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**The Imperfective Paradox in the English Progressive  
and Other Semantic Course Corrections**

**Douglas J. Wulf**

**A dissertation submitted in partial fulfillment of the  
requirements for the degree of**

**DOCTOR OF PHILOSOPHY**

**University of Washington  
2000**

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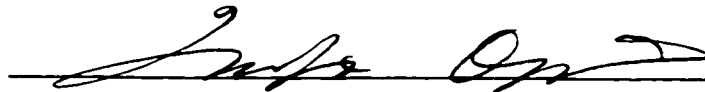
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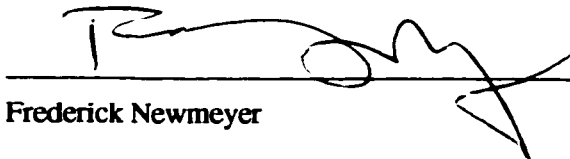
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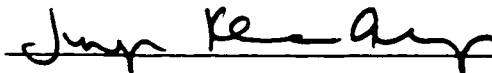


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Abstract

**The Imperfective Paradox in the English Progressive  
and Other Semantic Course Corrections**

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The topic of this work is *semantic course corrections*. I use this term to refer to a discourse-level phenomenon that sheds light on a number of puzzles in semantics and pragmatics at the level of the sentence. At issue in this study is the fact that language users, even while endeavoring to express themselves truthfully in a discourse overall, may nevertheless temporarily stray from expressing the literal truth in particular sentences or clauses within the discourse. This is permissible provided that the speaker eventually “corrects course” back to the truth.

For example, if someone goes to a bookstore and buys a copy of *Wuthering Heights* only to discover later it is a book on stamp collecting mistakenly covered with the dust jacket from *Wuthering Heights*, a speaker might state, “I bought a copy of *Wuthering Heights* today, but it was actually a book on stamp collecting.” This is a curious sort of utterance. The first clause is literally false and the propositional content of the sentence overall is contradictory. However, if understood as a particular species of non-literal utterance, it can be seen to quote an error and then effect a semantic correction.

Beyond an interesting topic of study in their own right, semantic course corrections may be a key to certain deeply entrenched puzzles in semantics and pragmatics. The central problem I address in the work is the semantic behavior of the English progressive aspect. For decades, semanticists have attempted to formulate an adequate treatment of the progressive. Yet, even after dozens of proposals, no consensus has been reached. A problem known as the *imperfective paradox*, the basic facts of which were noted by Aristotle, has been a major roadblock. The progressive is thus frequently characterized as “vague” or “strange” semantically. This has led to increasingly ad hoc

and complicated explanations of its behavior. In this work, I advance a simple, principled, precise, and logically-consistent semantic analysis of the progressive, well supported by evidence. In addition, the form that this explanation takes provides some interesting insights into certain fundamental issues including compositionality and the nature of the semantics-pragmatics interface.

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## **DEDICATION**

**The author dedicates this essay to whomsoever decided that I should get this wonderful mom and, of course, to Martha and Furbanks, the most beautiful souls I have ever known.**

# Chapter 1

## Truth, Meaning, and the English Progressive Aspect

### 1.1 Introduction

We may not directly equate that which we *say* with that which is *literally true*. There is much to be gained in studying semantics in terms of the conditions under which a declarative sentence would be literally true, but such conditions do not in general correspond with the conditions under which one may plausibly utter that sentence. This point is key to understanding what I call a *semantic course correction*, a discourse-level phenomenon which sheds light on a number of complicated puzzles in semantics and pragmatics at the level of the sentence, including certain difficulties relevant to the English progressive aspect. At issue is the fact that language users, even while endeavoring to express themselves truthfully in a discourse overall, may nevertheless temporarily stray from expressing the literal truth in particular sentences or clauses within the discourse. This is permissible provided the speaker eventually “corrects course” back to the truth (as far as the literal truth can be determined with any certainty by a language user).

A simple example will serve to illustrate. Let us consider (1) under its literal interpretation.

- (1) Martha’s turtleneck sweater is completely orange.

Note that (1) is a literally true sentence if and only if there is no other color in Martha’s turtleneck besides orange. Hence, if white, green, or some other color also appears in this sweater, (1) would be a false sentence. Nevertheless, utterances such as (2a-d) are acceptable.

- (2a) Martha’s turtleneck sweater is completely orange, but it has two white stripes on the sleeves.
- (2b) Martha’s turtleneck sweater is completely orange, except that it has two white stripes on the sleeves.
- (2c) Martha’s turtleneck sweater is completely orange. Well, actually, it has two white stripes on the sleeves.
- (2d) Except for the two white stripes on the sleeves, Martha’s turtleneck sweater is completely orange.

If we assume that what the speaker expresses in (2a-d) overall is *true*, our understanding is that the clause *Martha's turtleneck sweater is completely orange* would nevertheless be literally *false*. As noted above, we would not want to claim that this clause might somehow be literally true if the sweater actually contains more than that single color. Thus, note that the sentence in (2a) sounds contradictory if we replace the conjunction *but* with *and*.

The proper way to understand (2a-d) is that the literal assertion made by the false clause is corrected or amended with additional wording so that the overall discourse might still conform to truth. In (2a) and (2b), the corrections occur within the same sentence. Adjustments such as these are typically signaled with an expression such as *but*, *except that*, *except for*, *however*, and others. In (2c), the correction is not made in the same sentence, but soon thereafter. Notice also that the word *actually* highlights that the correction is bringing the discourse again in line with the actual state of affairs. In (2d), the correction precedes the false clause.

H. P. Grice has observed (c.f. Grice, 1989, p. 44) that *but* can be used to cancel a *conversational implicature* which the listener might incorrectly draw from context. For example, consider (3) below.

(3) Furbanks ate a treat and went to the park, but didn't do so in that order.

There may arise a conversational implicature when stating the first clause in (3) that Furbanks first ate a treat and then went to the park. As demonstrated by the second clause in (3), this implicature may be canceled by adding additional words of clarification.

However, I note that a contrastive conjunction, such as *but*, can also apparently be used to signal a semantic course correction. This phenomenon goes beyond merely canceling a conversational implicature and indeed eliminates a portion of what is asserted in the discourse. Certainly, it would be possible for a speaker to get across the same overall meaning as made in (2a-d) above with a single, literal sentence, as illustrated in (4).

(4) The predominant color of Martha's turtleneck sweater is orange and it has two white stripes on the sleeves.

Yet, (2a-d) seem to be more typical of the way people really speak. The strategy is that (1), although literally false, expresses something true up to a point. However, standing alone, (1) makes a false assertion, so a correction must be included which indeed takes back a portion of what (1)

asserts. The purpose of this kind of semantic course correction is thus the *fine-tuning of semantic expression*.

As emphasized at the outset, this scenario demonstrates that we cannot directly equate that which we say when we are speaking “truthfully” with that which is literally true. There can and do occur sentences or clauses that are literally false within an overall discourse which, when taken as a whole, nonetheless faithfully expresses a true state of affairs. Put another way, there are apparently roles for *false* sentences and clauses to play within *truthful* discourse. Naturally, this is not the role we most often think about when we consider false sentences. Rather, we know that false sentences are what are produced when a speaker is either lying or mistaken. Lying is, of course, a kind of linguistic offense. Indeed, when the speaker is under oath, it is punishable by law as the crime of perjury. Being mistaken, on the other hand, can simply be regarded as a linguistic performance error.

Consider a scenario which involves making this sort of “honest” mistake. Suppose Beth wants a copy of *Wuthering Heights*. She goes to the bookstore and makes her purchase. On the way home, someone asks her what she did today and, holding up the book and pointing to it, she says (5).

(5) I bought a copy of *Wuthering Heights* today.

The sentence in (5) is judged at the time to be a true sentence. However, when Beth gets home and opens up the book, she discovers that it is actually a book on stamp collecting which accidentally has the dust jacket from a copy of *Wuthering Heights*. As it is now learned, (5) is a false sentence. It was false when she mistakenly said it earlier and it is still false.

Yet, we would not say that Beth was lying when she stated (5) because she did not knowingly state something false nor even purposefully make a claim unsupported by sufficient evidence. As far as any reasonable person would have concluded, (5) was a true sentence at the time of its utterance. Thus, Beth made the practical judgment at that time that (5) was true, though it was indeed literally false. Of course, that Beth made the reasonable assumption that she was telling the truth obviously does not make this false sentence true.

Scenarios such as that which I have just portrayed here are correctly deemed irrelevant to theories of natural-language semantics based upon conditions under which sentences are true. Truth-conditional approaches to meaning rightly pay attention only to those conditions under which a

sentence would literally be true and not to conditions under which a person might come to believe that a sentence is true (rightly or wrongly) nor to conditions under which a person might be led to utter a given sentence as a (hopefully) true sentence. That a language user might erroneously conclude that a false sentence is true (or vice versa) is essentially a performance error and not regarded as part of the semantic competence of the speaker.

To clarify, any English speaker would recognize under what conditions (5) would be true and under what conditions it would not. That the speaker in this scenario misjudged that such conditions were satisfied when they were not is a side issue. It is also not so amazing that speakers may accidentally state that which is false even while attempting to speak the truth. Language users are fallible after all. People venture to speak about all manner of things of which they have no direct knowledge and this certainly leads to mistakes. Under a truth-conditional semantics, such utterances do not require any formal explanation. They are just mistakes and nothing more.

I certainly concur that such errors are irrelevant to the study of semantics under a truth-conditional framework. However, I do not think they are entirely without further linguistic significance. First of all, such scenarios help to draw the important distinction between literal truth on the one hand and a speaker's judgments of literal truth on the other. It is critical that these two distinct notions not become muddled inadvertently.

Furthermore, note that it is in cases where just such mistakes occur that remarkable sentences like (6) below then make a curious kind of sense to language users.

(6) I bought a copy of *Wuthering Heights* today, but it was actually a book on stamp collecting.

If someone asks Beth why she is so unhappy, she might explain by stating (6). The first clause of (6), identical to the sentence in (5), is a false sentence. Furthermore, Beth is aware at the time of utterance that it is false. In (6), Beth thus *knowingly* states something false, yet our intuitions are that what the entire sentence expresses is not a lie.

If we consider this example further, we note other interesting features. Taken as a whole, the *literal* propositional content of (6) is absurd. Observe the pronoun *it* in the second clause. This pronoun refers back to an aforementioned "copy of *Wuthering Heights*." The anaphoric relationship can be

demonstrated explicitly by restating (6) with the paraphrase in (7), which may also be stated as an acceptable utterance in the scenario portrayed here.

(7) I bought a copy of *Wuthering Heights* today, but the copy of *Wuthering Heights* I bought was actually a book on stamp collecting.

Obviously, this book on stamp collecting was at no time a copy of *Wuthering Heights*. It was a book on stamp collecting right from the start. However, the literal reading of the second clause in (6), as given explicitly in (7), makes this claim. Thus, taken *literally*, the sentence is preposterous.

