meanings, and it is not intended to provide an analysis of any

primitive expressions in the language, whether recursive or non-recursive. Furthermore, it is not claimed that actual speakers' competence consists of their propositional grasp of such a theory. Rather, the theory aims to capture in its structure the structure of the practical ability speakers have to speak and understand their languages.

3. The problem of non-assertoric sentences and their relation to the theory of force

The sort of theory outlined above applies only to assertoric sentences, since it generates an interpretation of sentences by specifying their truth conditions using interpretive axioms in a truth theory. Since non-assertoric sentences do not have truth conditions, the approach is not applicable in any straightforward way to them. Thus, sentences of the form of (1) and (2),

(1) 'What time is it?' is true$_{s,t}$ in English iff ....
(2) 'Close the door' is true$_{s,t}$ in English iff ....

are ill-formed because interrogative and imperative sentences are not true or false.

The distinction between assertorics, interrogatives and imperatives is marked in English by a variety of syntactical devices. Imperatives are formed most prominently by a transform of assertoric sentences which involves dropping the subject term and a modal auxiliary 'will' (e.g. 'You will take off your hat' becomes 'Take off your hat'), but note also forms such as 'Gentlemen are to take off their hats in the presence of ladies' and 'Don't be offended by his bluntness'. Interrogatives likewise are formed by a variety of devices such as inverting the main subject and verb and adding a question mark ('Are you tired?'), or placing such a form with 'why' ('Why are you tired?'), or by a transform of placing a interrogative pronoun ('which', 'who', 'whom', 'whose', 'when', 'where') in the place of a referring term in a sentence (e.g., 'Who is it', 'Which one did you buy?', 'Whose book is that?'), as well as other devices. I will call these syntactic markers of sentential mood 'mood-setters' (following Davidson).[8] What distinguishes assertoric, interrogative, and imperative sentences semantically is that while sincere and literal utterances of all of these sentences admit of bivalent evaluation, the values are different and are assigned on different bases. An assertoric sentence uttered literally is true or false, an interrogative sentence is answered or not, an imperative sentence is obeyed or not. I will use the general notion of a sentence being fulfilled or not (fulfillment conditions) to capture the idea that all of these sentences admit of a bivalent evaluation on occasions of their literal use.

The problem that sentential moods present for the meaning theorist is twofold. First, we must explain what the semantic functions of the mood-setters are. Secondly, we must be able to incorporate this account into a recursive semantic theory for the language. A meaning theory that has no account of the meanings of non-assertoric sentences leaves out an important feature of our use of language; moreover, a theory which has no account of non-assertoric sentences must also be judged to be incomplete even with respect to its account of assertoric sentences, since without an account of their semantic differences from non-assertoric sentences an essential feature of those sentences is left unexplained.

It is clear that the sentential moods are closely related to the forces with which an utterance can be made. The force of an utterance in this sense corresponds to the intended point of the utterance, that is, what the utterance is *supposed* to accomplish, or, as it has been called, the illocutionary point of an utterance (as distinguished from the locutionary point, what is said, and the perlocutionary effect, what the utterance actually brings about). Following Searle[9], I divide illocutionary acts into the five basic[10] categories in table 1.

Speech acts in table 1 are classified primarily in terms of their illocutionary point, and secondarily in terms of their 'direction of fit' and propositional content. Direction of fit is either word to world or world to word, and corresponds to the difference in force of an utterance depending on whether its propositional content is meant to conform to the way the world is (word to world direction of fit) or whether the point of the act is to get the world to conform to the propositional content (world to word direction of fit). The primary point of an assertive speech act is to represent the world as being a certain way (e.g., the assertion that it is raining), of a commissive to commit the speaker to performing a certain action (e.g., a promise to do the laundry), of a directive to get the auditor to do something (e.g., a request to open the window), of an expressive to express an emotion or psychological state (e.g., congratulating someone on an achievement), of a declarative to make something the case (e.g., adjourning a meeting).

Category	Illocutionary Point	Direction of Fit/ Sincerity condition	Propositional Content	Example
Assertive ⊢p	represent something as being the case	word to world/ belief that p	p	It's raining
Commissive C(p)	commit the speaker to an action	world to word/ intention that speaker, s, brings it about that p	s will bring it about that p[11]	I promise to bring it next time.
Directive D(p)	get an auditor or auditors to make it the case that p	world to word/ desire that an auditor or auditors a bring it about that p	a will bring it about that p	Open the door. Clean my boots.
Expressive E	express an emotion	no direction of fit/appropriate emotion	s or a has property P	Ouch! Congratulations!
Declarative D(p)	make it the case that p	word to world and world to word/desire that p[12]	p	You're fired.

Table 1

Speech acts in table 1 are classified primarily in terms of their illocutionary point, and secondarily in terms of their 'direction of fit' and propositional content. Direction of fit is either word to world or world to word, and corresponds to the difference in force of an utterance depending on whether its propositional content is meant to conform to the way the world is (word to world direction of fit) or whether the point of the act is to get the world to conform to the propositional content (world to word direction of fit). The primary point of an assertive speech act is to represent the world as being a certain way (e.g., the assertion that it is raining), of a commissive to commit the speaker to performing a certain action (e.g., a promise to do the laundry), of a directive to get the auditor to do something (e.g., a request to open the window), of an expressive to express an emotion or psychological state (e.g., congratulating someone on an achievement), of a declarative to make something the case (e.g., adjourning a meeting).

Speech acts uttered with different illocutionary forces have different fulfillment conditions. An assertive is true provided that what is asserted is so. A promise is kept provided that the promiser does what he promised to do as an intentional result of having so promised. A directive is carried out provided that the persons to whom it is directed do what is directed as an intentional result of having been so directed. A declarative is successful provided that by making the declarative the declarer makes so what is declared to be so. An expressive is a degenerate case and doesn't have fulfillment conditions, although it may be called felicitous or infelicitous depending on whether the assumptions of the person performing the speech act are appropriate for the occasion and emotion he is expressing. For example, congratulating someone after a race because you suppose he has won, while in fact he came in last, would, while not false or mistaken, still be a kind of misfire.

Mood and force are clearly linked, but they are not the same. Mood is a syntactical feature of a sentence. Force is a feature of an utterance. It seems clear that assertoric, imperative and interrogative sentences are especially apt for making assertions, giving orders or directives, and asking questions, respectively. But there are categories of illocutionary point which do not have a corresponding sentential mood, as, e.g., in the case of commissives and declaratives. And a sentence in any sentential mood can be used to perform a speech act with any of the five basic forces.

It is tempting to view sentential mood simply as a conventional indicator that the speaker intends to be performing a speech act with a certain force, as a *prima facie* force indicator.[13] This would allow for a tight connection between mood and force, and yet allow speakers pragmatically to attach a

different force to an utterance of a sentence than that for which it is conventionally designed. But this simple view cannot be quite correct because embedded sentences are not used conventionally to indicate the performance of a speech act of the sort which might be associated with the sentence's sentential mood. We do not assert the sentence which appears in the antecedent or consequent of an indicative conditional. Similarly in the case of molecular sentences which involve mixed-moods, such as, 'If there's anything I can get you, please let me know', the antecedent is not asserted, and no command is issued with the consequent. Rather, the conditional would be used to issue a conditional directive.

The connection between mood and force seems rather to be that sentences of different moods admit of different bivalent evaluations. Thus, atomic sentences in speech acts admit of different bivalent evaluations, just as speech acts are apt for use to perform speech acts in some of our basic categories in virtue of their bivalent evaluation being of the same sort as that for the speech acts. But this is not to say that the sentential moods have as their semantic function to indicate that a speech act of that sort is being performed. Rather, the differences between the moods is a difference in their fulfillment conditions of the sort we find between certain categories of speech acts. It is this that explains the natural fit between the different sentential moods and different kinds of speech act which can be performed using sentences.

In the light of our taxonomy, we can see that there are only two types of basic speech act for which there are atomic sentences with a corresponding bivalent evaluation, namely, assertives and directives. For the three moodsetters which signify a difference in fulfillment conditions are the assertoric, interrogative, and imperative, and the latter two both have compliance conditions of the same sort as directives. Imperative sentences are apt for use generally to issue directives. The interrogative is a more specialized form which is distinguished from the general form by its propositional content. For example, a sincere utterance of 'What time is it?' would typically be used to issue a directive for the auditor to tell the speaker the present time. In the light of this, we should expect that our general account of imperatives and interrogatives should exhibit them as of the same general kind, with interrogatives being a specialized form of the imperative device.

Thus, while it is a mistake to say that the semantic function of the sentential moods is to indicate that a speech act of a certain kind is being performed, nonetheless, by virtue of having a certain sort of fulfillment condition, they are apt for the performance of speech acts with a similar sort of fulfillment condition. In developing my own approach in sections 7 and 8, I

will be drawing on work done in the theory of forces as a guide for giving fulfillment conditions for imperatives and interrogatives; in particular, the fulfillment conditions for imperatives and interrogatives will be modeled on those for directives.

Of course, the sentential moods are not the only way in which a sentence may be used standardly to perform a certain kind of speech act. For example, 'promise', used in the first person present tense, is usually used by a speaker to represent himself as placing himself under an obligation, i.e., as promising to do something. Likewise, someone with an appropriate position in an institutional practice may, in appropriate circumstances, bring about a change in social fact by sincerely uttering an assertoric sentence such as 'You are fired'. But since these are illocutionary acts which are accomplished by the use of assertoric sentences, they present no problem for truth-theoretic semantics. Their use to perform certain kinds of speech acts is a matter of the interplay between the literal meanings of the assertoric sentences and the conditions under which they are used. Thus, promises and firings when performed by the use of assertoric sentences are indirect speech acts. By making an assertion of a certain kind in appropriate circumstances, the speaker makes a promise or brings about a firing, etc. My present concern is solely with sentential moods as indicators of a non-truth valued bivalent evaluation of the sort we find for the typical speech acts performed using them. The problem is to show how to incorporate this basic picture of the difference between the sentential moods into a truth theoretic approach to the theory of meaning.

4. The performative paraphrase approach

I begin the review of proposals by considering the suggestion that interrogatives and imperatives may be treated as paraphrases of corresponding performatives. For example, the paraphrases of (3) and (4),

> (3) What time is it?
> (4) Tell me the time,

are (5) and (6),

> (5) I ask you what time it is,
> (6) I direct you to tell me the time,

respectively. If correct, this proposal would straightforwardly solve the problem of integrating interrogatives and imperatives into a truth theoretical semantics by treating them as assertoric sentences which achieve their special effect by using verbs for the speech acts which they are used to perform. On this view, the semantic function of the moods is to encode a performative,

and asking a question using an interrogative or giving an order using an imperative is a matter of asserting that one is asking or ordering a certain thing.

This proposal is, however, on the face of it, inadequate. Sincere (felicitous) utterances of (3) and (4) are not true or false, while sincere utterances of (5) and (6) are (referential infelicities aside). Furthermore, while an utterance of (5) entails that someone has asked someone the time, and an utterance of (6) entails that someone has directed someone to tell the time, utterances (3) and (4) do not. In response to (5), it could be appropriate to assert (7):

> (7) I wish you wouldn't,

but not in response to (3).[14] In response to (6), it could be appropriate to assert (8),

> (8) You are not in a position to do so,

but not in response to (4). Likewise, it simply doesn't make sense to say in response to an utterance of (3) or (4) 'That's a lie', while it does in response to (5) or (6).