Consider the indefinite description “a copy of *Wuthering Heights*.” The indefinite determiner *a* in this expression acts as an existential quantifier. That is, for the first clause in (6) to be true, there would need to have *existed* some book of this kind which Beth had bought, yet there was none. Therefore, the first clause in (6) is false. In general, an indefinite description involves an existential claim (in this case, the assertion that such a book exists). If this claim is not supported by the facts, the sentence in which it occurs must be false, provided the sentence does not involve a modal (i.e. intensional) verb. For example, contrast (8a-b) below.

(8a) There is a copy of *Wuthering Heights* in the bookstore.

(8b) There should be a copy of *Wuthering Heights* in the bookstore.

Note that the sentence in (8b) contains the modal *should*. For this reason, our intuitions tell us that (8b) could still be a true sentence even if it turns out that there is no such book in the bookstore. However, as with the first clause in (6), (8a) does not contain a modal verb. If it turns out that there is no such book at the bookstore, (8a) is thus false.

Hopefully the reader will agree with me that (6) is not intended to be taken literally, but rather under a non-literal interpretation. We thus have an interesting *pragmatic* phenomenon that requires further explanation. Since the clarification added after the conjunction *but* in this example takes back the assertion just made and modifies it to make a new assertion, I consider (6) to be an additional instance of a semantic course correction. A false clause is asserted and then corrected.

The course correction involved in the book-purchasing scenario is similar to that of the turtleneck-sweater scenario since both involve asserting something that is not true and then correcting course semantically. As before, the words in the correction directly contradict some or all of what is asserted in the untruth. However, (6) is striking in its use of a sentence that would literally express

something nonsensical to bring about a very sensible correction in the discourse. For example, the non-literal interpretation of the correction involved in the book-purchasing scenario may approximately be paraphrased in literal terms as in (9).

- (9) Today, I bought *what I assumed to be at the time* a copy of *Wuthering Heights*, but *when I removed the dust jacket of the book, this so-called “copy of Wuthering Heights” was actually revealed to be* a book on stamp collecting.

This paraphrase suggests what is really behind such semantic course corrections. Beth earlier mistakenly asserts a falsehood as a true statement. This is an error. Of course, upon discovering her mistake, Beth could simply assert the negation of (5), as given in (10).

- (10) As I now discover, I didn't buy a copy of *Wuthering Heights* today after all.

The sentence in (10) is literally true. However, another method of *error correction* available to language users (and one frequently employed) is a semantic course correction. It seems to me that this phenomenon may be a rather useful topic of study under pragmatics and discourse analysis. It may perhaps be regarded as a particular variety of what those who study discourse and conversation term *repair* (or *self-repair* if an error is acknowledged and corrected by the same individual who made the error).

In a semantic course correction, a false sentence (or perhaps even a sentence exhibiting some other kind of difficulty, such as a *presupposition failure*) is knowingly stated. However, this is not done with the purpose that it be understood as a literal assertion of factual truth. It is made clear in the larger discourse (usually afterward, but sometimes in advance of the untrue sentence) that this particular assertion is indeed incorrect. This is accomplished through a variety of linguistic methods that at the same time serve to make the correction. Words such as *but*, *however*, *except that*, and others signal that a correction or adjustment is being made. The words in the correction directly contradict what is stated in the false assertion. Indeed, as we have seen, the wording of the correction itself may be absurd if taken literally. However, I also think it is possible to signal a semantic course correction in the right context simply with a marked intonation on the false utterance. For example, Beth might restate (5) in a sarcastic or comical tone of voice while demonstrating that the wrong dust jacket was wrapped around the book on stamp collecting that she bought.

Many other examples of semantic course corrections may be found where the purpose is to correct something that earlier was incorrectly said or thought, as shown in (11a-d). These are the kind of examples that are most relevant to the theory I advance in this essay.

- (11a) Steve had done the inventory, so I went home early yesterday. But, as it turned out, although he had marked the inventory completed on the duty board, he had really only inventoried some running shoes before leaving to play video games.
- (11b) Tracy bought a male hedgehog and named him Mr. Tigglywinks. But when he gave birth to little hedgehogs, Tracy changed his title to Mrs.
- (11c) Mark discovered a new planet and named it Persephone. Unfortunately, this new planet was only a speck of dirt on the telescope lens.
- (11d) My long-lost cousin showed up and stayed with me for two days. But then I realized that I don't have any cousins.

From the overall discourse, we understand that the first clause in (11a) and the initial sentences in (11b) and (11c) are not true in any shape, manner, or form. They fundamentally express something false. The first sentence in (11d) indeed involves a presupposition failure because there is no one to whom the expression *my long-lost cousin* accurately refers.

Such utterances are only acceptable because the overall discourse is a semantic course correction. Because they are used to enunciate a mistake rather than a fact, I call such false (or flawed) expressions *error quotations*. Indeed, as I explain below, an error quotation has a similar appearance to expressions of indirect discourse. Thus, although outwardly identical to a factual statement of truth, an error quotation is uttered merely to express what was earlier incorrectly stated or believed by some individual. Whereas an ordinary assertion is intended to express a fact accurately, an error quotation is meant to be an *accurate* description of an *error* (a false state-of-affairs).

Without explicitly stating that a particular statement is false, semantic course corrections nonetheless communicate that certain information in a speaker's knowledge base has been discovered to be erroneous. This misinformation is then modified to express the current understanding of matters. It is useful to think of the information to be corrected as an error quotation, since something like a quotation can be used to paraphrase the literal meaning. Consider the paraphrase of (11c), employing direct quotation for purposes of illustration, as shown in (12).

- (12) "I discovered a new planet," Mark thought. Mark named the "new planet" Persephone. Unfortunately, this "new planet" was only a speck of dirt on the telescope lens.

Each time a language user makes an utterance, this amounts to speaking one's mind. I claim here that semantic course corrections can be used to correct errors that featured in earlier beliefs or statements.

Error quotations thus do exactly what their name implies: quote a false sentence which was earlier incorrectly judged to be true. In the examples shown above, our intuitions are rather clear that the error quotations involved are false. However, as I discuss in this essay, it is sometimes possible to become confused about the actual truth value that such an expression bears. One may get the mistaken impression that an error quotation is somehow literally true due to several factors:

- (a) What the error quotation expresses was earlier judged on reasonable grounds to be literally *true*, although the error is indeed not true;
- (b) The error quotation is *true* (i.e. faithful) to the original error and thus accurately reports the mistake (which is, nevertheless, not a true statement);
- (c) The error quotation occurs within the larger discourse unit of a semantic course correction and since this is designed to correct the error, the overall discourse is understood to be *true*, even while the error itself is not true;
- (d) There is a tendency to equate that which we say when we are not lying with what is literally *true*, but this does not hold in general. Thus, although we state an error quotation in much the same way as an assertion of truth, the statement is not true;
- (e) Semantic course corrections can often be a more efficient remedy for dealing with linguistic errors than the use of a literal sentence for the same purpose. Thus, they appear rather frequently in language. Since an error quotation in this context is common, we may wrongly take it to be literal usage and, therefore, literally *true*. Yet, although we encounter such usage often, an error quotation is indeed not true.

These considerations (and perhaps others) add up to a subtle, yet powerful influence on our personal intuitions of what is or is not literally true. As I demonstrate in this essay, due to its complicated relationship with two distinct notions of truth, semantic course corrections can be used to resolve a number of entrenched puzzles in semantics and pragmatics. Most notably, I address the *imperfective paradox* of the English progressive aspect.

## 1.2 Two Concepts of Truth

### 1.2.1 Semantic Truth

In this discussion of semantic course corrections, a key element of my thesis is the importance of keeping distinct two very different ways of characterizing the truth of a declarative sentence. Therefore, it is helpful to begin the discussion by taking a brief but crucial look at both of these concepts of truth.

First of all, let us consider what those who study logic call *correspondence truth*. This is the notion of truth at the foundation of formal semantics as pioneered by Richard Montague in the late 1960s. “I reject the contention that an important theoretical difference exists between formal and natural languages,” argues Montague. “I regard the construction of a theory of truth — or rather, of the more general notion of truth under an arbitrary interpretation — as the basic goal of serious ... semantics...” (1970b, reprinted in Montague, 1974, p. 188). Montague Semantics thus employs the methodologies of philosophical logic and set theory, developed for logical languages such as predicate calculus, toward the study of meaning in natural language. The strategy in truth-conditional, model-theoretic semantics is therefore to describe meaning in terms of truth, in particular, in terms of correspondence truth.

The basic idea behind correspondence truth may be summarized informally in the words of Montague’s teacher, Alfred Tarski, who asserts that “a true sentence is one which says that the state of affairs is so and so, and the state of affairs is indeed so and so” (1933, reprinted and translated in Tarski, 1956, p. 155). Truth-conditional theories are formulated to assign a truth value (either *true* or *false*) to a sentence in correspondence with conditions specified in a set-theoretic model, a sort of formalized portrayal of what the “state of affairs” really is. Philosophers have discovered that the connection between language and conditions in the real world is so complicated that certain simplifications have been sought to make the study more tractable. This includes the use of set-theoretic models as surrogates for real-world conditions.

We may illustrate the role that correspondence truth plays in Montague’s theory and in the truth-conditional theories of meaning which have grown out of Montague’s classical system, by considering an example sentence, given in (13) below.

(13) Arthur C. Clarke is happy.

The sentence in (13) is evaluated as *true* if and only if the individual in the model assigned to the name *Arthur C. Clarke* is in the extension of the one-place predicate denoted by *is-happy*, the set of happy individuals in the world at the time. To put this in picturesque terms, if all those and only those who are currently happy were gathered together in a big auditorium, then (13) would only be true if Arthur C. Clarke were among them. A quick check of the model tells us if he is or is not, and thus provides us the truth value of (13). I henceforth refer in this essay to correspondence truth as *semantic truth*, since it is the sort of truth important to a model-theoretic, truth-conditional theory of semantics.

However, to be honest, the above explanation grossly oversimplifies Montague Semantics. The phenomena of indexicality, modality, intensionality, and anomaly are all complications to the study of meaning in terms of correspondence truth. Let us consider these complications one at a time. First of all, note that the truth value of a declarative sentence may not always be determined absolutely by conditions in the model due to the occurrence of *indexical* expressions in language. Contrast (13) above with the sentence in (14) below.

(14) I am happy.

The pronoun *I* carries no fixed reference. Rather, its referential denotation depends upon whoever happens to be the individual who utters this sentence. Thus, (14) would be a true sentence when uttered by a happy individual, but false when uttered by someone who is not happy. Demonstratives (e.g. *this, those*) and indexicals (e.g. *I, he, it, here, now*) are all complications to a semantic theory based on correspondence truth. Montague deals with such linguistic phenomena by including indices, such as the speaker index, the speech location, and others. In this regard, Kaplan (1977) makes the important distinction between *circumstances* (conditions as specified in the set-theoretic model used to determine correspondence truth) and *context* (conditions which may effect the meaning of a particular utterance of a given sentence).

As we see in (15) below, tense is also indexical in nature, at least in the main clauses of sentences.

(15) I am here in this room now.

Context is essential in supplying the referential denotations for the pronoun *I*, the place indexical *here*, the demonstrative phrase *this room*, the time indexical *now*, as well as the time referenced by

the present tense verb *am*. The truth value of (15) thus varies depending upon where, when, and by whom the sentence is uttered.

Note, however, that the role of context in semantics is quite limited. Essentially, the only relevant contextual facts for the semantics of English are the time and place of utterance, who the speaker and audience happen to be, and occasionally where or to which object the speaker may be pointing or otherwise indicating verbally or non-verbally (in the case of demonstratives). The semantics of other languages require attention to different facts in the context, yet for any language the list of relevant contextual factors is short and mostly involve those factors which are inherent to any context, such as a speaker and a time of utterance.

Except for the necessity of such basic contextual indices, it would seem plausible that truth conditions for sentences could be formulated objectively with respect to circumstances set forth in the set-theoretic model. However, Kratzer (1977, 1981, 1991) and others have argued that context also plays a role in determining the truth value of sentences involving *modality*. For example, we may note the contrast between (16a-b) below.

(16a) This is Professor Barrack.

(16b) This must be Professor Barrack.

The sentence in (16b) contains an example of epistemic modality. If someone meets an individual and comes to the conclusion that this person is Professor Barrack without knowing for certain whether or not this is true, (16b) might be a plausible utterance in such a circumstance. It may thus be argued that, in contrast to (16a), the truth conditions for (16b) somehow directly involve the beliefs of the speaker of the sentence. This would be contextual information going beyond what is objectively specified in a set-theoretic model. However, even if we accept such an analysis of modal expressions, the use of contextual information is still restricted in truth-conditional semantics. For example, the truth value of the sentence in (16a) would not depend upon the beliefs of the speaker in any way. Rather, (16a) would be true if the individual indicated by the demonstrative *this* is the individual who bears the name *Professor Barrack* and is false otherwise.

Third, the notion of reference in the Montague tradition of semantics is more complex than I have presented here since it also involves *intensionality*. In addition to sentences strictly about the real world in the here and now, what are termed the purely *extensional* cases, Montague Semantics is

designed to deal also with sentences that make reference to other times and possibilities, what are called *intensional* contexts. Intensionality can be understood by contrasting (17a-b) below.

(17a) Arthur C. Clarke seeks Ray Bradbury.

(17b) Arthur C. Clarke seeks Sherlock Holmes.

Suppose we postulate that (17a) is true if and only if the individuals assigned by the model to the names *Arthur C. Clarke* and *Ray Bradbury* are in the set of all pairs of individuals in the world at that time such that the first individual of the pair (i.e. Arthur C. Clarke) seeks the second (i.e. Ray Bradbury). Put another way, (17a) would be true if and only if Arthur C. Clarke stands in a seeking relationship to Ray Bradbury.

This kind of referential correspondence works well to define the semantic truth of a sentence like (17a), provided that there are individuals to whom the names *Arthur C. Clarke* and *Ray Bradbury* refer. However, if the model we set up looks anything like the real world we know, then there will be no *actual* individual in the model to whom the name *Sherlock Holmes* refers. Thus, the simple analysis just outlined cannot work in the case of (17b). We may not pair up the individuals with the names *Arthur C. Clarke* and *Sherlock Holmes*, since the name *Sherlock Holmes* does not refer to any individual existing in the actual world at this time. The assertion in (17b) may seemingly be either true or false, but if we do not have someone to whom the name *Sherlock Holmes* refers, we are at a loss to know how to demonstrate this in truth conditions.

Note that this issue does not arise with other, similar sentences. Thus, compare (17a-b) above with (18a-b).

(18a) Arthur C. Clarke finds Ray Bradbury.

(18b) Arthur C. Clarke finds Sherlock Holmes.

Without stating it formally, (18a) is true if Arthur C. Clarke actually finds Ray Bradbury and false otherwise. Considering (18b), if there is no "Sherlock Holmes," then we might be inclined to say that this sentence is false, since the sentence could certainly not be true in any event. However, because of sentences like (17b) above, it is evidently not possible just to make a *general rule* that all sentences containing a name that refers to no existing individual should come out false. It seems clear enough that (17b) may yet be true even if there is no Sherlock Holmes. The reasoning is that

Arthur C. Clarke can certainly seek Sherlock Holmes, even if he will never find him, since “Sherlock Holmes” does not exist.

Montague and others describe this difference by noting that the verb *finds* is an extensional verb, since in the simple present tense it is just concerned with that which is real and currently existing. By contrast, *seeks* is an inherently intensional verb even in the simple present tense. It always sets up an intensional context in the sense that it is possible for a simple present-tense sentence with this verb to be true even if it contains a name that refers to nothing in the here and now but only to something at another time and/or in unreality.

Montague’s solution to this problem is to complicate the system of reference in language. As we noted, the name *Sherlock Holmes* obviously does not refer to a *real* individual in the *actual* world at the *current* time. To what, then, should this name refer? Without delving into the added complexities of Montague’s *generalized quantifier approach* to noun phrases, we may simply say that Montague claims that the name *Sherlock Holmes* denotes the *intension* of the individual who bears this name.

Suppose we had a time machine and could visit the actual world as it existed during the Victorian Age. We might look for someone named *Sherlock Holmes*. However, as is also the case at the present time, we would find no such person in existence at this past time. However, if somehow the fictional world that Sir Arthur Conan-Doyle concocted were actualized at this past time, there would indeed be such an individual at that time and in that world. In Montague’s system, the meaning of the name *Sherlock Holmes* does not depend ultimately on the existence of an individual in the actual world at some time, but rather only on the existence of an individual in at least one *possible world*. In the same way, the name *Arthur C. Clarke* does not simply refer to an individual in the here and now. Instead, this name refers to the individual Arthur C. Clarke across all times and all possible worlds. Considering not only the here and now of the actual world, but rather looking across all times and possible worlds, we now at least have two things that the names may refer to, though they are rather large and abstract things.

In the simpler referential system, it is not possible to check our model to see if the extension of the name *Arthur C. Clarke* stands extensionally in a seeking relationship to the extension of *Sherlock Holmes*, since there is no extension of *Sherlock Holmes*. In the full theory, we are able to determine the truth of the sentence by considering the intensions of *Arthur C. Clarke* and *Sherlock Holmes* rather than simply the current extensions of these individuals. Furthermore, we can express the

truth conditions for the intensional verb *seek* in terms of the extensional verb *finds*. Put in informal terms, if in all possible worlds where Arthur C. Clarke actually finds the person that he seeks in the actual world and this person is Sherlock Holmes, then (17b) is true, and otherwise it is false.

Of course, this more complex system can still deal with such sentences as (13), (14), (15), and (18a-b) as simpler cases of the more general behavior of an intensional logic for natural language. Thus, the more complicated truth conditions which treat names as denoting intensions of individuals rather than their extensions end up being logically equivalent to the simple ones characterized at the outset of this essay. The sentence in (18b) turns out trivially to be false, since there is no extension of the name *Sherlock Holmes* in the actual world.

There are many other phenomena which may be treated under a possible-worlds analysis as well. For example, we may explain the different senses of the sentences *Clark Kent is Superman* and *Superman is Superman* by noting that even if the extensions of these names are identical in the actual world, their intensions would be different if we look across all possible worlds. In addition, a real triumph of Montague Semantics is that under the generalized quantifier approach it can not only deal with names of individuals, both real and fictional, but also quantified common nouns such as *some dog*, *every unicorn*, and *no centaur*, regardless of whether there actually exists an individual or individuals from which these expressions may gain their denotation.

As we have seen, for a sentence to be assigned a truth value under this kind of truth-conditional system, one must assume the existence of certain nonlinguistic entities that serve a key role in calculating the truth of the sentence. The entities upon which semantic truth is based have been investigated for decades as a study of *ontology*. Although a model in Montague Semantics traditionally consists of the interpretation function, a set of individuals, a set of moments of time, an ordering function on these moments, a set of possible worlds, and the set of the two truth values (*true* and *false* or “1” and “0”), changes to this ontology have been proposed over the years. The suggested modifications have included the construction of a set of intervals of time from the set of moments and the introduction of such things as a set of events and a set of states.

If the required ontological entities are not available in the model to assign a truth value to a sentence, Montague’s system simply fails to assign a truth value. This is the phenomenon known as *anomaly*. However, even though there is a special provision made for anomaly, Montague Semantics is otherwise strictly *bivalent*. Truth-conditional approaches in the tradition of Montague have retained this bivalent system of truth since the model-theoretic set of available truth values

consists of only two members: *true* and *false* (formally indicated as “1” or “0,” respectively). Although changes in Montague’s classical framework have taken place in semantic studies over the years, the treatment of truth has remained faithful to Montague’s original formulation. The fact that a bivalent truth-conditional semantics may sometimes not assign either of the two possible truth values is something rather different than a trivalent system expressly designed in some instances to assign a third truth value of *maybe* or a value of *not yet assigned for truth value*. These are simply not truth value options in the Montague tradition of semantics.

### 1.2.2 Pragmatic Truth

In contrast to *semantic truth*, I maintain that there is a separate and important notion of truth which we may investigate, though it is properly not a concept to be dealt with in any way under a theory of truth-conditional, model-theoretic semantics. I have now in mind the *practical* notion of truth that language users employ in actual conversation. For example, a speaker may state (13) and intend it to be a truthful utterance simply because the speaker has just observed Arthur C. Clarke smiling or overhears his laughter. Alternately, the speaker might know that Mr. Clarke has just won a literary prize for his latest book and assumes that this would make him happy. Perhaps the speaker knows that he was happy fifteen minutes ago and just assumes that he is still happy.

Of course, these are in no way foolproof criteria upon which to determine the semantic truth of (13). Arthur C. Clarke might be smiling and laughing on the outside, while secretly he is despondent. He may have intensely disliked the prize he won. Even if it were true that he was recently happy, a person’s emotions can change rapidly. Similar reasons may be noted to lead someone to conclude that any of the other example sentences cited in the previous section are true or false, but these reasons would likewise be just as irrelevant to their literal semantic truth values. Be that as it may, such indirect indicators are undeniably what language users actually employ in the determination of a kind of *pragmatic truth*, the practical evaluation of the semantic truth of a sentence made by a language user.

There may be those who would object to my use of the term *truth* in connection with the idea of pragmatic truth that I describe here. After all, this notion is something completely apart from the semantic truth employed in philosophical and linguistic theories. One might argue that this is not *truth*, but rather only strong *belief* on the part of a language user. However, I think the term is useful and perfectly descriptive. Indeed, I do not see this dichotomy between semantic truth and

pragmatic truth as a terribly new or innovative suggestion. Since ancient times there have been those, such as Plato, who think of truth in absolute terms and who stand in contrast to those, such as Aristotle, for whom truth is essentially a relative concept.