Furthermore, while (5) and (6) can be used simply to state something, the same is not the case for (3) and (4). For example, in teaching someone sign language, I may sign a question and remark at the same time, 'I ask you what time it is', by way of explanation. Further embarrassments are uncovered if we consider slightly more complex questions, such as (9), for which (10) is the corresponding performative:

> (9) Do you go to the movies every week?
> (10) I ask you whether you go to the movies every week.

(10) is not equivalent to (9). On the natural reading, it is merely assertoric, a remark about the frequency with which I ask you whether you go to the movies; even if there is a reading on which it could be used to ask the question (9) asks, (9) is clearly not ambiguous, and so not equivalent to (10), even with the concession that it could in appropriate circumstances be used to ask a question of the sort (9) is used to ask.

The performative analysis also fails for certain kinds of embedded imperatives and interrogatives, such as (11),

> (11) If you go to the store, buy some toothpaste.

The performative analysis would treat this as a paraphrase for (12),

> (12) If you go to the store, I direct you to buy some toothpaste.

An utterance of (12), however, is clearly not equivalent to an utterance of (11). (11) is used to issue a *conditional* directive. The appropriate response

to a typical utterance of (11) would be to do nothing as a result of its utterance if one does not in the ordinary course of affairs go to the store, or, if one does, to buy some toothpaste. (12) cannot be used to issue a conditional directive. The consequent of (12) is either true or false when it is uttered. If true, then a simple directive is issued, though no simple directive is issued in uttering (11). If the consequent is false, then no directive is issued, conditional or otherwise, by (12).

This cannot be remedied by treating (11) as a paraphrase of (13),

(13) I direct that if you go to the store, you will buy some toothpaste,

for two reasons. First, as before, (11) is a conditional directive, so no simple directive is issued, whereas the intended use of (13) would issue a simple directive. Second, the directive issued by an utterance of (13) could be fulfilled if its intended audience did not go to the store as a result of being directed to make it the case that if he goes to the store, he buys some toothpaste, and this is not what is intended by (11). That is, someone could not say appropriately in response to (11) 'I did what you asked me to by not going to the store', but he could in response to (13).

Furthermore, since imperatives and interrogatives are supposed to be equivalent, we get mistakes going in the other direction as well, for example, (14),

(14) I order you to shine my boots when they are dirty,

issued as a remark, not a conditional order, becomes (15),

(15) Shine my boots when they are dirty,

which must be interpreted as a conditional order.

Finally, it should be noted that if the performative paraphrase strategy were correct, there would be no reason not to treat assertoric sentences in the same way, since, on this view, assertoric sentences just as much as imperative and interrogative sentences would typically be used to perform a specific kind of speech act, and this would have to be associated with its specific mood setter. However, this would require each assertoric sentence, such as (16),

(16) The moon is full

to be treated as a paraphrase of a sentence such as (17),

(17) I tell you that the moon is full.

This leads immediately to an infinite regress. We should conclude that interrogatives and imperatives are not paraphrases of the corresponding performatives.

5. The paratactic theory

I turn to Davidson's more subtle approach to bringing non-assertoric sentences into the fold of a truth theoretic semantics. In "Moods and Performances" Davidson lays down three criteria for the success of any theory of sentential moods:

(A) It must show or preserve the relations between indicatives and corresponding sentences in the other moods; it must, for example, articulate the sense in which 'You will take off your shoes', 'Take off your shoes', and 'Will you take off your shoes?' have a common element.

(B) It must assign an element of meaning to utterances in a given mood that is not present in utterances in other moods. And this element should connect with the difference in force between assertions, questions, and commands in such a way as to explain our intuition of a conventional relation between mood and use.

(C) Finally, the theory should be semantically tractable. If the theory conforms to the standards of a theory of truth, then I would say all is well. And on the other hand if ... a standard theory of truth can be shown to be incapable of explaining mood, then truth theory is inadequate as a general theory of language. (pp. 115–6)

The difficulty lies in a tension between the first two criteria and the third. The first two look as if they require that sentential moods be treated as operators on an assertoric or neutral core sentence. If we assume that only in a theory of truth will one be able to exhibit the moods as semantically tractable, the last seems to require that they be treated as truth functional operators.

Davidson's suggestion for resolving this tension is derived from reflection on the application of his paratactic account of indirect discourse to explicit performatives.[15] Consider an explicit performative such as (18),

(18) I assert that the moon is full.

On Davidson's analysis of indirect discourse, this is represented as semantically equivalent to two separate sentences,

(19) I assert that. The moon is full.

An utterance of (18) is treated as the sequential utterance of the two sentences in (19). The utterance of 'I asserted that' refers to the utterance of 'The moon is full'. Since the first says that the speaker asserts the second, the first will be true iff the speaker in uttering the second sentence asserts it. On

this view, one explains the use of the performative as a device to indicate the speaker's intention to his audience. This account of how explicit performatives work suggests an analogous treatment for non-assertoric sentences. (I use 'assertoric' in place of Davidson's use of 'indicative'. See note 1.) The assertoric sentences, Davidson says, we can leave alone: "we have found no intelligible use for an assertion sign" (p. 119). Sentences in the imperative and interrogative moods we treat as assertoric sentences plus an imperative or interrogative mood-setter. The assertoric sentence we will call the propositional core of the imperative or interrogative. Each is assigned truth conditions. Thus, the assertoric core of (20),

(20) Put on your hat,

is 'you will put on your hat'. The mood setter in (20) is the truncation of the assertoric core, the result of leaving out of the subject term and modal auxiliary. The assertoric core is assigned its usual truth conditions. About the mood-setter, Davidson says the following:

If we were to represent in linear form the utterance of, say, the imperative sentence 'Put on your hat', it would come out as the utterance of a sentence like 'my next utterance is imperatival in force', followed by an utterance of 'You will put on your hat'. (p. 120)

But this is misleading, because, Davidson says,

I do not want to claim that imperative sentences are two indicative sentences. Rather, we can give the semantics of the utterance of an imperative sentence by considering two specifications of truth conditions, the truth conditions of the utterance of an indicative sentence got by transforming the original imperative, and the truth conditions of the mood-setter. The mood-setter of an utterance of 'Put on your hat' is true if and only if the utterance of the indicative core is imperatival in force. (p. 120)

Thus, the proposal is that in uttering a sentence such as (20), one is understood by one's audience to have performed two speech acts, one involving as content the assertoric core of the sentence (obtainable by a trivial transformation) and the other involving a claim about the utterance of the assertoric core. This is therefore an account in which an element of parataxis is involved in the sense that we represent an assertion of the sentence as semantically decomposable into two distinct utterance acts each with its independent truth conditions.

Does this meet the three criteria Davidson lays down for an adequate theory of (sentential) mood? It straightforwardly meets the condition of showing that there is a common element in 'You will put on your hat', 'Put on your hat' and 'Will you put on your hat?'; this is assertoric core. It also apparently meets the requirement that it assign a meaning to the mood-setters which distinguishes between the different sentential moods, at least

with respect to imperatives and interrogatives. It does not, of course, for the assertorics. We will return to this omission below. Finally, by treating the contribution of the mood-setter as a matter of its truth conditions, it appears to pave the way for a truth-theoretic treatment which will make it semantically tractable.

Still, there remain a number of questions about the adequacy of Davidson's account.

Despite the claim that a utterance of an non-assertoric-sentence can be considered as two utterances each with its own truth conditions, it is not entirely clear how to integrate the proposal into a formal truth theory. For the formal theory must work with sentences, rather than utterances. How then can we apply a truth theory to non-assertoric-sentences?

One suggestion would be that we treat a non-assertoric sentence, such as 'Put on your hat', as having the truth conditions of the mood-setter. Then we could represent the T-sentence as in (21):

(21) 'Put on your hat' is true$_{[s,t]}$ in English iff the assertoric core of 'Put on your hat' as uttered by s at t is a command.

But, as we have noted, 'Put on your hat' is neither true nor false, even as relativized to a speaker and time. This is an obstacle which any attempt to treat non-assertoric sentences as having truth conditions faces. One might, implausibly, bite the bullet and claim that despite appearances 'Put on your hat', relativized to a speaker and time, is true or false. But not Davidson. That 'Put on your hat' is neither true nor false, even as relativized to a speaker and time, is something that Davidson accepts. He explains it as a result of the fact that semantically utterances of the sentence are treated paratactically. This means that there are two independent truth conditions assigned to an utterance of it, but that it is not treated as a conjunction. Thus, there is no one thing that can be said to be true or false. However, while this handles one problem, it does so only by raising another. For it seems to preclude any straightforward treatment of non-assertoric-sentences in a truth theory.

If a truth theory cannot be applied directly to non-assertoric-sentences, then it appears that to integrate non-assertoric-sentences into a truth theory, we must first translate them into a canonical version of English (or whatever language we are considering) and apply the truth theory to the translation. The translation would represent 'Put on your hat' as two sentences, as in (22),

(22) This is a command: you will put on your hat.

The truth theory would be applied independently to each sentence in (22). An interpreter using the theory to interpret another speaker would, upon hearing someone utter a non-assertoric-sentence, first translate it as indicated, and then apply the truth theory.

For this to be acceptable, however, the semantic properties of the putative translation must be the same as what it translates. There are a number of reasons to think it is not. First, as we have noted, Davidson recognizes and agrees that an utterance of an imperative or interrogative sentence does not have a truth value, and explains this as a result of its being semantically two utterances which are not the utterance of a conjunction. In the same way one would not say that an utterance of (23),

(23) I am tall. I am hungry,

is true or false jointly, but rather say that the first utterance is true or false, and the second utterance is true or false. Since there was no utterance of a conjunction, the question of the whole utterance's truth or falsity does not come up. However, this is not enough to blunt the force of the objection that non-assertoric-sentences are truth valueless. For in an utterance of (23), while the whole utterance is not true or false, one nonetheless has said two things which are truth valued. Supposing that the utterer of (23) is both tall and hungry, he has said as is two things which are true. Thus, Davidson is committed to saying that in sincerely uttering 'Put on your hat' one has said two things which are truth valued. If someone says 'Put on your hat' and thereby commands you to put on your hat, and then you put on your hat, Davidson's account commits us to saying that he has said two things. However, intuitively, when someone says 'Put on your hat', he has not said anything which is true or false. Connected with this is the difficulty that according to Davidson's account an utterance of 'Put on your hat' would entail that you will put on your hat, that something exists which will put on a hat, that something is a command, that someone will put on something, etc. Yet, intuitively, what one says does not entail any of these things. I could not intelligibly say, e.g., 'Put on your hat; therefore something will put on something'. Yet, this would make sense if Davidson's account of the semantics of the first utterance were correct, since an utterance of it would be semantically equivalent to (22). In fact, most of the objections leveled against the performative paraphrase account are equally objections to Davidson's paratactic account. For example, it would make sense on Davidson's account to respond to someone who asks, 'How are you?' by saying, 'That's a lie!', while it clearly does not.

There are additional serious difficulties with Davidson's account that show up when we turn to interrogatives. For yes-no questions, such as (24),

(24) Are you tired?

there is no additional difficulty, since this will be represented as semantically equivalent to (22).

(25) My next utterance is a question. You are tired.

However, for many questions there is no sentential assertoric core. Thus, in the case of (3), repeated here,

(3) What time is it?

there is no *sentence* which plays the role of 'you are tired' in (25). Rather, there is a sentence form, namely, 'the time is x'. But if we apply the paratactic treatment to this, we get (26):

(26) My next utterance is a question. The time is x.

Since 'the time is x' is not a sentence, it does not have truth conditions, and it is not clear that we can assimilate it to asking a question by using an assertoric sentence. Perhaps this objection could be overcome by maintaining that one can in fact ask a question by uttering an open sentence, and that this is semantically the case with interrogatives such as (3).

But whether or not this lacuna can be filled adequately, the account (like the performative paraphrase account) cannot handle embedded imperatives and questions. Thus, (11), repeated here,

(11) If you go to the store, buy some toothpaste,

would be represented as (27):

(27) If you go to the store, my next utterance is a command. You will buy some toothpaste.

The difficulty is that the status of my utterance of 'you will buy some toothpaste' is determined by my intentions when I utter it. Thus, it is or is not a command whether or not you go to the store. This, however, clearly gets the compliance conditions for a sincere literal utterance of (11) incorrect (henceforth 'utterance'). For an utterance of (11) is complied with provided that the auditor does not go to the store or, if he does, he buys some toothpaste as result of the conditional directive he received. It is no help to represent (11) as in (28).

(28) My next utterance is a command. If you go to the store, you buy some toothpaste.

For, as in the case of the performative paraphrase approach, an utterance of (28) could be fulfilled by the auditor's deliberately not going to the store as a result of its being issued, whereas in uttering (11) no order is issued which could be obeyed by refraining from going to the store. Similar difficulties

attend conditional questions.[16] A further difficulty is raised by quantification across mood setters. Consider (29):

(29) If anyone leaves, he is not to come back.

This is not equivalent to (30):

(30) My next utterance is a command. If anyone leaves, he is not to come back.

For the command to make a conditional true is not equivalent to a conditional command. However, if we represent this as (31), then, in addition to the difficulty already noted, we lose the quantification into the consequent.

(31) If anyone leaves, my next utterance is a command. He will not come back.

This problem occurs also with interrogatives, as in (32),

(32) Which boy does every girl love?

This admits of two readings, on one of which 'every girl' takes wide scope. The wide scope reading can be represented as in (33) or (34).

(33) [Every x: girl x](Which boy does x love?)
(34) $(\forall x)$(if x is a girl, which boy does x love?)

If we try to represent (32) in the most natural way suggested by Davidson's account, this yields (35).

(35) My next utterance is a question. Every girl loves (the boy) x.

Apart from the puzzle about how to interpret an open sentence as a question, this clearly fails to capture the reading of (32) on which 'every girl' is given wide scope. If we applied the paratactic account directly to the representation in (33) or (34), however, we would lose the quantification into the expression 'which boy does x love'. (33) would be rendered as (36), and (34) as (37):

(36) [Every x: girl x](my next utterance is a question). x loves (the boy) y.
(37) $(\forall x)$(if x is a girl, my next utterance is a question). x loves (the boy) y.

But in neither (36) nor (37) is 'x' bound in the second sentence by the quantifier in the first, as it is in (33) and (34). (This difficulty of course attends the paratactic analysis of indirect discourse as well. Compare: 'Someone said that he had lost his luggage'.)

Finally, Davidson's account, like the performative paraphrase approach, requires that we treat the assertoric mood differently from the non-assertoric moods. However, as in the case of the performative account, this seems unmotivated. Just as interrogatives are apt for asking questions, so assertorics

are apt for use in making assertions. Davidson explains the function of interrogative and imperative sentential moods at the expense of placing beyond the power of explanation the connection between the assertoric mood and assertion. Thus, part of what was to be explained is left unexplained. And it is clear that the assertoric sentential mood must be treated differently, for otherwise an utterance of an assertoric sentence would also have to be treated as an utterance of two semantically unconnected sentences. Thus, e.g., 'You wear a hat' would be treated as semantically equivalent to (38):

(38) This is an assertion: you wear a hat.

This would have two unacceptable consequences. First, if Davidson's argument in the case of non-assertoric-sentences were correct, then utterances of assertoric sentences would not be true or false, but they patently are. (And equally clearly in uttering 'You wear a hat', I am saying only one true (or false) thing, not two true things, or two false things, or one true and one false thing.) Second, if (38) were the semantic analysis of 'You wear a hat', then since it consists of two independent assertoric sentences, our understanding of it would in turn have to be represented as (39),

(39) This is an assertion: this is an assertion: you wear

a hat,

and so on, an intolerable result.

Thus, despite the ingenuity of the account, it does not correctly capture the semantics of non-assertoric sentences. The reason is that although Davidson does argue against reductive accounts, in the end his account assimilates non-assertoric sentences to truth valuable sentences. Non-assertoric sentences are not truth valuable, and utterances of them do not constitute utterances (even two) which have truth values.

6. The paratactic and operator fulfillment approaches

In treating an utterance of a non-assertoric-sentence as two utterances each of which has truth conditions, something semantically important about the utterance is left out, namely, that it admits of a bivalent evaluation that is not a truth valuation. Thus, in the case of an utterance of an imperative, such as 'Put on your hat', we recognize that the utterance is either obeyed or complied with or not, and that this is a matter of the semantic function of the imperative; similarly an utterance of an interrogative is either answered or not. This aspect of the use of non-assertoric-sentences parallels the evaluation of assertoric sentences as true or false, but it disappears on any account of non-assertoric sentences which treats them or utterances of them as having truth conditions. We should therefore abandon the attempt to fit

interrogatives and imperatives into the Procrustean bed of truth, and instead consider the possibility of extending a meaning theory to accommodate kinds of fulfillment conditions for sentences in addition to truth conditions, namely, what we can call 'compliance conditions'. In this section, I look at two suggestions along these lines by Colin McGinn. Both fail, though one is, I believe, on the right track; it will be useful to see where they encounter difficulties in leading up to the account which I will offer in the next section.

McGinn suggests paraphrasing imperatives and interrogatives so that they are represented as an operator on a sentence radical,[17] what we have been calling the assertoric core of the imperative or interrogative. Thus, e.g., 'Put on your hat' and 'Is your hat on?' would be represented as (40) and (41), respectively,

(40) Make it the case that you put your hat on.

(41) Is it the case that your hat is on?

The first suggestion is to treat utterances of (40) and (41) paratactically, as two utterances, the first of which refers to the second, and then to give not truth conditions for the first of the utterances in each case, 'Make it the case that' and 'Is it the case that', respectively, but rather fulfillment conditions. In the case of (40) this gives us (42):

(42) ⌜Make it the case that⌝ is fulfilled$_{[s,t]}$ in English iff ref(⌜that⌝,s,t) is made the case at t.[18]

McGinn does not fill in how the suggestion is to go for interrogatives, but we may suppose something like (43) is what he intends:

(43) ⌜Is it the case that?⌝ is fulfilled$_{[s,t]}$ in English iff it is determined whether ref(⌜that⌝,s,t) is the case at t.

The second suggestion is to treat 'Make it the case that' and 'Is it the case that' as operators like 'it is not the case that'. This would yield (44) and (45) as the treatments of (40) and (41) respectively:

(44) ($\forall\Phi$)(⌜Make it the case that Φ⌝ is fulfilled$_{[s,t]}$ in English iff it is made the case that ⌜Φ⌝ is true in English at t).

(45) ($\forall\Phi$)(⌜Is it the case that Φ⌝ is fulfilled$_{[s,t]}$ in English iff it is determined whether ⌜Φ⌝ is true in English at t).[19]

However, while these suggestions are on the right track, they are not adequate as they stand.

First, a minor point. An order to do something is not obeyed if someone does what is ordered but not as an intentional result of the order. Thus, if I tell you to close the window, but you don't do so, and instead someone else in the room, entirely coincidentally, closes the window, or you do it, but not

with the intention of obeying the order (perhaps you didn't hear me), the directive has not be obeyed.[20] Thus, fulfillment conditions for imperatives, which are modeled on those for directives, must include that the audience addressed carry out the directive so issued with the intention of doing so. Thus, (42) and (44) under describe the fulfillment conditions for imperatives. Since a question is specialized directive, the same point applies to (43) and (45). In addition, the requirement that the imperative or interrogative be fulfilled at the time of utterance clearly must be modified, since an imperative or interrogative will be complied with if they are complied with subsequent to the time at which they are uttered.

Next, in the case of the paratactic account, I will level two objections. The first is that it gets the syntax wrong, and, as a consequence, gets the semantics wrong. Consider (46):

(46) Beware the ides of March.

This is syntactically a single unit. On the paratactic approach, however, this is represented as two distinct sentences as in (47).

(47) Make it the case that. You will beware the ides of March.

Since nothing in the semantics given in (42) constrains the demonstrative to refer to the following utterance, (47) could be used to issue a different directive than (46), and thus cannot be an adequate account of its semantics (interestingly, Davidson's apparently similar account avoids this problem). Second, the paratactic account cannot handle quantification across mood-setters, as in (48):

(48) Invest every penny you earn.

This is not equivalent to

(49) Make it the case that. For any penny, if you earn it, you invest it.

For an utterance of (49) is a directive to make the quantified conditional true, which could be fulfilled by intentionally refusing to work for wages, whereas in (48) the imperative mood setter covers only the consequent, and would be used to issue a quantified conditional directive. But (50),

(50) For any penny, if you earn it, make it the case that. You invest it.

fails as an analysis of the form of (48) as well because the quantifier no longer binds the pronoun in 'you invest it'. (Similar remarks apply to conditional interrogatives.)

The operator approach, which respects the fact that interrogatives and imperatives are single sentences, is more promising, and the approach I will pursue is similar, but as it stands it needs considerable elaboration. Troubles are particularly apparent in the case of wh-interrogatives, such as 'What time

is it?', since in these cases the assertoric core is not a sentence but rather a sentence form. The initial paraphrase of 'What time is it?' would be (51):

(51) Is it the case that the time is x?

This is of doubtful intelligibility, and using (51) as input to (45) ensures that the question's fulfillment conditions are never met:

(52) ⌜Is it the case that the time is x⌝ is fulfilled$_{s,t}$ in English iff it is determined whether ⌜the time is x⌝ is true in English at t.

Similar difficulties await a literal application of McGinn's suggestion to why-questions and how-questions. Thus, treating 'Why is the sky blue?' as 'Is it the case that the sky is blue?' is clearly a mistake. I conclude that neither of the approaches McGinn suggests work as they stand, and turn now to my own development of the generalized fulfillment condition approach.

7. Generalized fulfillment approach

The approach I will urge I call the 'generalized fulfillment approach.'[21] The basic idea is to give a theory of meaning by way of a theory of fulfillment conditions for closed sentences of the language, where different types of sentences have different types of fulfillment conditions. For actual natural languages, there are two basic sorts of fulfillment conditions. Assertoric sentences have truth conditions, and are true or false. Imperatives and interrogatives have compliance conditions, and are complied with or not. These two basic sorts of fulfillment conditions correspond to the distinction between word to world direction of fit (compliance conditions) and world to word direction of fit (truth conditions). Compliance conditions further subdivide into what I will call obedience[22] conditions for imperatives and response conditions for interrogatives; I will say that imperatives are obeyed or not, and interrogatives are answered or not. It is important to keep in mind that 'obeyed' and 'answered' as they are used here are predicates of sentences, not of speech acts.