Let us consider a simple illustration. Suppose you are asked if you have more than one hundred dollars in your checking account. Provided you do not mind revealing this information to the questioner, you may respond either that you do or that you do not, as the case may be. However, there will admittedly be at least a small possibility that you are mistaken about how much money is in your account at the moment you answer the question. Your arithmetical calculations of your own finances may be in error, a computer mistake may have occurred on your last bank statement, a forgotten check from some time ago may have only cleared recently without your knowledge, or money may have been removed fraudulently from your account mere moments ago. Even if you ask someone at the bank first before replying, there still remains the possibility that what the bank official tells you is incorrect. Similarly, a written statement or computerized inquiry may also contain a mistake or deception. The fact is, it is practically impossible to know with *absolute certainty* (that is, beyond even a shadow of a doubt) how much money you have in your checking account. Nevertheless, it is still practically possible to assert an answer to this question without much difficulty.

Let us now link this kind of scenario with the idea of a semantic course correction. Suppose a speaker mistakenly judges that a particular sentence is true and utters it, but then later discovers that the sentence was actually false. Of course, the speaker may simply acknowledge that what was said earlier was false. However, the speaker may also say, "I was telling the truth," in the sense that what the speaker said was not a lie or deception. In other words, the speaker was "telling the truth" to the extent that the speaker could determine what the truth was through the kind of indirect means to which all language users must defer. Thus, it is possible to state as a semantic course correction, *Since I had \$200 in my checking account, I bought a new coat. But when the check bounced, I discovered that all the money had actually been stolen from my account.* (That is, the speaker did not really have \$200 in the bank because it had been misappropriated without the speaker's knowledge.)

In actual language use, "truth" does not mean semantic truth, but rather pragmatic truth. Let us reflect momentarily on why language users might rely on this practical substitute in conversation rather than the genuine article: semantic truth. As we note, even in the purely extensional sentence

given in (13) above, it is not typical that the group of all those who are happy and only those who are happy might be gathered together into a big auditorium for a person to check who is or is not there. Thus, a language user concerned with the truth of (13) indeed has no choice but to defer to indirect evidence to make a *pragmatic* approximation of the truth value of this sentence.

In addition, we understand that the only way we may speak about the status of a checking account is by relying on a number of reasonable assumptions. Since we tend to make similar kinds of assumptions when using language, pragmatic truth amounts to something more than just a belief. Pragmatic truth has a kind of currency within a speech community. A lone individual may come to believe almost any sort of lunacy, but pragmatic truth must be a rational belief based on the kinds of indirect measures that are typically employed by language users. For example, suppose someone's checking account is actually empty because every penny has been embezzled from it. Nevertheless, without any knowledge of this crime, it would be irrational for an individual to believe that the account actually is empty. That is, without evidence that the state of affairs is extraordinary, the practical truth of the matter would be that there is still money in the account. Hopefully, the reader will admit to relying upon some similar sort of indirect assumptions when speaking about the status of his/her current finances.

The anthropological linguist Charles Hockett describes *displacement* as one of the design features of language (c.f. Hockett, 1958). The term refers to the fact that we use language to speak about times, places, and possibilities other than the here, the now, and the actual. This is indeed a remarkable feature of language and one that has received relatively little discussion in the linguistic literature. It must be acknowledged that almost any assertion in language beyond "I think, therefore I am" (the famous statement of René Descartes from his *Le Discours de la Méthode*, 1637) involves at least some slight amount of displacement of the speaker from the facts about which the sentence makes a claim. Therefore, making almost any assertion includes some finite possibility for error. As we speak about events in the next room, on the other side of the state, next week, and the like, the chance of being incorrect may increase. If the standard of truth for actual language use were semantic truth rather than pragmatic truth, we would be unable to say little more than "I don't know" in most cases, since semantic truth values are not directly calculable by a human language user. Although we may accept the tautology that a checking account must either contain more than one hundred dollars or not, in making an assertion about this account, we must defer to indirect assumptions.

I thus make no extraordinary claims about the status of pragmatic truth but merely note it as a phenomenon in pragmatics. It indeed seems to be an extremely helpful idea for talking about actual language use, the topic studied under pragmatics. We may directly relate pragmatic truth to an influential pragmatic theory first advanced by Grice (c.f. Grice, 1975 or Grice, 1989, pp. 26-27). Consider his famous maxim of quality.

#### THE MAXIM OF QUALITY

1. Do not say what you believe to be false.
2. Do not say that for which you lack adequate evidence.

This maxim simply reminds us that no one appreciates a liar or a spinner of wild yarns. However, note that the demands on a language user to tell the "truth" are concerned with adherence to pragmatic truth rather than to semantic truth.

For example, a speaker would be permitted under the social conventions of language use to state (13) on the basis of "adequate evidence" that the semantic truth value of (13) is true. A speaker would not typically have direct knowledge of the emotional state of another, but would be able to come to a reasonable judgment. What value this speaker arrives at is thus the pragmatic truth value of the sentence for this speaker at the time of utterance. We do not demand that a speaker must first have some omniscient channel to the absolute semantic truth of a sentence before uttering it. The maxim of quality merely mandates that a speaker should state only that for which the speaker postulates a pragmatic truth value of "1."

As a result, if the speaker sees that Arthur C. Clarke is smiling, the speaker may typically postulate a pragmatic truth value of *true* for (13) and state this sentence without any concern of violating the maxim of quality. However, even in doing so, the genuine *semantic* truth value of (13) might be *false*. The pragmatic truth value that a given speaker postulates for a sentence need not correspond to its semantic truth value. Indeed, the pragmatic truth value of a sentence may vary over time and from person to person.

I say in this essay that a language user *postulates* a pragmatic truth value rather than *assigns* it, since there can be doubt connected with such practical approximations of semantic truth. For example, it may not be possible to have enough information to make a judgment about whether Arthur C. Clarke is happy or not. In this case, if someone asks, "Is Arthur C. Clarke happy?" the response might be, "Maybe he is" or "I don't know." This phenomenon in pragmatic truth has no

analogy to the bivalent system of semantic truth. The language user is actually opting for a third pragmatic truth value. We might think of this value as *maybe*. However, it is perhaps better to express this notion as one of withholding judgment. Thus, we might consider this truth value to represent *not yet assigned for truth value, indeterminate, unknown, or don't know*. This third truth value has been expressed symbolically in various ways: "1/2," "true/false," and others. In this paper, I use the symbol "\*" to indicate *not yet assigned for truth value*.

As a practical system, pragmatic truth is thus fully *trivalent*. I consider pragmatic truth to be of the following form:

The *pragmatic truth value* is a function from the set of individuals  $A$ , the set of intervals of time  $I$ , and the set of sentences  $\Phi$  to  $\{ 1, 0 \} \cup \{ * \}$

As I indicate here, pragmatic truth is deictic since it depends upon who is postulating the pragmatic truth value and at what time. This is because opinions of the truth of sentences vary from individual to individual and the judgments of truth for any given individual may change over time.

I am certainly not the first to see a need for such an idea in linguistic theory. For example, Landman (1986) proposes what he calls a *data semantics* based on epistemic theory and the trivalent logic proposed by Kleene (1952). The formulation of truth in his system is identical to that I outline above. (Landman also cites many who have advocated the development of information-conditional-style semantics, particularly those who study *situation semantics*.) In addition, Hoard (1998) makes the case well when he writes, "To describe the real world of language use, a semantic theory ... needs at least three truth values, namely, yes (true), no (false), and don't know (indeterminate). These three truth values are required for both open-world and closed-world universe-of-discourse assumptions." (p. 210).

In this paper, I consider this trivalent logical system to be a tool of *pragmatics*, rather than *semantics*, since its application is inherent to actual language use. Otherwise, I agree with the calls of Landman, Hoard, and others for such an application of trivalent logic in linguistic theory. As Hoard explains, "The necessity for at least three values is simply illustrated by the problem posed in answering such questions as 'Do they grow a lot of coffee in Venezuela?' to which a truthful answer, based on all knowledge at one's disposal, could be 'yes', 'no', or 'I don't know'." (1998, p. 216).

In addition to the availability of this third value, however, it must be noted that a language user may also simply be unable to postulate a pragmatic truth value for a sentence. For example, if the person is not aware of anyone by the name of *Arthur C. Clarke*, it would not be possible to make a practical guess as to whether (13) is semantically true or false. Indeed, neither is it even possible to know how to withhold judgment on the matter with “\*” until later since the question contains an expression for which the person has no reference. That is, the question cannot even be properly understood in order to form an opinion of any kind. The name *Arthur C. Clarke* may indeed have a reference, but it is not known to the individual in question at the time. In this case, the obvious question that a language user would ask is: “Who is this ‘Arthur C. Clarke’ you are talking about?” We may call this phenomenon *pragmatic anomaly*.

It is interesting to note that Grice’s pragmatic theory has been enlarged upon by Sperber and Wilson (1986, 1988) with their theory of relevance. What they term *faithfulness* is quite close to the idea of pragmatic truth that I advance in this essay. Sperber and Wilson maintain that “every utterance comes with a guarantee of faithfulness, not of truth. The speaker guarantees that her utterance is a faithful enough interpretation of the thought she wants to communicate” (1988, p. 139). Literal semantic truth is indeed beyond our access as language users. Nevertheless, we may strive to approximate semantic truth as best we can so that our utterances may at least be *faithful* to our current understanding of the facts.

Semantic truth is an *externalized* notion of truth in language: the truth that is found not in the head, but rather in the objects and relationships out there in space, time, and possibility, which language users talk *about*. This is not the private kind of *internalized* truth that is the product of a human mind observing the outside world, remembering the past, guessing about the future, imagining other possibilities, and reasoning out matters. What each of us determines is true or false, the *pragmatic truth*, is a practical judgment. We can only hope that it approximates genuine truth, the *semantic truth*, of what we talk about to a sufficient degree to serve our needs for survival, social cohesion, and the like.

Because truth in Montague’s theory is such a grand concept, Barbara Partee has observed that if it were not for sentences expressing propositional attitudes (e.g. *John believes the Moon is made of green cheese*), then we might consider Montague’s system to represent a kind of semantic “super-competence” that only God possesses. However, as she concludes, “The trouble is that we know that we have these limitations, and this knowledge is reflected in propositional attitude sentences”

(Hall-Pardee, 1979, pp. 3-4). Human beings are not omnipresent, omnitemporal, and omniscient. Thus, while full semantic truth would be available to God, we must make due with its practical substitute. Put another way, it is silly to talk about what God may or may not believe. God doesn't *believe*, He just *knows*. On the other hand, since we are not in possession of semantic truth, we form *rational beliefs about semantic truth*, and this is pragmatic truth.

In summary, pragmatic truth may be defined in a basic way with reference to Grice's maxim of quality, as shown below.

#### AN INFORMAL DEFINITION OF PRAGMATIC TRUTH

Pragmatic truth is a function from a declarative sentence  $\phi$ , an individual  $a$ , and a time  $t$  to a pragmatic truth value drawn from the set  $\{1, 0\} \cup \{*\}$ . Provided that  $\phi$  is not a *pragmatically anomalous* sentence for  $a$  at  $t$ , the pragmatic truth value of  $\phi$  for  $a$  at  $t$  is postulated as follows:

1. The language-user  $a$  postulates a pragmatic truth value of 1 for  $\phi$  at  $t$  if and only if  $a$  judges that there is adequate evidence to assert  $\phi$  as a semantically true sentence without violating Grice's maxim of quality.
2. The language-user  $a$  postulates a pragmatic truth value of 0 for  $\phi$  at  $t$  if and only if  $a$  judges that there is adequate evidence to assert *it-is-not-the-case-that*  $\phi$  as a semantically true sentence without violating Grice's maxim of quality.
3. The language-user  $a$  postulates a pragmatic truth value of \* for  $\phi$  at  $t$  if and only if  $a$  judges that there is neither adequate evidence to assert  $\phi$  nor to assert *it-is-not-the-case-that*  $\phi$  as a semantically true sentence without violating Grice's maxim of quality.