I will first present with a minimum of comment the basic approach, and then follow it with some explanatory remarks and remarks about some worries or objections that may arise.

What we want is a theory which issues in theorems of the form (F),

(F)   φ is fulfilled$_{s,t}$ in English iff p,

where what goes in for 'p' interprets φ. We can specify what it is for any sentence to be fulfilled relative to a speaker and time by appeal to the different kinds of fulfillment conditions appropriate for different kinds of sentence, as illustrated in (53):

(53) (∀φ) (φ is fulfilled$_{s,t}$ in English iff
     if   φ is assertoric, φ is true$_{s,t}$ in English
     if   φ is imperative, φ is obeyed$_{s,t}$ in English
     if   φ is interrogative, φ is answered$_{s,t}$ in English).

Let us suppose we have in hand an adequate interpretive truth theory for English. This will provide the extension of 'is true$_{s,t}$' in English'. The remaining task is to provide an account of the extension of 'is obeyed$_{s,t}$' in English' and 'is answered$_{s,t}$' in English'. However, we do not wish to reduplicate the work already done by the truth theory, and we also want to exhibit the truth theory as the central component of our compositional meaning theory. Therefore, we wish to exhibit obedience conditions and response conditions as recursively specifiable in terms of truth conditions.

While distinguishing between speech acts and sentences, we are nonetheless justified in taking the fulfillment conditions of sentences to be of the same general kind as those for speech acts. In the case of imperatives and interrogatives, this means modeling their fulfillment conditions on those of directives.

Let 'Core(φ)' be the assertoric core of φ, which may be an open or closed sentence depending on what φ is. For example, Core('Put on your hat') = 'You will put on your hat', Core('Why did he take his life?') = 'He took his life', Core('What time is it?') = 'the time is x', and so on. When Core(φ) operates on a sentence which already has variables in it, it introduces a variable in the appropriate place which does not already appear anywhere in the sentence in which φ is embedded. Let 'A(a,s,t)' mean 's addresses a at t'. Let 'D(s,t,φ)' mean 'the directive issued by s at t in using φ', and 'Q(s,t,φ)' mean 'the question asked by s at t using φ'; the terms 'directive' and 'question' here will be used in an extended sense to cover speech acts performed by sincere utterances of molecular sentences containing imperatives and questions. See remark 3 in this section below.

Initially, I will assume that the utterer of an imperative or interrogative is addressing a particular person. I will discuss in the remarks following the initial presentation of the conditions the case in which an utterer addresses more than one person. I will treat 'x' as it appears bound in 'A(x,s,t)' as ranging over persons.

We can now construct an appropriate account of obedience conditions as follows:

(OC)   (∀φ)(if φ is imperative, then
         φ is obeyed$_{s,t}$ in English
         iff

$[\iota x: A(x,s,t)](x$ makes it the case that $Core(\phi)$ is true$_{[s,t]}$ in English with the intention of obeying $D(s,t,\phi))$.[23]

In applying (OC) to a particular speaker's utterance of an imperative sentence, one would instantiate to the speaker, sentence and time, and then employ one's recursive account of truth conditions to unpack '$Core(\phi)$ is true$_{[s,t]}$' in English'. (Note that since $Core(\phi)$ yields a sentence in the future tense, the obedience conditions in (OC) do not need to take into account explicitly that imperatives are future directed.) For example, for the sentence 'Put on your hat', the theory will yield (54):

(54) 'Put on your hat' is obeyed$_{[s,t]}$ in English iff the person addressed by s at t makes it the case that he puts on his hat at some time $t' > t$ with the intention of obeying the directive issued by s at t in using 'Put on your hat'.

Providing response conditions for interrogatives is more complicated, because they break down into a number of different subtypes, each of which must be treated differently. I believe that the basic types for the purposes of giving response conditions are the following: (1) yes-no questions, typically formed by inverting the subject and predicate in an assertoric sentence, such as, 'Was he drunk?'; (2) why-questions, such as 'Why was Kennedy assassinated?'; (3) how questions, such as 'How did you get it through the door'; (4) wh-questions, questions which can be treated as beginning with 'where', 'when', 'which', 'who', 'whose', 'whom', 'what', such as, 'Where is La Rochelle?', 'When did you go there?', 'Who did you see?', 'What did you do?', 'Which hotel did you stay in?'; and (5) how-x questions, such as 'How many cookies did you bake?', 'How much flour did you use?', 'How long did it take?'[24] While yes-no questions, why-questions, and how-questions all have closed sentences as their assertoric cores, there is no natural way to treat them as a single class because the kind of answer required to each kind of question is significantly different. The wh-questions and how-x questions have in common that their assertoric cores are open sentences; this suggests a single clause may do for both sorts, and I will below treat them as a single class for the purposes of providing response conditions; for convenience I will use the label 'wh-question' to cover both. The general form of an account of response conditions is given by (A):

(A) $(\forall \phi)$(if ϕ is interrogative, then
     ϕ is answered$_{[s,t]}$ in English
     iff
     if ϕ is a yes-no question, then ...
     if ϕ is a why-question, then ...

The task is to fill in response conditions for each of the above types of questions recursively in terms of the truth conditions of a sentence constructed from their assertoric cores. No single formula will do. What we want is to generate appropriate fulfillment conditions relativized to speaker and time by using the truth theory. A question will be answered provided that a person or group it is addressed to tells the speaker something that constitutes an answer to it, where what must be said to constitute an answer will vary with the question type and its assertoric core. This can be achieved as follows:

(YN) $(\forall \phi)$(if ϕ is a yes-no question, then
     ϕ is answered$_{[s,t]}$ in English
     iff
     $[\iota x: A(x,s,t)](x$ makes it the case that $Core(\phi)$ is true$_{[s,t]}$ in English
     or
     that 'you will say that $Neg(Core(\phi))$' is true$_{[s,t]}$ in English
     with the intention of answering $Q(s,t,\phi))$.

'$Neg(\theta)$' means 'the negation of θ'. (YN) requires that the person addressed by the speaker make it the case that it is true that he will say something which constitutes an answer to the question with the intention of answering it.[25] I have used 'you' as the subject term of the reports of indirect discourse above because their truth conditions are evaluated relative to the speaker's context, and I assume that the referent of 'you' relative to a speaker and time at which the speaker asks a question will be the person that the speaker addresses at that time, i.e., the person of whom the speaker is asking a question. The reference axiom for 'you' would be: $(\forall s)(\forall t)$ref('you',s,t) = the person addressed by s at t. Note that the requirement is that the addressee make true a sentence in the future tense. This feature is repeated in the treatment of other forms of question. For a sample sentence, 'Is it time to go?', the application of (YN) together with a suitable truth theory would yield:

(55) 'Is it time to go?' is answered$_{[s,t]}$ in English iff the person addressed by s at t makes it the case that the person addressed by s at t say at some time $t' > t$ that it is time to go or that the person addressed by s at t say at some time $t' > t$ that it is not time to go, with the intention of answering the question asked by s at t in using 'Is it time to go?'

The compliance conditions on other types of questions are given in (WY), (H), and (WH). An example of the application is provided after each, assuming an adequate interpretive truth theory.

(WY)   (∀φ)(if φ is a why-question, then
       φ is answered$_{[s,t]}$ in English
       iff
       [ιx:A(x,s,t)](x makes it the case that
       ⌜you will explain why Core(φ)⌝ is true$_{[s,t]}$ in English
       with the intention of answering Q(s,t,φ))

For a sample sentence, 'Why did you run?', (WY) yields (56):

(56) 'Why did you run?' is answered$_{[s,t]}$ in English iff the person addressed by s at t makes it the case that the person addressed by s at t explains at some time t' > t why the person addressed by s at t ran with the intention of answering the question asked by s at t using 'Why did you run?'.

(H)   (∀φ)(if φ is a how-question, then
      φ is answered$_{[s,t]}$ in English
      iff
      [ιx:A(x,s,t)](x makes it the case that
      ⌜you will explain how φ¹ is true$_{[s,t]}$ in English
      with the intention of answering Q(s,t,φ))

For a sample sentence, 'How does this work?', (H) yields (57):

'How does this work?' is answered$_{[s,t]}$ in English iff the person addressed by s at t makes it the case that the person addressed by s at t explains at some time t' > t how the object demonstrated by s at t works, with the intention of answering the question asked by s at t in using 'How does this work?'

For wh-questions, I introduce the notion of the completion of the core of a interrogative. I will say that ψ is a completion of Core(φ), where φ is a wh-question, iff ψ is the result of replacing the free variables in Core(φ) introduced by that operation with singular referring terms. For example, 'the time is 3 o'clock' is a completion of Core('What time is it?').

(WH)   (∀φ)(if φ is a wh-question, then
       φ is answered$_{[s,t]}$ in English
       iff
       [ιx:A(x,s,t)](x makes it the case that
       (∃ψ)(ψ is a completion of Core(φ) and ⌜you will say that ψ⌝
       is true$_{[s,t]}$ in English)
       with the intention of answering Q(s,t,φ))

For a sample sentence, 'What time is it?', (WH) yields (58):

(58) 'What time is it?' is answered$_{[s,t]}$ in English iff the person addressed by s at t makes it the case that there is a completion ψ of 'the time is x' such that ⌜you will say that ψ⌝ is true$_{[s,t]}$ in English with the intention of answering the question asked by s at t in using 'What time is it?'

Remarks

1. In each case in giving compliance conditions, the conditions are given recursively in terms of the truth conditions of some sentence of the object language. Thus, the truth theory still plays the central role in providing the recursive machinery that allows one to specify fulfillment conditions for all sentences, whether assertoric or non-assertoric, on the basis of a finite number of semantical primitives and a finite number of rules.

2. (WH) differs in one significant way from the conditions given for other questions, which shows up in the application to 'What time is it?'. While the resources of the truth theory by itself enable one to discharge the truth predicate in (OC), (YN), (WY) and (H), it does not in (WH) because there is a quantification over completions of Core(φ). This is not eliminable because there is no way to compute from the core of the question what the appropriate completion is. There may be many appropriate completions, and the possible completions my be infinite, so that it would not always be possible even in principle to list a disjunction of the possible completions. We can, of course, conjoin some facts about a particular conversational setting with (58) to determine that the question as asked by a particular speaker at a time has been answered. Thus, if you said that it is 3 o'clock with the intention of answering my question about the time, then (58) tells us that 'What time is it?' has been answered relative to me and the time of my question.

3. The approach provides a nice solution to the problem of embedded imperatives and interrogatives. Intuitively, an utterance of sentence such as (11), repeated here,

(11) If you go to the store, buy some toothpaste

would not be a simple directive, but rather a conditional directive. (This shows the sense in which the taxonomy of speech acts we began with in section 2 is not complete; it is rather a taxonomy of speech acts that can be performed with atomic sentences. The recursive machinery of natural languages allows us to perform more complicated speech acts whose fulfillment conditions cannot be assimilated to those of simple atomic sentences.) This is

handled straightforwardly by the above account, by adding the usual rules for the so-called truth functional connectives. Thus, (11) will be fulfilled relative to a speaker and time iff if the antecedent is fulfilled relative to speaker and time, then the consequence is fulfilled relative to speaker and time. This will yield fulfillment condition in (59) for (11):

(59) 'If you go to the store, buy some toothpaste' is fulfilled$_{[s,t]}$ in English iff

if the person addressed by s at t goes to the store, then the person addressed by s at t buys some toothpaste with the intention of carrying out the directive s issued at t in using 'buy some toothpaste'.

As noted above, this requires that the term 'directive' be extended to cover conditional, disjunctive, and conjunctive directives as well as simple directives (*mutatis mutandis* for 'question'). Note also that we must understand the directive that someone issues in using a part of a sentence to be the directive which he issues in using the sentence of which it is a part.

4. Note that the connection between speech acts and the semantics of sentential moods is particularly straightforward on this account because the compliance conditions for imperatives and interrogatives make reference to a speech act of a certain kind (though recall the generalization of remark 3) performed by the speaker with the imperative or interrogative. The notion of use employed here must be that of literal use, since of course one can use a sentence to perform an indirect speech act. This does have the result that the fulfillment conditions of imperatives and interrogatives have an ineliminable metalinguistic reference to the sentence itself. But this is required because of the possibility of someone's performing more than one speech act at a given time, perhaps an indirect speech act as well as a speech act performed using the sentence literally, or perhaps by performing one speech act by signing and the other by speaking. The relevant speech act for evaluation of the sentence is the one performed in using the sentence literally. An alternative approach would be to add an extra place to 'is fulfilled', 'is obeyed', and 'is answered' to relativize them to speech acts as well as speakers and times. It seems implausible however to suppose that this is how actual interpreters understand speakers when they use interrogatives and imperatives. This does introduce an asymmetry between assertoric sentences on the one hand and imperatives and interrogatives on the other. But this asymmetry is traceable to their different functions, and so is not a defect of the treatment. Assertorics are designed for use in representing how things are, non-assertorics for making things happen by their use.

5. In the above, I have treated compliance conditions as requiring that the person addressed by the speaker do what is required by the directive issued

by the speaker in using the sentence. In the case of the use of interrogatives, there are two ways of thinking about what the content of the directive is. The first is that it is to say something that constitutes an appropriate answer to the question. The second is that in addition it is the directive to give a correct answer. I have chosen the first in the above. I do so on the basis of the reflection that we would usually say that a question had been answered, even if it had been answered incorrectly, provided that the addressee had said something of the right sort which he intended to constitute an appropriate answer. However, it is clear that each of the above response conditions could be amended to require that the person answering make it the case that he says truly something which answers the question in the weaker sense.

6. In the case of interrogatives, I have given compliance conditions in terms of an addressee of the speaker saying something appropriate with the intention of answering the question asked. I assume that this is sufficient for the addressee to be intending to answer the question appropriately, though it is not sufficient for him to succeed in conveying to the questioner his answer, as seems appropriate (e.g., the questioner may be distracted and fail to hear the answer). For an addressee to answer a question, it is necessary that he should say something appropriate in answer. However, his saying something appropriate need not require that he actually utter any particular sentence or any sentence at all. In the case of yes-no questions, e.g., answering 'yes' or nodding (with the intention of answering) to the question 'Are you tired?' constitutes saying that one is tired.

7. The above conditions were given on the assumption that a speaker is addressing only one person when using an imperative or interrogative. Of course, we often address imperatives and interrogatives to groups. The fulfillment conditions will be different depending on whether the speaker is addressing a single person or a group. If I say to a classroom of students, 'Write an essay on the categorical imperative' in giving an writing assignment, each of them is to write an essay on the categorical imperative. If I ask a question directed at a group, then the question may be answered by anyone, but need not be answered individually by everyone. Given the model provided above for the case of imperatives and questions directed at a single person, it is straightforward to modify the conditions for questions directed at groups. However, the syntax of an imperative or interrogative does not always determine whether an individual or a group is being addressed. When it does not, then the auditors have to figure this out from contextual clues. For the purposes of giving a semantic theory, this can be treated as a case of ambiguity. The approach to ambiguity I favor is to give the theory for a disambiguated version of the object language. In practice, one can apply the

theory to utterances of sentences by using contextual clues to decide which of the disambiguated sentences to map the uttered sentence onto, and then provide the fulfillment conditions for the uttered sentence on the basis of the fulfillment conditions assigned to the sentence it is mapped onto.

8. It should be noted that in the case of why-questions and how-questions, we have given response conditions which do not require any detailed analysis of the notion of explanation or any investigation into the pragmatics of explanations, the various contextual factors that help to fix the conditions for an appropriate response. This is as it should be. That work is done by the use of the verb 'explains' and its relativization to the context of utterance, as fixed by the speaker and time. Our task was not analysis, but rather compositional semantics. The job is done after it has been shown how to incorporate non-assertoric sentences into a compositional meaning theory for the language, one which will assign fulfillment conditions to every one of the infinity of sentences of the language from a finite base.

9. It is likewise not part of the present project to give a 'logic' of impera-tives or of questions and answers, though it should be expected that seeing how to give fulfillment conditions for imperatives and questions in general will shed some light on that project. It is clear that many of the usual topics of such investigations, such as the notion of the presupposition of a question, a direct or indirect answer, a complete or partial answer, the notion of logical entailment between imperatives, and so on, can be usefully thought about in the present framework. Consider, e.g., 'Are you still cheating on your income tax?' The presuppositions of the interrogative on an occasion of use can be treated as what must be true if it is answerable correctly. Thus, the fulfillment conditions tell us that if one has never paid income tax, or has never cheated on one's income tax, a presupposition of the question fails. But providing an account of these notions is not part of the present project.

10. The examples of imperatives have all been second person imperatives. How well does the account handle third person imperatives such as (60) and (61)?

(60) Let there be light
(61) Let's call it a night.

I suggest that the relevant difference is that in the case of third person imperatives the speaker is not addressing any particular person or group of persons. Thus, the compliance conditions can be given in the passive voice, as in (62):

(62) 'Let there be light' is obeyed$_{[s,t]}$ iff

it is made the case that 'there will be light' is true$_{[s,t]}$ with the intention of obeying D(s,t,'Let there be light').

Condition (OC) above can be modified to accommodate this by introducing separate clauses for second and third person imperatives. An alternative would be to treat third person imperatives as being fulfilled if it simply becomes the case that the assertoric core is true (interpreted relative to speaker and time), perhaps as a result of the issuing of the order. Perhaps (61) is an example which recommends this treatment. However, this treat-ment would not be appropriate I think in a case such as 'Let the door be closed', where presumably the speaker intends that someone who hears it should as a result of the directive issued close the door, though he may have in mind no particular person. In the case of (60), it is natural to say that we understand its use against the background pretence or assumption of the personification of nature.[26]

11. There might be some concern that I make use of a not fully extensional operator in 'make it the case that'.[27] All that is required for the account to work, however, is that we be able to legitimately substitute into such contexts on the basis of the equivalences stated by T-sentences. This substitution is legitimate, since one cannot make it the case that p without also, for any sentence φ in any language L such that φ means$_{[s,t]}$ in L that p, making it the case that φ is true$_{[s,t]}$ in L, and *vice versa*. A similar worry might arise for the adverbial phrase 'with the intention of answering Q(s,t,φ)' and 'with the intention of obeying D(s,t,φ)'. In this case, however, the scope of 'with the intention' covers only what follows 'of', so no problem arises.

12. Indirect questions, as in (63),

(63) Susan asked whether we had gone to the Acropolis

are not treated on this approach as containing an embedded interrogative. This is because the fulfillment conditions of (63) need not be unpacked in terms of response conditions. Roughly, (63) is true (in English) relative to a speaker s and time t iff Susan asked a yes-no question whose propositional core samesays with 'we had gone to the Acropolis' understood (in English) relative to s at t.[28]

13. Among the virtues of this approach to the semantics of non-assertoric sentences is that it does not require us to introduce analogs of propositions for questions. The approach is entirely extensional, and does not require quantification over intensional entities of any kind. While the introduction of intensional entities may be useful for the purpose of modeling certain kinds of relations among natural language sentences, we need not invoke them in explaining how to give a compositional semantics for them.

8. Quantifying across mood-setters

We still have to deal with cases in which there is quantification across mood setters, as in (48), repeated here, which can be represented as in (64).

(48) Invest every penny you earn,

(64) [∀x: x is a penny](if you earn x, then invest x)

For this purpose, what is wanted is an account of what it is for a sequence or function to satisfy an open sentence whether assertoric or non-assertoric. (We count open sentences obtained from an assertoric, imperative, or interrogative sentence as assertoric, imperative, and interrogative, respectively.) An extended notion of satisfaction of open assertoric and non-assertoric sentences by sequences or functions can be constructed parallel to the above. I will capitalize 'Satisfaction' and its various forms to express this extended notion.

As in section 7, I will first present the proposals, modeled on those of section 7, and then follow this with some explanatory remarks and remarks about potential difficulties.

The condition for 'Satisfies' is given in (65):

(65) $(\forall f)(\forall \phi)(f$ Satisfies$_{[s,t]}$ ϕ in English iff
if ϕ is assertoric, then f satisfies$^T_{[s,t]}$ ϕ in English
if ϕ is imperative, then f satisfies$^I_{[s,t]}$ ϕ in English
if ϕ is interrogative, then f satisfies$^Q_{[s,t]}$ ϕ in English).

'satisfies^T' is the term invoked in the truth theory; and 'satisfies^I' and 'satisfies^Q' are characterized recursively in terms of 'satisfies^T' as follows:

(SI) $(\forall f)(\forall \phi)($if ϕ is imperative, then f satisfies$^I_{[s,t]}$ ϕ in English
iff
[ιx: A(x,s,t)](x makes it the case that
f Satisfies$_{[s,t]}$ Core(ϕ)) in English
with the intention of obeying D(s,t,ϕ)).

Core(ϕ) operating on an open sentence yields the natural result, e.g., Core('Did x go to the store?') = 'x went to the store'. Combining (65) with an axiom for restricted universal quantification (for convenience I give it here for the notation employed in (64)), namely, (66),

(66) $(\forall f)(f$ Satisfies$_{[s,t]}$ ⌜[∀x: ψ]φ⌝ in English iff every f' that Satisfies$_{[s,t]}$ ⌜ψ⌝ in English Satisfies$_{[s,t]}$ ⌜φ⌝ in English),

and other standard axioms together with (65) will yield as an intermediate result (67):

(67) $(\forall f)(f$ Satisfies$_{[s,t]}$ '[∀x: x is a penny](if you earn x, then invest x)' in English iff every f' that satisfies$^T_{[s,t]}$ 'x is a penny' is such that if f' satisfies$^T_{[s,t]}$ 'you earn x', then f' satisfies$^I_{[s,t]}$ 'invest x').

Now we can eliminate 'satisfies$^I_{[s,t]}$' in favor of 'satisfies$^T_{[s,t]}$' by employing (SI) to get (68):

(68) $(\forall f)(f$ Satisfies$_{[s,t]}$ '[∀x: x is a penny](if you earn x, then invest x)' in English iff every f' that satisfies$^T_{[s,t]}$ 'x is a penny' is such that if f' satisfies$^T_{[s,t]}$ 'you earn x', then [ι y: A(y,s,t)](y makes it the case that f' satisfies$^T_{[s,t]}$ Core('invest x') in English with the intention of obeying D(s,t,'invest x'))).