This is a very rough definition in that it does not give any specifications about how a speaker might make judgments about whether the evidence at hand is adequate to postulate a given pragmatic truth value for a sentence at some time. However, I will return in Chapter 5 to discuss this issue in greater detail.

I hope that from the above commentary it is now obvious that semantic truth and pragmatic truth are quite distinct. Thus, although the semantic theory of Montague and the pragmatic theory of Grice both make reference to *truth*, the conception of truth in each of these theories is different. Nevertheless, I argue that these separate notions have been inadvertently confused to a considerable extent in recent semantic literature. My primary example to demonstrate this is the progressive

aspect in English. In the evidence I discuss, the blurring of these two separate notions of truth involves attempts to capture curious and apparently paradoxical semantic behavior in progressive sentences. My essay strives to clear up as much as possible some of the general bewilderment over the semantics of the progressive in English. Through the course of the discussion, I use the issues surrounding the progressive to illustrate my own philosophical stance on such topics as the proper division of the study of meaning between semantics and pragmatics, judgments of intensionality in semantics, the problem of reference, and the phenomenon of non-literal interpretation as drawn from context.

### 1.3 A Paradox in the Progressive

This section is intended to familiarize the reader with the central problem to be discussed in this essay: the phenomenon in the English progressive aspect known as *the imperfective paradox*. The syntax of the progressive (also known as the *continuous* or *durative*) is simple enough to describe. In English, the progressive is indicated with a form of the auxiliary verb *be* plus the suffix *-ing* on the main verb.

At first glance, the semantics too seems uncomplicated. Roughly speaking, as its name implies, the progressive indicates that an event is, was, or will be in progress (or is, was, or will be continuing). The progressive is a familiar construction in the English language. For example, the present progressive is a typical form used to talk about present-time events in English for most verbs, far more commonly used for this purpose than the simple present tense. Therefore, it might be expected that a semantic theory of English would be able to explain the progressive aspect.

It is thus perplexing that although proposals in abundance have been suggested to account for its overall behavior, a comprehensive solution still remains tantalizingly elusive. Even the most fundamental direction that the explanation should take remains in dispute, with some advocating an intensional analysis and others championing an entirely extensional account. As ter Meulen (1985) writes, "The interpretation of English sentences with progressive verb-inflection presents a rich source of semantic puzzles for any framework of natural language semantics..." (p. 408).

Perhaps the most disconcerting puzzle of all is what Dowty (1977, 1979) labels the *imperfective paradox*. Without going into rigorous formal detail at the outset, we may simply note our own intuitions about the truth conditions for a progressive sentence within the context of a simple example. Consider the sentences in (19a-b).

- (19a) Shannon made a pumpkin pie.  
 (19b) Shannon was making a pumpkin pie.

First of all, suppose that Shannon actually made a pumpkin pie for Thanksgiving dinner. In this case, (19a) is a true utterance. Let us suppose that it took Shannon from 9:00 A.M. until 10:00 A.M. to make this pie, working non-stop. Our intuitions are that anytime during this hour we might have said truthfully that Shannon was making a pumpkin pie at that time. Intuitively, the progressive sentence in (19b) just seems to be true with reference to any time when the event referred to by the nonprogressive sentence in (19a) was still in progress. However, if we are speaking about a time before 9:00 A.M., (19b) would be false. Also, (19b) would not be true after 10:00 A.M., nor right at 10:00 A.M. either, since at this time the event was no longer progressing forward, but was rather at an end. We may thus note that the following entailment seems to hold: If Shannon made a pumpkin pie, then at some earlier time, Shannon was making a pumpkin pie.

However, the opposite entailment seemingly does not hold. We may apparently not claim the following: If Shannon was making a pumpkin pie, then eventually, Shannon made a pumpkin pie. This can be seen by changing our scenario slightly. Suppose that Shannon starts making a pumpkin pie at 9:00 A.M. By 9:10 A.M., she has already made the pie crust. However, at this point she discovers that she does not have the proper ingredients on hand to make a pumpkin pie. As a result, at 9:11 A.M., she decides to use the pie crust to make a pecan pie instead. At 10:00 A.M., the pecan pie is finished. Therefore, given this scenario, we would assert that although it was true that Shannon was making a pumpkin pie from 9:00 A.M. until 9:10 A.M., it is nevertheless false that Shannon made a pumpkin pie eventually. This understanding of the entailment relationships involved seems well supported by actual language use. That is, this is how we actually speak about such situations.

As it happens, these entailment relationships have proven surprisingly challenging to capture in a truth-conditional framework. Accounts have become increasingly complicated with frequent appeals to the idea that the progressive is just inherently vague. Part of the difficulty concerns what I call *the existential problem*. In the scenario where Shannon abandons her original plan, there is then no pumpkin pie at all. This is not, in and of itself, a problem. After all, consider (20a-b).

- (20a) A pumpkin pie is on the table.  
 (20b) Todd ate a pumpkin pie for dessert.

Both of these sentences contain the expression *a pumpkin pie* and both are interpretable even when there is no pumpkin pie in existence. If there is only one pie on the table, but it is a pecan pie, then (20a) is simply a false sentence. The truth conditions for (20a) require that for this sentence to be true, there must be a thing which is a pumpkin pie and this thing must be on the table. If these conditions are not met, the sentence is simply false. Likewise, if there is no pumpkin pie, (20b) is not meaningless, but merely false.

The progressive sentence in (19b) is problematic for another reason. Note that if there is no pumpkin pie, then (19a) is a false sentence. Yet our intuitions tell us that even when there is no pumpkin pie, the progressive sentence in (19b) *Shannon was making a pumpkin pie* may still somehow be *true*. Recall the non-modal sentences containing the indefinite description *a copy of Wuthering Heights* discussed at the outset of this essay. Because the use of the indefinite determiner amounts to an existential claim, it is difficult to understand how the existential claim inherent in the indefinite description *a pumpkin pie* in (19b) can fail without falsifying this sentence. One of the challenges for semantic proposals of the progressive has been to explain how a sentence like (19b) may yet be true even in the face of this difficulty. Analyses have claimed that the progressive is a modal construction or that the progressive demonstrates that the basic idea of nominal reference must be modified in order to address the existential problem.

Beginning with the proposal advanced by Dowty (1977), many have argued that the progressive represents a sentential operator that sets up some kind of intensional context, much like the verb *seek* discussed earlier or modals such as *may* or *can*. For example, just as a sentence with *seek* may evidently be true even when whomever or whatever sought does not exist, we may also state truthfully that Shannon was making a pumpkin pie (but had to abandon it) when there was no pumpkin pie. Thus, if the sentence *Shannon was making a pumpkin pie* can still be true even when Shannon makes a pecan pie, for our truth-conditional, model-theoretic system to return a value of *true* for this sentence, we must explain which pumpkin pie we speak of, even if this depends ultimately on the existence of only a *possible* pumpkin pie off in some unreal possible world. This kind of account depends on arguing successfully that the progressive aspect is an inherently intensional (modal) construction.

One alternative to this particular kind of analysis is to claim that the progressive is an *epistemic modal* construction that requires a semantic treatment similar to the use of *must* under its reading as an epistemic modal. A number of such proposals have been advanced, including Portner (1998).

Many of these gain their inspiration from the modal analyses of Kratzer (1977, 1981, 1991) which base truth conditions on a body of contextual information which might lead a speaker to come to the conclusion that a sentence in the progressive is true or false. Indeed, the information relates, directly or indirectly, to the beliefs of language users. Of course, this sort of account must persuasively argue that the progressive aspect works like an epistemic modal and further that the semantics of the progressive is amenable to such an analysis.

To avoid an appeal to inherent intensionality or epistemic modality in the progressive, we might claim that the expression *a pumpkin pie* in this sentence is justifiable since there is an actual pumpkin pie in existence, namely: the pie crust. This seems somewhat plausible, since before 9:11 A.M., when Shannon decided to use the pie crust to make a pecan pie instead, we might have stated *Shannon is making a pumpkin pie*, and if asked to point out the pumpkin pie that was being made by Shannon, one might have instinctively pointed to the pie crust. Yet, there are serious doubts involved with claiming that the expression *a pumpkin pie* can imply the existence of either a complete pumpkin pie or just an empty pie crust. Our intuitions seem to tell us that (19b) was true even at 9:01 A.M., when Shannon put a pinch of salt in a bowl. However, is it really defensible to claim that a pumpkin pie can simply be a pinch of salt in a bowl? This is clearly not in general the case. For example, consider (20b). This sentence would certainly not be true if Todd ate a pinch of salt today.

Probably the most popular approach in the literature has been the idea that the progressive is a kind of intensional construction. To those who make this argument, a typical task would be to describe in what sort of possible world or worlds we might find the complete pumpkin pie, in order to justify the use of the expression *a pumpkin pie* in sentences like (19b). The general strategy has been to claim that we would find our complete pie in possible worlds that are similar to the actual world, but in which the course of events proceed somewhat differently. A diverse assortment of criteria have been considered to define a relevant set of possible worlds (or, alternately, possible events, possible futures, or possible situations) that might describe exactly how the conditions should differ from the actual and in this way formulate truth conditions for the progressive.

Using our present example as an illustration, the following encapsulate the assorted claims which have been either seriously considered or actively advocated in previous semantic accounts. These claims have variously stood alone as a theory or been put together in different combinations.

#### THE PLANS OF AN AGENT

*Shannon was making a pumpkin pie* is true even if Shannon did not eventually make a pumpkin pie because if Shannon had carried out what she *planned* to do, Shannon would have made a pumpkin pie.

#### NORMALITY

*Shannon was making a pumpkin pie* is true even if Shannon did not eventually make a pumpkin pie because if the *natural course of events* had continued, Shannon would have made a pumpkin pie.

#### THE “INSULATION” OF EVENTS FROM “OUTSIDE” FACTORS

*Shannon was making a pumpkin pie* is true even if Shannon did not eventually make a pumpkin pie because if Shannon had not been *interrupted by some factor “outside” the event*, Shannon would have made a pumpkin pie.

#### A PART-TO-WHOLE RELATIONSHIP

*Shannon was making a pumpkin pie* is true even if Shannon did not eventually make a pumpkin pie because Shannon made a pie crust and this event is a *sufficient part* of a *possible* (but not an *actual*) event of making a pumpkin pie, and if this possible event had been realized in the actual world, Shannon would have made a pumpkin pie.