Carrying out the derivation further and eliminating quantification over functions will eventually yield (69):

(69) $(\forall f)(f$ Satisfies$_{[s,t]}$ '[∀x: x is a penny](if you earn x, then invest x)' in English iff every x that is a penny is such that if you earn x, then the person addressed by s at t makes it the case that the person addressed by s at t invests x with the intention of obeying the directive issued by s at t using 'invest x').

The general form for interrogative open sentences is given in (A):

(A) $(\forall f)(\forall \phi)($if ϕ is interrogative, then
f satisfies$^Q_{[s,t]}$ ϕ in English
iff
if ϕ is a yes-no question, then
if ϕ is a why-question, then ...
if ϕ is a how-question, then ...
if ϕ is a wh-question, then ...)

I treat 'is a yes-no question' as having in its extension both open and closed interrogative sentences which when closed are yes-no questions, and similarly for 'is a why-questions', etc. The accounts of 'satisfaction^Q' for each of the varieties of questions are given in (YN), (WY), (H), and (WH).

(YN) $(\forall f)(\forall \phi)($if ϕ is a yes-no question, then
f satisfies$^Q_{[s,t]}$ ϕ in English
iff
[ιx: A(x,s,t)](x makes it the case that
f satisfies$^T_{[s,t]}$ 'you will say that Core(ϕ)' in English
or
f satisfies$^T_{[s,t]}$ 'you will say that Neg(Core(ϕ))' in English
with the intention of answering Q(s,t,ϕ)).

(WY) $(\forall f)(\forall \phi)($if ϕ is a why-question, then

f satisfies$^Q_{[s,t]}$ ϕ in English iff

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that f satisfies$^T_{[s,t]}$ ⌜you will explain why Core(ϕ)⌝ in English with the intention of answering $Q(s,t,\phi)$⌝

(H) $(\forall f)(\forall \phi)($if ϕ is a how-question, then f satisfies$^Q_{[s,t]}$ ϕ in English iff

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that f satisfies$^T_{[s,t]}$ ⌜you will explain how Core(ϕ)⌝ in English with the intention of answering $Q(s,t,\phi))$

(WH) $(\forall f)(\forall \phi)($if ϕ is a wh-question, then f satisfies$^Q_{[s,t]}$ ϕ in English iff

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that $(\exists \psi)(\psi$ is a completion of Core(ϕ) and f satisfies$^T_{[s,t]}$ ⌜you will say that ψ⌝ in English)

(70) $(\forall \phi)(\phi$ is fulfilled$_{[s,t]}$ in English iff $(\forall f)(f$ Satisfies$_{[s,t]}$ ϕ in English)).

This allows us to characterize sentence fulfillment in general in terms of Satisfaction, in the natural way, as in (70):

with the intention of answering $Q(s,t,\phi)))$

Remarks

1. 'Satisfaction' is defined recursively in terms of 'satisfaction^T', thus preserving the centrality of a theory of truth to our theory of meaning.

2. Consider the quantified conditional question (71):

(71)   How many forks are beside each plate?

This apparently has the form (leaving aside explicit representation of the implied restriction on the domain of quantification) of (72):

(72) $(\forall x)($if x is a plate, how many forks are beside x?).

Yet, (71) could be answered by someone saying 'three', rather than saying for each plate, 'This plate has three forks beside it'. For (71) to be Satisfied, the Satisfaction conditions given above will require that everything is either not a plate or if it is a plate, it is such that some member of the speaker's audience says for some n that there are n forks beside that plate. Someone who answers 'three' presumably is to be taken to be saying, for each plate, that there are three forks. But this is not equivalent to saying, for each plate, that

there are three forks beside that plate. It therefore looks as if someone's saying 'three' in answer to (71) fails to answer it, on this account, although intuitively that is a satisfactory answer.

I will suggest three solutions to this problem. The first is to find some substitute for 'says' in the above expressions of satisfaction conditions in the object language, perhaps 'answers', which will allow that for each instance of a generalization which someone asserts in answer to an appropriate question he can be treated as having provided ψ in answer to it. The second is to modify

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that $(\exists \psi)(\psi$ is a completion of Core(ϕ) and f satisfies$^T_{[s,t]}$ ⌜you will say that ψ⌝ in English)

to

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that $(\exists \psi)(\psi$ is a completion of Core(ϕ) and f satisfies$^T_{[s,t]}$ ⌜you will say that ψ⌝ in English)

$[\iota x{:}\ A(x,s,t)](x$ makes it the case that $(\exists \psi)(\psi$ is a completion of Core(ϕ) and f satisfies$^T_{[s,t]}$ ⌜you will say that χ⌝ in English and $(\forall \gamma)($if γ is a completion of Core(ϕ), then f satisfies$^T_{[s,t]}$ ⌜χ entails γ⌝ in English))).[29]

The third is to suggest that literally the answerer has not answered the question, but has rather said something which is sufficient to inform the questioner of what a correct answer is. The reason the more succinct 'three' is offered as an answer is that it serves the purpose of informing the questioner about what he wanted to know more economically than would a direct answer, and so was to be preferred on pragmatic grounds. Similarly, one might answer a disjunctive question, such as 'Did you take out the trash or did someone else?' by saying 'Not I', rather than saying more laboriously 'Someone else did', although it does not count as literally answering the question. I incline toward the third solution, but it is clear that no matter how the problem is understood, it can be solved within the present framework.

3. Consider (73):

(73)   If you win the lottery, what will you do?

It looks as if the mood-setter covers only the consequent of (73), yet reflection shows that (73) is not fulfilled unless the person it is addressed to answers the question asked. What this shows is that there is a scope ambiguity in (70). It is possible, in special circumstances, to use (73) to ask a conditional question. But usually it will be interpreted as a non-conditional question, requiring in answer a description of activities one would undertake on the condition that one wins the lottery. Thus, it is interpreted as (74):

(74)   What is the x such that if you win the lottery, you will do x?

The use of the conditional in turn will implicate that the questioner is interested in some ground for asserting the conditional to be true which is non-truth functional, and, in this case, the audience's dispositions.[30]

    (75)   Which philosophers in this room are rich?

How would the above account handle this? It is natural to take this to have the form represented in (76):

    (76)   [Which xs: x is a philosopher](x is in this room and x is rich)?

It might be thought that the above account does not handle this correctly because it does not require that the person answering the question say that more than one philosopher is in the room and rich. However, if we are concerned just with whether the question has been answered, not with whether it has been answered correctly, (WH) is adequate. It does not rule out the question being answered correctly when there is more than one rich philosopher in the room. If we wished to require, however, that for a question to be answered it be answered correctly, then we would have to modify (WH) so that the respondent gave exactly the right number of responses to the question. Since questions can be singular or plural, we would have to treat each separately. This could be done as follows:

(WH) $(\forall f)(\forall \phi)$(if ϕ is a wh-question, then

    f satisfies$^Q_{[s,t]}$ ϕ in English

iff

if ϕ is singular, then

$[\iota x\colon A(x,s,t)](x$ makes it the case that for the ψ such that ψ is a completion of Core(ϕ) and ψ is true$_{[s,t]}$ in English f satisfies$^T_{[s,t]}$ ⌜you will say that ψ⌝ in English) with the intention of answering $Q(s,t,\phi))$

if ϕ is plural, then

$[\iota x\colon A(x,s,t)](x$ makes it the case that for each ψ such that ψ is a completion of Core(ϕ) and ψ is true$_{[s,t]}$ in English f satisfies$^T_{[s,t]}$ ⌜you will say that ψ⌝ in English with the intention of answering $Q(s,t,\phi)).$

Note that the range of quantification is limited to object language expressions. Even so, there may be many completions of the core of a given question which are not semantically distinct. Still, this will not matter for the above, since it is sufficient to make it the case that a function satisfies ⌜you will say that ψ⌝ for a given ψ that it is made the case that ⌜you will say that θ⌝ is true for any θ synonymous with ψ.[31]

    5. Consider (77):

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    (77)   Does anyone know what time it is?

Intuitively, it seems that a use of (77) would be answered if someone in the audience said what time it is in response. However, it seems to be a yes-no question. The solution to this puzzle is to note that this is an example of a sentence that would ordinarily be used to perform an indirect speech act, that is, it is a polite way of asking, 'What time is it?' by asking of the audience whether someone fulfills a necessary condition on being able to answer it correctly.[32]

    6. Note that it may seem natural to treat at least wh-questions as having a quantified form. Thus, 'What time is it?' could be represented as 'What x is such that the time is x?', and so on. This suggests a slimmed down version of the satisfaction conditions for wh-questions, namely, requiring merely that some person addressed name some thing or things for each variable introduced by taking the core of the question. Thus, in answer to the question, 'What time is it?', one might say '3 o'clock'. One might then reformulate the Satisfaction conditions for wh-questions in line with this observation as in (WH*):

(WH*) $(\forall f)(\forall \phi)$(if ϕ is a wh-question, then

    f satisfies$^Q_{[s,t]}$ ϕ in English

iff

$[\iota x\colon A(x,s,t)](x$ names an object for each variable introduced by Core(ϕ) with the intention of answering $Q(s,t,\phi)))$

There are two reasons I have not adopted this approach. The first is that I think it is more natural to take answers to be full-fledged sayings, rather than simply namings. When someone says '3 o'clock' in response to a question such as 'What time is it?', he is in fact saying that the time is 3 o'clock; what he says is elliptical for 'The time is 3 o'clock'. In the context, simply saying '3 o'clock' is clearly sufficient to convey that the time is 3 o'clock. With respect to other questions in other contexts, such as 'Who is the foreman?', asked in a crowded room of someone who is constantly addressing people by their names, the addressee would not respond simply by naming someone, but would rather say 'The foreman is the man standing next to the water cooler' or something similar. The second reason is that the treatment in the text maintains the parallel with the treatment of other questions, which clearly can't be treated in the way illustrated in (WH*). Yes-no questions, and how- and why-questions, are given response conditions that require sayings. It is natural to treat wh-questions as an extension of the device represented by Yes-no and how- and why-questions. Third reason is that it would not

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provide a solution to the problem of quantifying across mood setters. Consider (78),

(78)   Which girl did each boy kiss?

On its most natural reading in which 'each boy' takes wide scope, this can be represented as (79),

(79)   For every x, if x is a boy, which girl did x kiss?

Applying a standard truth theory together with (WH*) would yield (80):

(80)   ⌜For every x, if x is a boy, which girl did x kiss?⌝ is fulfilled$_{[s,t]}$ in English iff for every x, if x is a boy, the person addressed by the 'x kissed y' with the intention of answering the question asked by s at t using 'which girl did x kiss'.

But this gets the fulfillment conditions wrong since only one variable is introduced, and so only one object need be named. The problem is that the fulfillment condition in (WH*) cannot be relativized to a quantifier binding a variable within the interrogative. That is ultimately why the account must be given recursively in terms of Satisfaction conditions.

9. Extending the meaning theory

If possible, we would like to be able to modify the account of a theory of meaning utilizing a truth theory to an account which uses a fulfillment theory. This section generalizes the account given in section 2 to incorporate the generalized fulfillment approach.

In section 2, the theory of meaning for assertoric sentences was given in the following form:

(i)   T is an interpretive truth theory for L;
(ii)   The axioms of T are (A1) ..., (A2) ..., ...;
(iii) Axiom (A1) of T means that ..., axiom (A2) of T means that ..., ...;
(iv)   The following proof procedure is a canonical proof procedure for T for L; ...;
(v)   For all sentences φ of L, all instances of the following schema in the place of 'p' are true:

if   ⌜φ is true$_{[s,t]}$ in L iff p⌝ is canonically provable from an interpretive truth theory for L,

then   ⌜φ means$_{[s,t]}$ in L that p⌝.

The parallel for a fulfillment theory is:

(i)   T is an interpretive fulfillment theory for L;
(ii)   The axioms of T are (A1) ..., (A2) ..., ...;

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(iii) Axiom (A1) of T means that ..., axiom (A2) of T means that ..., ...;
(iv)   The following proof procedure is a canonical proof procedure for T for L; ...;
(v)   For all sentences φ of L, all instances of the following schema in the place of 'p' are true:

if   ⌜φ is fulfilled$_{[s,t]}$ in L iff p⌝ is canonically provable from an interpretive fulfillment theory for L,

then   if φ is assertoric, then
φ means$_{[s,t]}$ in L that p,
if φ is imperative or mixed assertoric and imperative, then
φ commands$_{[s,t]}$ in L that p
if φ is interrogative or mixed assertoric and interrogative,
then
Φ requests$_{[s,t]}$ in L that p.

I have chosen 'commands that' and 'requests that' as the appropriate parallels of 'means that' for both atomic imperatives and interrogatives and their molecular combinations and for molecular sentences which mix different sentence forms. Thus, it seems natural to say that 'if you go to the store, buy some toothpaste' commands that a person addressed by the speaker make it the case that he buy some toothpaste if he goes to the store.

10. Open questions

In this section, I raise two open questions about non-assertoric sentences.

The first is why there are restrictions on the acceptable combinations of moods in molecular sentences. The account given above would yield fulfillment conditions for any arrangement of sentences in different moods. However, there are only a limited number of different ways in which non-assertoric sentences (or open non-assertoric sentences) can be combined with assertoric and non-assertoric sentences using truth functional operators (or perhaps we should say 'fulfillment functional operators').

FORMS	APPROPRIATE	INAPPROPRIATE
if A, then I	If I die, bury me deep	If bury me deep, then I die
if A, then Q	If you see a clock, what time is it?	If what time is it, you see a clock
I unless A	Do it unless I tell you not to.	I tell you to unless do it
I only if A	Do it only if you want to	You want to only if do it
I iff A	Do it iff you want to	You want to iff do it
I or A	Do it or you'll be sorry	You'll be sorry or do it
Q and I	Why did you do it, and don't pretend you didn't'[33]	Don't pretend you didn't, and why did you do it?
I and I	Shut up and sit down	
Q and Q	Do you have a spouse and do you have children?	
I or I	Shut up or sit down	
Q or Q	Is it time or do we have to wait longer?	

Table 2

Letting 'A' stand for assertoric sentences, 'I' for imperatives, and 'Q' for interrogatives, the legitimate binary[34] combinations (at least in English) appear to be those represented in table 2. It is not clear whether these restrictions are merely pragmatic, that is, have to do with unwanted implicatures in the cases of the forms we don't find used or have to do with the unused forms not being useful for any purposes we have, or are semantic. I suspect that the restrictions are the result of a number of different sorts of pragmatic factors. For example, it is hard to image the conversational point of saying 'The cat is on the mat or what time is it?' There is a different problem in the case of 'Do it or you'll be sorry' and 'You'll be sorry or do it'; it seems clear that the latter would not be used for the purpose of the former because the second disjunction would naturally be treated as being elliptical for 'you'll do it', which is not an imperative. However, in neither case is there a difficulty for the above account. On the one hand, if the restriction is pragmatic, not semantic, then the above account is not in trouble. On the other, if the forms we find absurd are meaningless, then they will be treated

as ungrammatical. The above account will operate over grammatical sentences, and the formation rules of the language will exclude those that do not fit the patterns above. Obviously, the logic of non-assertorics would then be significantly different from that of assertorics. However, it is clear that more work is needed on what accounts for these restrictions on the acceptable combination of sentences in different moods, given that a perfectly general recursive semantics can be given for any combination of sentences in different moods by "truth functional" sentential connectives. In addition to these restrictions, it also seems quite generally to be true that sentential operators that take assertoric sentences to form a new sentences cannot be applied to non-assertorics (including mixed mood sentences). We can use sentential operators to modify the assertoric core of non-assertorics, but the mood setter, as it were, always takes wide scope over sentential operators. Part of a fuller understanding of non-assertorics will involve an explanation of why this is so.

The second question is why we do not find in natural languages sentential moods for all the different kinds of speech acts we can perform which have different sorts of fulfillment conditions. In particular, using table 1 in section 3 as a guide, why are there not moods corresponding to commissives and declaratives, as there are for assertives and directives? It would not be difficult to introduce into the language syntactical devices like those represented by imperatives and interrogatives which could be given fulfillment conditions on the model of commissives and declaratives, yet we do not find such forms, so far as I know, in any natural language.[35] What accounts for this? This question is not a question about the semantics of the sentential moods. It is rather a question about the dynamics of language use. An answer would presumably explain why we find the moods we do in natural languages on the basis of a characterization of the purposes for which we use language.

11. Summary and conclusion

I have argued that there is no need to assimilate non-assertoric sentences to assertoric sentences in order to show how to bring them into the fold of a compositional meaning theory that has an interpretive truth theory at its core. The proposed method is to introduce a general notion of fulfillment conditions and, for open sentences, of Satisfaction conditions, which covers the different variety of bivalent evaluation conditions we intuitively recognize for different types of sentences, imperatives, interrogatives, and assertorics. A theory can be formulated which specifies in general the fulfillment

conditions of all types of sentences in terms of the conditions specifically required for each sentence type. This shows what their semantic function is, and what the contributions of the different sentential moods are to the meanings of sentences. This can be done compatibly with retaining an interpretive truth theory as the core of a meaning theory by specifying the fulfillment and Satisfaction conditions for non-assertoric sentences recursively in terms of the truth and satisfaction conditions of assertoric sentences. Thus, the apparatus of a truth theory, satisfaction clauses for predicates, references clauses for singular terms, and recursive clauses for connectives and quantifiers, provides the basic mechanism required to show how to assign fulfillment conditions for all sentences, not just assertoric sentences. The approach shows the continued fruitfulness of the truth-theoretic approach to meaning theory, and places the discussion of imperatives and interrogatives in a framework that will, I believe, help to invigorate and clarify discussion of them. Many tasks remain. More work needs to be done relating the present approach to more traditional discussions of the logic and semantics of imperatives and interrogatives. I believe that this can help to clarify the status of some of these investigations, particularly whether they are really concerned with the semantics of imperatives and interrogatives, as opposed to certain logical questions not directly connected with giving a compositional semantics, whether they are concerned with what is more properly called conceptual analysis, or whether they are concerned with various pragmatic, as opposed to semantic, questions about the use of imperatives and interrogatives. More work needs to be done on the question why not all combinations of sentential moods seem acceptable in molecular sentences. Is this a matter merely of pragmatics, or is there a deeper reason for the restriction which might be uncovered by reflection on the semantic purpose of imperatives and interrogatives? And why, given the possibility, do we not find sentential moods corresponding to commissives and declaratives? With a general framework for discussing fulfillment conditions, we can also begin raising more detailed questions about fulfillment conditions, and the relation between the semantics and pragmatics of non-assertoric sentences. I hope that the present study will serve as a springboard for investigations of these and other questions about the semantics and pragmatics of imperatives and interrogatives.

Notes

1 I use the term 'assertoric' rather than 'indicative' because, as noted below, the dimension of variation I wish to focus on is that between sentences which admit of truth and falsity and others. Since I employ 'declarative' (see section 3) to label a category of speech act, in

conformance to the literature, I choose 'assertoric' to classify sentences which admit of truth or falsity. I do not suggest, and explicitly deny in section 3, that every utterance of a sentence which is truth valuable is an assertion. The classification is of sentences, on the basis of their semantic features, not of speech acts or uses of sentences.

2 C.L. Hamblin (chap. 3) has traced the proposal back to Husserl (pp. 837, 847), but it appears also in Austin (p. 32), though with the added complication that explicit performatives are not assertoric (not 'constatives', in Austin's terminology).

3 A note is required about the title. Traditional grammarians have treated a mood as a feature of a verb. In this usage, differences in moods are not correlated with differences between assertorics, imperatives and interrogatives, since sentences in the subjunctive and optative moods in English are assertoric (e.g. 'Had the means, I would do it'). Furthermore, interrogative sentences in English are not always treated as properly a part of its mood system, since they are often classified in terms of non assertoric sentences, rather than non-indicatives, for these are the sentences which are thought not to admit of being true or false, even relativized to an occasion of use. Our proper subject is not mood in the traditional grammarian's sense, but a mode of different between sentences which perhaps only becomes salient when we view language from the point of view of a truth theory, namely, the fact that there are sentences types, assertoric, imperative and interrogative (and more complex types involving mixed moods), which are two valued but not along the same dimension of evaluation. Following an alternative tradition, I will call these differences in *sentential* mood, and speak of the assertoric, interrogative and imperative sentential moods. Wilson and Sperber make much the same point (p. 78), and talk about the semantic mood as opposed to mood in the traditional sense. See Jespersen for an early champion of using 'mood' to classify sentences rather than verb forms. For recent skepticism about whether there are any moods in the traditional sense in English, see Dudman.

4 This conception of how to approach to the project of giving a compositional meaning theory for natural languages is of course due to Donald Davidson. See in particular his "Theories of Meaning and Learnable Languages," and "Truth and Meaning."

5 I will not in this paper be offering a formal theory. The aim is rather to outline an approach to incorporating non-assertoric sentences into a broadly truth-theoretic approach. If the suggestions I make are correct, then incorporating them into a formal theory will be straightforward enough.

6 The canonical proof procedure mentioned here would be a list of restrictions on proofs of T-form sentences which aim to restrict what is appealed to in proving the sentence solely from the content of the theory's interpretive axioms. This would guarantee that the T-form sentence was in fact interpretive, and so properly a T-sentence. It would be possible to achieve the same effect by restricting the logic of the metalanguage so that it contained only enough rules to enable the proof of interpretive T-sentences. Even so, that the logic had been so restricted would still need to be part of what one knew in using the theory to interpret utterances of sentences in another language, for one must know something sufficient to determine that the theory's theorems were interpretive, and that its axioms are not sufficient for this.

7 This requires qualification, for there are aspects of meaning that do not directly contribute to truth conditions. A simple example is the difference between 'but' and 'and'. Each is evaluated truth functionally in the same way, but use of the first implies a contrast between what is expressed by the sentences it conjoins. For a more complicated example involving so-called opaque contexts, see Ludwig and Ray.