#### THE BELIEFS OF THE SPEAKER

*Shannon was making a pumpkin pie* is true even if Shannon did not eventually make a pumpkin pie because if what the speaker of this sentence *believed* were true, Shannon would have made a pumpkin pie.

As I describe in Chapter 3, arguments for and against the factors listed above have been advanced. Although each of these factors alone or in combination have been incorporated in truth-conditional accounts of the progressive, no analysis yet reliably predicts the semantic behavior of the construction.

However, as the evidence will show, such factors mentioned above are actually relevant only to the *pragmatic truth*, rather than to the *semantic truth* of progressive sentences. Indeed, they have no more to do with a proper truth-conditional semantic account of the progressive aspect than Arthur C. Clarke’s smiling or recent good fortune have to do with the semantic truth of the sentence

*Arthur C. Clarke is happy.* I thus argue that including such factors in a truth-conditional semantic account of the progressive represents an intrusion across the semantics-pragmatics boundary.

Although not often expressed directly in the literature, I think that others may harbor the suspicion that non-truth-conditional (i.e. pragmatic) aspects of meaning are complicating the correct formulation of a truth-conditional (i.e. semantic) account of the progressive. As Dowty himself notes:

“Unfortunately, much remains to be said about the conditions under which speakers of English actually use imperfective progressive sentences and the conditions under which they come to hold such sentences to be true. I believe that there are ... pragmatic problems here which greatly cloud the issues in determining the proper semantic analysis of the progressive. ... [T]here remains ... the significant epistemic problem of describing the sort of evidence upon which a person may base his belief that a change of state is now in progress, even though the end point of the change has not yet been reached and though the change may yet be reversed before the end point is reached. My present view is that these are essentially independent pragmatic problems .... Admittedly, these problems will have to be better understood before any analysis of the progressive can claim to be a definite one” (1977, p. 58, footnote 8).

In Chapter 5, I explore what may broadly be described as the general conditions under which speakers come to hold that a declarative sentence is true. In other words, the conditions under which a speaker postulates the *pragmatic truth value* (i.e. a practical judgment of semantic truth) of a sentence at a given time. I do this not because such conditions are relevant to the semantic truth involved in truth-conditional semantics. Indeed, they are completely irrelevant in this respect. Yet, such considerations must be identified if for no other reason than to exclude them from a truth-conditional analysis, such as from the truth conditions for progressive sentences.

Over the years, some have made the assertion that the puzzling behavior exhibited by the progressive is more or less an illusion that should properly be dismissed rather than included in the truth-conditional treatment of the progressive. For example, consider how Declerck (1979a, b) deals with the sentences in (21a-b), often discussed in the literature.

(21a) John was drawing a circle.

(21b) John drew a circle.

Numerous proposals over the years have attempted to explain how (21a) may be literally true even though (21b) is false because John was interrupted midway through the event. Such examples are still endlessly debated. Declerck’s proposal is that progressive sentences describe an event or

situation as *unbounded* and that under such an analysis the imperfective paradox “simply does not arise” (1979b, pp. 271-72) in that an unbounded proposition does not imply completion. Declerck adds:

“On the other hand, sentences like [ (21a) ] do raise the cognitive problem of how it is possible for us to interpret what John was doing as ‘John was drawing a circle’ even if John did not actually draw a (complete) circle. This is a problem which is related to the more general question of what knowledge of the world is required or sufficient for us to be able to make truthful statements about particular states of affairs .... (In the case of [ (21a) ] I would say that either the speaker knows that John’s drawing, when finished, will turn out to be the representation of a circle, or that he has recognized John’s unfinished drawing as a portion of a circle, or that he knows that it was a circle that John intended to represent.) However, it is clearly a cognitive (epistemic) rather than a linguistic question, which cannot, therefore, be solved by a semantic analysis of VP’s or sentences. All that a truth-conditional semantic approach ... can hope to make clear is the conditions under which a given proposition is true or false. It cannot, however, hope to solve the philosophical problem of describing the kind of evidence upon which a person may base his belief that a particular drawing is (part of) the representation of a circle, a square, a triangle, a horse, etc.” (p. 272)

In my opinion, this characterization is absolutely correct. However, Declerck does not provide any evidence to back up this claim. Furthermore, the bounded/unbounded distinction that Declerck proposes does not constitute a complete analysis of the semantics or the pragmatics of progressive sentences. In any case, the quotations from Dowty and Declerck indicate that I am not the first to voice the suspicion that pragmatic issues may be intruding on the semantics of the progressive. Nevertheless, I may be the first to defend such a position rigorously and demonstrate in detail how it can provide a sensible and consistent explanation for the semantic and pragmatic behavior of the progressive.

Drawing on the notions of semantic course corrections and pragmatic truth, I provide a more robust account of the pragmatics involved in the utterance of progressive sentences in conversation. I then develop a truth-conditional analysis of the progressive aspect which does not require an appeal to possible worlds nor the contextual information involved in proposals based on epistemic modality. Neither do I claim in my account that nominal expressions must be taken to refer to incomplete objects. Rather, I advocate a fourth way out of this puzzle that is firmly grounded on existing linguistic principles and solid supporting data. The account is able to avoid the messy logical contradictions, referential difficulties, and ultimate appeals to vagueness which have plagued other proposals over the years. Although the reader will hopefully agree with me that my eventual answer is simple and elegant, I ask now for your patience. This is a problem so deeply rooted and

difficult to perceive, that we must move gradually yet with determination to unravel it all. I can only promise that in the end, the reader will understand my theory as to where the phantom pie has gone, and why I would rather eat one *real* pecan pie than a thousand *possible* pumpkin pies any day of the week. (And I don't even like pecan pie!)

#### 1.4 The Division of Labor between Semantics and Pragmatics

For a way out of the imperfective paradox, I think it is necessary to redefine the problem and luckily there is a reasonable way to do this. The phenomenon of meaning has never been understood to be the exclusive purview of truth-conditional semantics. A theory of meaning in the mold of Montague Semantics is only a *limited framework* and not designed to address all aspects of linguistic meaning. Aspects of meaning not dealt with under a truth-conditional theory are handed off to theories of pragmatics. Thus, it would be simply incorrect to claim that truth-conditional semantics, in its existing form, is a complete unified theory of semantics and pragmatics.

Admittedly, as noted earlier in this chapter, Montague incorporated the pragmatic phenomenon of indexicality within his theory. Indeed, Montague understood the term *pragmatics* to refer exclusively to issues of indexicality in language. However, most linguists today understand pragmatics to encompass many other phenomena as well. These include conventional and conversational implicature, speech act theory, presuppositions, conversational maxims, and many others. I argue in this essay that proposals designed to address the truth-conditional semantics of the progressive have erred by drifting into matters of pragmatics which lie outside the theoretical confines of what is addressed under the existing indexical semantic system.

Of course, it is not my plan in this essay merely to say that the entire problem is somehow vaguely taken care of by context. As will be seen from my summary in Chapter 2, the behavior of the progressive is intensely interesting. Phenomena so perplexing deserve a proper accounting and it simply will not do just to ignore or dismiss such evidence out of hand. However, if the answer depends, as I argue that it does, on a better understanding of the pragmatics of the progressive, I must then provide a rigorous pragmatic account to accompany my truth-conditional analysis of the construction. This is what I endeavor to accomplish in this essay.

Let us, therefore, contrast the roles of semantics and pragmatics in accounting for meaning. As we have seen, truth-conditional semantics offers an explanation of sentential meaning in terms of semantic truth. An appeal of this system is that the extremely mysterious concept of meaning might be explained in part by recasting the analysis in terms of truth. Of course, one might argue that truth is hardly a less mysterious concept than meaning. After all, the nature of truth is a philosophical issue going back to antiquity. Nevertheless, Montague's fundamental methodology is precisely formulated and it at least affords us some hopeful avenue of inquiry where no better one may be readily apparent.

As mentioned above, truth-conditional semantics does not capture the phenomenon of meaning completely. Notice how in ordinary human discourse there occur such twists on meaning as sarcasm, humor, and hyperbole. Although these and similar effects obviously play a role in meaning, they are not dealt with at all in a theory like Montague Semantics. Just as I have taken great pains to make a critical distinction between semantic truth and pragmatic truth, it is critical to distinguish between the truth-conditional meaning of a sentence, as provided under a semantic framework, and the full meaning expressed when a sentence is uttered in context.

No one expects truth-conditional semantics to address all details and nuances of sentential meaning, but only to provide a formal account of that portion of meaning which, when properly filtered out, is considered *the literal meaning*. It is assumed that separate utterances of the same sentence, even in widely differing contexts, must all share some common semantic core and the theory searches for and studies this nucleus of meaning. Practitioners of the theory concede freely that conversational connotations and figurative usage must be handled under some separate theory of pragmatics.

Indeed, pragmatics is the appropriate discipline to address the issue of *non-literal meaning*. As its name implies, pragmatics concerns itself with the practical issues of language use in a given context. Non-literal interpretations are only understood by contrasting the literal meaning of a sentence, as it is assembled from the separate meanings of each of the words, with the conversational context in which the sentence is made. Indeed, if a sentence is uttered when the truth conditions are apparently not satisfied and the sentence is therefore officially false, a listener does not in all cases consider such a sentence to be a lie or a mistake. Rather, since speakers frequently intend the meaning to be taken non-literally, competent language users are usually quite skilled at retrieving non-literal meaning in context.

Thus, in the formal study of meaning, there is a division of labor. Pragmatics is tasked to provide an account of all departures, due to the context in which an utterance is made, from the strict, literal interpretation, which is the business of truth-conditional semantics. The distinction between the literal and non-literal readings of a sentence is thus a mark of the semantics-pragmatics interface. In this essay, I argue that non-literal effects, apparent also in nonprogressive sentences, are responsible for the imperfective paradox and most of the other strange effects associated with the progressive. Since the phenomena involve non-literal usage, they must be dealt with largely under pragmatics, rather than semantics.

Admittedly, it is often difficult to judge where literal meaning ends and non-literal meaning begins. I take this to be the single most important reason that the problems with the progressive have taken so long to understand. The task of determining the semantics-pragmatics boundary is made more difficult by the fact that there are no perfectly reliable lexical, syntactic, or phonetic indicators that an utterance is intended to be taken either as a literal truth or as mere figurative usage. Certainly, speakers may sometimes use vocal intonation or additional words of clarification, such as ... *but of course I'm only kidding* or ... *but not really*, to make explicit that a given sentence is not to be taken literally. Yet, in principle, the literal and non-literal expressions of a sentence can be utterly homophonous.

Nevertheless, this division of labor is crucial to observe. The tradition of truth-conditional semantics has provided us many interesting insights into language, but its utility would obviously be undermined if unrealistic demands were placed upon the existing framework. Such a semantic theory is simply not structured to generate uniform truth conditions for all literal *and all figurative* interpretations of a sentence. An attempt to use the existing framework in this fashion would be a good way to create a colossal mess. In my opinion, the ongoing difficulties faced by truth-conditional semantics to treat the progressive aspect result largely from an understandable confusion between literal and non-literal meaning. A failure to make this discrimination with great care can lead to an intrusion across the semantics-pragmatics boundary which truth-conditional semantics is simply not equipped to address.