8 It will not be necessary for my purposes to have a complete catalog of these devices. I will make use of syntactical categories of interrogatives and imperatives, and in carrying out the program of giving a formal theory for English or any other natural language it would be necessary to recursively specify their syntax, but this will not be necessary in order to show how to incorporate whatever syntactical devices in fact mark sentential moods into the truth-theoretic approach to semantics.

9 Searle, "A Taxonomy of Illocutionary Acts."

10 I use 'basic' advisedly. One of the results of this study is that we will see that this taxonomy of speech acts should be considered a taxonomy of what we might call atomic speech acts. See section 7 for elaboration.

11 I depart slightly from Searle here in the representation of the propositional content, both here and in the case of commissives. Searle represents them as 'H does A' and 'S does A' where 'H' stands for the hearer and 'S' for the speaker, and 'A' for some action. The present formulation, as will be seen, facilitates the development of the generalized fulfillment approach to imperatives and interrogatives in sections 7 and 8.

12 I depart from Searle here in requiring the desire that what is declared be so as the sincerity condition. Searle says there is no sincerity condition for declaratives. This difference will play no role in the present discussion.

13 For versions of this view see Hornsby, McDowell (p. 44), Davies (pp. 22-24), Dummett. See Pendlebury, Huntley (pp. 110-11), and Wilson and Sperber for a dissent on grounds similar to those I advance.

14 Criticisms of this sort are given in Bierwisch (pp. 10-11), and Segal (p. 106).

15 See Davidson's "On Saying That."

16 One might try remedying this by treating conditional commands and questions as having the form:

My next utterance is a conditional command/question.

But we want a uniform treatment of mood-setters, and this would not work for unembedded sentences, and it would not work with more complicated conditionals and other sorts of molecular sentences.

17 See Stenius for the introduction of this idea, following Wittgenstein. A sentence radical is not quite the same as the assertoric core, since even assertoric sentences are supposed to combine a mood setter with a sentence radical.

18 I make some modifications to McGinn's actual suggestion to put it in line with my notation. '$Ref(\alpha,s,t)$' is shorthand for 'the referent of α relative to s at t'. Proper names will have a constant referent for all speakers and times; indexicals such as 'I' will receive a reference axiom which gives a rule for determining the referent relative to the speaker and the time, for example,

'$(\forall s)(\forall t)Ref('I',s,t) = s$'.

19 Again, McGinn makes no actual suggestion in the case of interrogatives, but we may suppose this is what he has in mind.

20 It has been suggested to me that if there is a sign on the lawn at a park that says 'Stay off the grass', and one walks through the park without stepping on the grass, one has obeyed the rule. It does seem to be correct that one has followed the park rules or regulations, in some sense, and that one has not violated the regulations. But I don't think one has obeyed them, since this would require both knowledge of them, and activity that intentionally conforms to them. One has followed the rules in the sense that one's actual behavior is not contrary to what the rule requires. If I say in the hearing of the President, 'Don't run up the White House steps', I do not get to claim later that I ordered the President around or that he complied with my utterance of an imperative simply because he does not run up the White House steps. What he does conforms to the assertoric core of the imperative as used by me on that occasion, but he could hardly be said to have complied with it. A different sort of worry is raised by imperatives such as 'Have a good vacation', or, as I sometimes hear, 'Have a good one'; in the case of utterances of sentences like these, it might be objected, there is clearly no intention that the person or persons addressed should make it the case that they have a good vacation with the intention of obeying the directive issued by their use. This seems true enough, but this is a fact about a speaker's aim in uttering such a sentence, not about its fulfillment conditions. I suggest we have in these examples imperative sentences which are most often used with the intention of performing an expressive speech act. An utterance of 'Have a good vacation' is usually used by a speaker to

express his wish or desire that the addressee's vacation be a good one. It achieves this aim by having as a condition on sincere utterance that one intends and so desires the satisfaction of the fulfillment conditions. Where it is clear to all parties that a literal use of a sentence would be out of place, as it would in ordering someone to do something which is clearly not in his or her control, an auditor will look elsewhere for the point of the utterance. The use of imperatives to give advice ('Neither a borrower nor a lender be'), permission ('Go ahead'), or to dare someone ('Throw it!') may also be thought to be counterexamples, for in these cases the primary point of the use would not be to make someone do something as a result of the utterance. Sperber and Wilson discuss these cases (pp. 80-83) and suggest they undermine any attempt of the present sort. But these cases as well can be understood as involving indirect speech acts. In the case of advice, a conditional directive is issued, it being obvious that the speaker thinks the auditor has a desire to do something which following the directive would promote. In the case of permissions, a directive to do something in a context in which permission is sought to do that thing clearly presupposes that the speaker does not intend to withhold permission, and therefore grants it. In the case of a dare, the speaker intends the utterance of the imperative as inter alia a challenge to the auditor to do something dangerous or difficult by uttering a sentence whose fulfillment conditions require the auditor to undertake the dangerous or difficult task.

21 I am aware of only two treatments in the same vein as McGinn's. One is Segal's, which is fairly brief, and gives a treatment explicitly only to imperatives and yes-no questions. He doesn't relativize the truth predicate to speaker and time, which will be required to get the compliance conditions to come out correctly, and does not include the requirement that the addressee bring it about that the compliance conditions are met. His treatment of yes-no questions introduces 'has the correct answer "yes"' as the predicate of evaluation, rather than 's answered'. However the dimension of evaluation for questions which is parallel to compliance or non-compliance for imperatives and truth or falsity for assertoric sentences is that the question be answered or not. Questions are specialized imperatives, and should be exhibited as admitting of the same general kind of compliance conditions as imperatives. The other is Lappin's in "On the Pragmatics of Mood" (p. 567). Lappin's treatment, which is given for utterances of sentences, differs from McGinn's, Segal's, and mine, though Lappin's clause for imperatives comes closest in some respect to mine of the three. His clause for interrogatives, which covers only yes-no questions and wh-questions, I believe fails for the reason give in remark 6 of section 8.

22 This is not supposed to imply that all imperatives are used to give orders or commands. An utterance of 'Have a good time' would not typically be taken to be a command to merriment. Rather, 'obedience' is used here semi-technically to cover all the kinds of speech acts which may be issued with a literal and direct use of an imperative. 'Acquiescence' might be a better word because its usual use covers a wider range of cases, but 'obedience', aside from being shorter, has some currency already and is unlikely to lead to confusion.

23 The right hand side is to be read: the x such that x is addressed by s at t is such that x makes it the case that the assertoric core of φ is true$_{s,t}$ in English with the intention of obeying the directive issued by s at t using φ.

24 This is meant to cover any sort of question beginning with 'how' in which the assertoric core is an open sentence, not just those involving quantities. For example, 'How are you?' has as its assertoric core 'you are x'. This is why I described them as 'how-x' questions.

25 This account is only workable insofar as one has a truth theoretical account of the semantics of indirect discourse which is not paratactic. A paratactic account would not treat an expression of the form 'α says that φ' as a sentence, and so could not be used in conjunction with the above account. However, an adequate truth theoretic semantics for indirect discourse can be given which treats 'α says that φ' as a sentence. See Ludwig and Ray.

26 Wilson and Sperber discuss cases of this sort in which someone addresses nature, as it were, e.g., 'Please, don't let it rain.' They suggest that such cases undermine the view that imperatives can be treated as having fulfillment conditions modeled on directives, but this is mistaken. We would not say that sentences don't have truth values because people say things to inanimate objects ('You will be a challenge to climb', said to a sheer rock face on a mountain by a climber);

neither should we say that imperatives don't have fulfillment conditions because people address commands, either with the pretense or belief that they address an agency, to nature or inanimate objects.

27 See Ludwig and Ray for an outline of an extensional truth-theoretic treatment of such contexts.

28 For a fuller development of this approach to sentences of indirect discourse see Ludwig and Ray.

29 This would probably need some refinement. For example, one might want to rule out utterances of contradictions counting as answers. But since this is not the approach I favor, and in any case my aim is to show only that the present approach has the resources to respond to the problem being raised here, I will not pursue refinements of it.

30 See Grice for elaboration on this general approach to conditionals.

31 In fact, 'synonymy' does not express exactly the right relation, because (on my preferred approach to the semantics of indirect discourse) this will not work for iterated contexts. See (again) Ludwig and Ray.

32 See Searle's discussion in "Indirect Speech Acts."

33 This is an odd one, since while some sentence combinations seem acceptable here others do not, e.g., 'What are you doing, and come here!' See Eirlys Davies, chapter 6, for some discussion. I've left out some forms here which seem acceptable, such as 'Go now, and you'll just be able to catch him', which seem to be equivalent to indicative conditionals, 'if you go now, you'll just be able to catch him'. It is not quite clear what to say about these cases. I suspect that we should treat them as elliptical for 'Go now, and [for] if you do [go now], then you will just be able to catch him'. If this is right, then it is not simply a binary combination. On the other hand, 'Make yourself comfortable, and I'll get some coffee', does not seem to have the conditional reading. A similar phenomenon is apparent with imperatives and interogatives, e.g., 'Pay now and how much money will you save?'

34 I don't attempt here to give a complete account of the restrictions on combinations of sentences in different moods. Obviously, one can combine atomic sentences in more complex molecular sentences than those represented here, e.g., 'Do it iff you want to, but if you don't want to, get out of my life'. Likewise, I here overlook non-fulfillment conditional sentential connectives like 'for', 'since', 'because', and the like. Similar questions arise about restrictions on combinations using these and other sentential connectives as well.

35 Of course, this is an empirical question, and I am not in a position to know that there are no natural languages in which such devices appear. I would be interested to learn whether there are. The families of language with which I am to some extent familiar, and those others I have talked to are familiar with, seem not to have more sentential moods (in the special sense at issue in this paper) than those found in English. But my knowledge in these matters is extremely limited, and I am prepared to be contradicted.

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Language Acts and Action

abstract

Speech act theorists agree unanimously that language or speech acts are a species of intentional action. I argue that J.R. Searle's influential speech act theory actually precludes our explaining sayings truly as doings, i.e. as linguistic actions, because it assimilates speakers' beliefs, desires and intentions to the linguistic meaning of expression types. An adequate explanation of speech acts as intentional performances must treat the meanings of expression types and speakers' beliefs, desires and intentions as separate, but co-ordinate factors in the production, understanding and characterization of linguistic acts.

"To say something *is* to do something,
or *in* saying something we do something, and
even *by* saying something we do something"

John L. Austin,
How to Do Things with Words (1962:94)

The idea that sayings are doings is a platitude among speech act theorists. It is by now a commonplace that we can perform actions by saying something. But what sort of doings are sayings? It might be thought that this question has been definitively answered by John R. Searle's account in *Speech Acts* (1969). For haven't Searle and his followers shown that in the case of speech acts the meaning of the utterance determines the act performed? On this view the semantic rules governing the linguistic or paralinguistic expressions uttered constitute a saying as the making of a promise, asking of a question, making of a request, i.e. as a particular action. It is the meaning of the expressions uttered in the performance of the act which determines what action is performed. In order to perform and, correlatively, to understand a speech act it is only necessary to have mastered the meaning of certain linguistic (and paralinguistic) expressions, the semantic rules which govern their use and constitute a use as a particular act. On Searle's account the meaning of expressions is logically and conceptually prior to any particular intentions, beliefs and desires speakers might have in performing an act by linguistic means. Speakers' intentions to perform a particular action, their