The ongoing trend of altering the basic methodology established by Montague has been noted from time to time in the literature. For example, in discussing the proposals of Dowty (1979), Hinrichs (1983), and Cooper (1985) which address the truth-conditional semantics of the progressive, ter Meulen (1985) observes, "These three papers present an interesting picture of the recent

developments in semantics, characteristic not only of the problems of progressive sentences, but of the fundamental changes taking place. The focus is shifting from a truth-conditional semantics with possible worlds to a theory of information-conditions with strong emphasis on context-dependent interpretation” (p. 410). I think there is merit in both a truth-conditional and an information-conditional approach to meaning. Indeed, the pragmatic analysis I advance in Chapter 5 may accurately be described as information-conditional. However, I think that it is a mistake to mix the two approaches indiscriminately into something that unhappily straddles the interface between semantics and pragmatics while telling us nothing definitive about either.

### 1.5 The Various Readings of the Progressive

Before beginning a discussion on the progressive, it is necessary to do some housecleaning. There is a large side issue that if not dealt with at the outset, can cause (and has caused) the most horrendous confusion. As it so happens, a sentence with the auxiliary verb *be* and the suffix *-ing* on the main verb can potentially be ambiguous among at least two distinct interpretations. That is, associated with the single grammatical construction known as the *progressive*, we have two separate semantic readings. I label these *the durative progressive* and *the futurate progressive*. Adding to our worries, each of these readings may be placed into a *generic* (i.e. habitual) aspect which are not differentiated from the non-generic sentences by any overt morphology in English. In this essay, I largely ignore the futurate progressive and the progressive in combination with a generic reading and concentrate only on the durative progressive.

It can be easily demonstrated that (22) below has semantically distinct readings which would correspond to separate sets of truth conditions.

(22) Jean is walking to pipe organ class.

For the first interpretation, suppose it is asked where Jean is walking at this very moment and the answer is (22). Ignoring for now additional semantic complications that will be outlined in this work, we may informally say that this sentence would be true if Jean is indeed proceeding on foot to pipe organ class at the time the sentence is uttered. This reading may be aided by adding a temporal adverbial to the sentence, as in (23).

(23) Jean is walking to pipe organ class *right now*.

This interpretation is what Dowty calls the *imperfective progressive* (c.f. Dowty, 1979, p. 154). It is also the reading that most semanticists regard as the basic interpretation of the construction. The term *progressive* is a most appropriate term here as Jean's walk to the class is indeed *in progress*. The term *imperfective*, meaning *incomplete*, also seems appropriate since Jean's journey is still not at its end. However, in this essay I choose to use the hopefully neutral, yet descriptive term *durative progressive*.

The durative progressive can then be contrasted with a very different interpretation. For this other reading, suppose it is asked what Jean will do tomorrow at noon and the answer is (22). Informally speaking, this reading would be true if Jean indeed walks to pipe organ class on the following day and leaves on her walk at noon as predicted. This reading might thus be approximately paraphrased as *Jean will walk to pipe organ class*. Again, we may make this clearer by adding a temporal adverbial, as in (24).

(24) Jean is walking to pipe organ class *tomorrow at noon*.

Since the construction is used to indicate that an event occurs entirely in future time, this reading is called the *futurate progressive*, following the terminology of Dowty (1977, 1979) and others.

Distinguishing between the durative and futurate readings might seem straightforward, but it can often be quite confusing. For example, take another look at (23), which was used to exemplify the durative progressive. Observe that (23) can also be understood in the futurate sense. Suppose Jean is at home sitting in a chair but is just moments away from standing up and leaving for class. We might state (23) in order to express the fact that it is time for Jean to leave. This reading might be roughly paraphrased as *Jean will walk to pipe organ class right now* or *Jean is about to walk to pipe organ class right now*. The auxiliary verb in the present tense and the temporal adverbial *right now* disguise the fact that the sentence is about a future event where Jean walks to the class.

Notice also the curious fact that the futurate progressive is progressive in form but not in meaning. With the durative progressive reading in (23), the adverbial *right now* pinpoints a time when Jean's walk is in progress. By contrast, the adverbial in the futurate sentence (24), *tomorrow at noon*, does not refer to any time in the middle of tomorrow's journey. Rather, it indicates Jean's *departure time*. Similarly, the futurate reading of (24) indicates that Jean's departure is immediate. In these instances, the term *progressive* is thus rather a misnomer from a semantic point of view. The word *progressive* must therefore be understood merely as a label of the syntactic and

morphological form it shares with the genuine (durative) progressive. It would certainly be reasonable to devise some more accurate term for this homophonous construction, but I do not concern myself with the issue here. Another interesting topic for debate would be the semantic relationship between the durative and futurate readings. However, this is not a subject I take up in this essay.

In addition, note that both the durative progressive and futurate progressive aspects may combine with a generic aspect. Because the generic is not indicated with any overt syntactic marking in English other than with the inclusion of adverbial expressions, these sentences can cause confusion. To illustrate, suppose it is asked how Jean manages to get to class these days and the answer is (22). As before, the reading can be made more explicit with the use of temporal adverbials, as in (25).

(25) *Now, Jean is walking pipe organ class every morning.*

Unlike the durative non-generic reading, it is not at issue whether Jean is actually walking at the moment (although she may be). This reading instead indicates the existence of a series of events every morning of Jean walking to pipe organ class in the recent past. Further, it is expected that additional, regularly-occurring events of Jean walking to class in the morning will take place into the future. In other words, the reading indicates that a regular series of walks by Jean is in progress now. The adverbial *every morning* describes the regular temporal spacing of the events in the series and the adverbial *now* places the time of utterance inside the span of time of this ongoing series.

A futurate progressive sentence can also occur in combination with the generic aspect. Suppose someone asks how Jean will manage to get to pipe organ class every morning when the sessions resume on September 1 and the answer is (22). Once again, temporal adverbials can clarify this reading, as in (26).

(26) *(Starting) September 1, Jean is walking to pipe organ class every morning.*

This reading indicates that a regular series of walks to class by Jean will take place beginning September 1. Recall that with the durative progressive generic sentence in (25), the temporal adverbial *now* refers to a time when the series of walks is in progress. By contrast, the adverbial *September 1* in (26) refers to the starting date of the series of walks. The futurate progressive generic, like the futurate progressive, is thus progressive in form but not in meaning.

In this work, I concentrate on the semantics and pragmatics of the durative progressive non-generic. I make reference to the futurate progressive and the generic readings only where necessary to distinguish them from the durative progressive non-generic and to make certain other independent arguments. Henceforth, unless otherwise indicated, I use the term *progressive* to refer to the durative progressive non-generic interpretation of this construction.

## 1.6 Overview of the Essay

This section provides a brief overview of the remainder of the entire essay. I begin my discussion of the progressive in earnest in Chapter 2 with a commentary on the imperfective paradox and a number of other remarkable effects exhibited by sentences in the progressive. Because of the emphasis on solving the imperfective paradox, many of these additional phenomena have been given only minimal attention in the previous literature. However, taken as a whole, I think these effects indicate that something as yet unidentified is at work. The semantic-pragmatic analysis of the progressive I advance in this essay is aimed at dealing with all these phenomena completely and plausibly.

Chapter 3 looks back at previous semantic literature on the progressive. I cannot hope to be exhaustive, since the amount written on this topic is now quite vast. However, this chapter will serve to demonstrate the major trends and viewpoints and credit those who first proposed the various evidence and analyses. In addition, I use this chapter to build a case that previous analyses have been unwittingly concerned with the pragmatic truth of progressive sentences, rather than their semantic truth. I argue that this constitutes a misapplication of truth-conditional semantic theory.

In Chapter 4, I lay the groundwork for my own analysis of the progressive. This chapter has several goals. First of all, I present lexical and phonetic evidence that certain sentences in the progressive involve a non-literal interpretation, which results from a semantic course correction. Next, I set out to provide compelling reasons why I think that the progressive does not set up an intensional context requiring a possible-worlds analysis. That is, I argue that the progressive is not a counterfactual or modal construction as has been so often claimed in the literature. The central theme of my argument is that behavior similar to the imperfective paradox is to be found pervasively throughout the English language, in constructions not generally thought to be intensional in this fashion. Following on from this discussion, I then turn to the serious

ramifications of what I call the existential problem for progressive sentences as well as the challenges that logical contradictions and referential difficulties present for the account.

In Chapter 5, I further develop the idea of pragmatic truth in order to present my analysis of the imperfective paradox and other troublesome phenomena. I illustrate how pragmatic truth appears to be based on certain rules of thumb used by language users for reasoning out a practical concept of truth in a given situation. Pragmatic truth then figures into the phenomenon of error quotations, which feature in semantic course corrections in my proposal. This analysis also helps to explain why previous semantic accounts of the progressive may have taken the form that they have.

In Chapter 6, I advance in detail a truth-conditional account of the semantics of the progressive. This explanation is not an ad hoc formulation designed only to explain away the behavior of the imperfective paradox. Rather, having provided my account of the imperfective paradox and other problems in Chapter 5, I take up a few remaining questions in semantics, including why statives are seemingly resistant to appearing in the progressive. In considering this truth-conditional account, it is important to keep in mind that there is a sharp distinction between that which is evaluated as literally true under a truth-conditional framework such as Montague Semantics and that which a language user might utter in actual conversation. It is not the place of truth-conditional semantics to argue for what we might say in non-literal usage.

## Chapter 2

### Curious Phenomena in the Progressive

#### 2.1 Preview

In this chapter, I provide a brief tour through some of the perplexing behavior exhibited by the progressive. Of the phenomena in question, none has been so extensively discussed as the imperfective paradox. Although the commentary in Chapter 3 will be devoted largely to a review of the literature on this problem, I present it here in abbreviated form.

This chapter is designed to survey what I take to be the major *logical* problems associated with the progressive. There are a number of other issues that, while important, do not categorize well with the problems I raise here. Therefore, I save these for later, after presenting my truth-conditional analysis of the progressive. Among these remaining issues is need to explain why English speakers avoid the progressive with certain predicates, as demonstrated in (1a-b) below.

(1a) Jay Leno resembles William Bendix.

(1b) \*Jay Leno is resembling William Bendix.

The important difference between the acceptability of (1a) and the avoidance of (1b) must eventually be given some explanation, but this is an enormous and complicated issue in its own right. Indeed, there are certainly several factors influencing such choices in usage and a comprehensive answer would require more space than I may devote to it in this essay. However, the analysis of the progressive I advance indeed suggests some insights into this phenomenon and other interesting behavior and I outline these briefly in Chapter 6.

#### 2.2 The Problem of Interruptions (The Imperfective Paradox)

The imperfective paradox is not evident with all predicates in the progressive. Consider first a pair of sentences such as (2a-b). It has been long understood that (2a) entails (2b).

(2a) John was walking.

(2b) John walked.

By contrast, (3a) does not entail (3b). (This phenomenon was already noted briefly in Chapter 1 with this circle-drawing example.)

(3a) John was drawing a circle.

(3b) John drew a circle.

The moment that John begins walking, we may say that he walked. However, the moment that John begins drawing a circle, we may not say that he has yet drawn a circle, since this takes some time. In addition, it would seem that (3a) may still be true even if (3b) never is. That is, (3a) also does not entail that *John will have drawn a circle* so there is also an apparent entailment failure from (3a) to *eventually* (3b).

These interesting entailment relationships have been discussed for centuries. Indeed, the basic facts involved are noted by Aristotle (c. 350 B.C.). "Seeing seems to be at any moment complete," writes Aristotle, "for it does not lack anything which coming into being later will complete its form ... [E]very movement (e.g. that of building) takes time and is for the sake of an end, and is complete when it has made what it aims at. It is complete, therefore, only in the whole time or at that final moment" (*Nicomachean Ethics*, Book X, Chapter 3, 1174a, 14-21). Aristotle also observes, "...[A]t the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought (while it is not true that at the same time we are learning and have learnt, or are being cured and have been cured)" (*Metaphysics*, Book IX, Chapter 6, 1048 b. 22-25).

A notable mention in the modern literature is from Kenny (1963) who observes, "A man may be walking to the Rose and Crown, and yet never walk there, perhaps because he is run over on the way; and one can start knitting a sweater and end up by producing a scarf" (p. 174). Yet another memorable description is elucidated by Vendler (1967):

"If it is true that someone is running or pushing a cart now, then even if he stops in the next moment it will be still true that he did run or did push a cart. On the other hand, even if it is true that someone is drawing a circle or is running a mile now, if he stops in the next moment it may not be true that he did draw a circle or did run a mile. In other words, if someone stops running a mile, he did not run a mile; if someone stops drawing a circle, he did not draw a circle. But the man who stops running did run, and he who stops pushing the cart did push it." (p. 100)

Just such considerations motivated Aristotle to propose a division of verbal predicates into the categories of *kineseis* (translated “movements”) and *energeiai* (translated “actualities”). In this century, Ryle (1949), Kenny (1963), and Vendler (1967) built upon Aristotle’s distinctions. Vendler’s four-way classification of verbal predicates (i.e. Aktionsarten) has been particularly influential in semantic studies of aspect.

Vendler identifies *activities* (e.g. *run, push a cart, write*) which go on for a duration without any necessary culmination or outcome. On the other hand, *accomplishments* (e.g. *draw a circle, run a mile, write a letter*) proceed for a duration toward a particular terminus or goal. There are also *achievements* (e.g. *reach the summit, win the race, recognize someone*) which describe momentary events. One reaches the summit, wins the race, or recognizes someone at a moment in time. Achievements are similar to accomplishments in that they include a significant terminus point, yet differ in that the event named by an achievement occurs entirely at that single terminus moment. Finally, *states* (e.g. *know, love, be happy, be tall*) are like activities in that they lack any culmination, but differ in that activities are heterogeneous whereas states are completely homogenous. In other words, although one may write for ten minutes, it does not make sense to say that one writes at moments during that time. Writing only occurs over an interval of time since it takes time to move a pen across paper and movement never takes place at a moment. However, if one is happy for ten minutes, it does make sense to say that one is happy at each moment during that time.

As noted by Vendler, activities permit the entailment from a sentence in the progressive to its nonprogressive counterpart, but accomplishments and achievements exhibit the paradoxical entailment failure. In addition, states are well known generally to avoid the progressive form entirely, although there seem to be notable exceptions. In the semantic literature, accomplishments and achievements are classified as *telic predicates* (i.e. having a definite culmination or endpoint) in contrast to activities and states, identified as *atelic predicates* (i.e. lacking such a culmination or endpoint). The majority of truth-conditional analyses of the progressive have concentrated on solving (or otherwise dispelling) the imperfective paradox by attempting uniform truth conditions for the progressive that predict the entailment relations both for telic and atelic predicates.

Landman (1992) refers to the imperfective paradox as *the problem of interruptions* since a progressive sentence with a telic predicate is still apparently true even when there is an interruption and the key culmination point is never reached. For example, not only is (3a) true every time that

John eventually draws a circle, it can also evidently be true on occasions where he simply draws a short arc and stops. However, it is not true on all occasions where he draws only an arc, because those might have been occasions where he was drawing a letter C, a figure eight, or something else besides a circle of which an arc is a part. Thus, in cases where John does not eventually finish the circle that he was drawing, we must defer to other criteria besides the existence of an actual circle to justify (3a) as a true sentence. At first glance, this seems to be a straightforward task, but the problem of interruptions has been a remarkably involved and vexing puzzle for truth-conditional semantics.

Let us suppose that we attempt to explain the imperfective paradox by appealing to the plans of the agent. Thus, we may argue that *John was drawing a circle* is true even if he eventually does not draw one because John planned to draw a circle and not some other figure. However, this strategy runs into a number of problems when we look at other sentences. For example, it is impossible to base truth conditions around the plans of an agent if there is no agent. Consider a sentence from Abusch (1985, p. 179), given here as (4).

- (4) The wheel was rolling across the road when it was knocked over by the falling rock.

The first clause may apparently be true even though *The wheel rolled across the road* never is. Furthermore, in (4) there is no sentient agent visibly involved whose mental plans we may cite in order to determine the truth value of this sentence. We might then try to argue that somehow God, Nature, the Cosmos, or what have you, is the sentient agent here and the source of a plan to get the wheel across the road. However, if it were the Universe's plan to direct the motion of the wheel across the road, how can we explain that the Universe defeated its own plan by sending down a falling rock to block the wheel's path? It is difficult to argue that the rock's trajectory was somehow not part of the plan, but the wheel's motion was. This and other serious problems cast doubt on the advisability of any appeals to the plans of an agent.

Alternately, we might try to appeal to the normal or natural course of events. Perhaps *John was drawing a circle* is true even if he eventually does not draw one because a circle would have been the normal or natural outcome of his activity. However, this strategy seems to fair no better with the sentence in (4). It is not easy to argue that the wheel's continued motion across the road was more normal or natural than the motion of the falling rock. As discussed in Chapter 3, this strategy also runs into other difficulties.

Then again, it is possible to argue that we must “insulate” the event described by the progressive from all “outside” factors which might disrupt the course that the event takes. We might thus claim that *The wheel was rolling across the road* is true even if the wheel never does eventually roll across the road because if the wheel’s motion had not been interrupted by the falling rock, a factor “outside” the event in question, the wheel would have rolled across the road. This line of reasoning also unfortunately runs into a number of difficulties. Most notably, there arises what Landman calls *the problem of non-interruptions*, discussed in the next section. In addition, consider again the pie-making scenario. It is difficult to imagine how we might argue that the pie’s very ingredients are a factor that lies “outside” the event of the creation of a pumpkin pie. Furthermore, even if Shannon has all the ingredients on hand, she may not eventually make a pumpkin pie even when she starts to make one if she then simply changes her mind. A change of plan may arguably also not be the result of any factor “outside” the event.

The progressive seems to indicate that there has elapsed part of an event of a certain type, however if the remainder of the event turns out not to be an event of this type after all, this does not seem to matter. Perhaps we might thus argue that the progressive indicates that part of a *possible* event of a particular type has taken place. Perhaps *Shannon was making a pumpkin pie* and *John was drawing a circle* and *The wheel was rolling across the road* are all true sentences if simply part of the types of events described by the nonprogressive counterparts of these sentences have elapsed, whether or not the nonprogressive sentences themselves are ever eventually true. This kind of approach to the semantics of the progressive has been popular, but it is also not without its serious problems. For example, if John draws a short arc, this could be part of a possible event of drawing a circle, drawing a figure eight, drawing a letter C, or a variety of other figures. It could also be a complete and actual event of drawing a short arc. Nevertheless, it does not seem true that John is drawing all these possible figures simultaneously. It is not obvious how to differentiate these and know what is actually going on and what is not.

Finally, as we will see in Chapter 3, a number of proposals have either claimed or come very close to claiming that a sentence in the progressive is true simply because the speaker of the sentence believes that it is. This sort of argument or tendency is powerful support for my contention that the confusion over how to treat the imperfective paradox arises in part from a blurring of semantic truth and pragmatic truth. Except for sentences which directly make assertions about a speaker’s beliefs and arguably also sentences involving *epistemic modality*, conditions for the *semantic truth* of a declarative sentence cannot be based upon the beliefs of the person uttering the sentence.

Suppose one person believes that John was drawing a circle when he drew a short arc and another believes that John was drawing a figure eight at that time. Now we face a quandary. Should the sentence *John was drawing a circle* be true, false, both true and false, or neither true nor false in such a circumstance? Unless we have persuasive reasons to conclude that the progressive is an epistemic modal, the semantic truth of a progressive sentence must be based on objective conditions. This value should not vary depending upon who utters the sentence.

This is indeed the view most widely held in the literature. For example, this point is emphasized eloquently by Dowty (1979):

“...[W]e must of course resist the temptation to make the meaning of progressive sentences a function of the speaker of the sentence (i.e., a function of his particular beliefs) or the hearer or of any other particular person. We couldn't resolve the dispute in question simply by interrogating the person who uttered the sentence. While there are severely subjective differences among individual's beliefs as to how the world would 'turn out' if left uninterfered with, agreement on the truth of progressive sentences, to the extent that such agreement obtains at all, presupposes that such beliefs are held in common. ... Once again, the program of truth conditional semantics requires that the *meaning* of expressions of language not be treated as a part of the private experience or beliefs of individuals, but rather as the common property of all users of the language, even though the actual *use* of these meanings may sometimes involve beliefs which do vary from one individual to the next.” (pp. 149-50)

Dowty here makes the same key point that I wish to emphasize in this essay: the truth-conditional semantics of a sentence must be kept distinct from the pragmatics of its use. I argue in this essay that confusion on this very issue has stood in the way of a comprehensive semantic account of the progressive.

In this essay, I describe pragmatic truth as a quantity which can be at odds with the genuine semantic truth value of the sentence and can indeed vary from speaker to speaker. It is this quantity, rather than semantic truth, which I think has mistakenly found its way into many proposals dealing with the semantics of the progressive. However, if we wish to develop truth conditions that predict only the semantic truth values of sentences in the progressive, we must find a way to factor out all the considerations relevant only to pragmatic truth. These are simply indirect indicators that might lead a speaker to state a sentence in the progressive in conformity with Grice's maxim of quality, whether or not its semantic truth value is true.

### 2.3 The Problem of Non-Interruptions

As well as the imperfective paradox, there are a number of other phenomena exhibited by the progressive which further complicate the development of a truth-conditional account. Some of these can involve unclear intuitions of native speakers about what the proper truth value of a sentence in the progressive ought to be in a given circumstance. In addition, a progressive sentence may seem to exhibit strange alternations of its truth value when the time of evaluation is varied. What Landman (1992) calls the *problem of non-interruptions* involves both of these effects, as we see in detail in Chapter 3.

Recall the sentence in (4) from above. As was mentioned, one possible explanation for the imperfective paradox is that *The wheel was rolling across the road* is true even if the wheel never does eventually roll across the road because if the wheel's motion had not been interrupted by the motion of the falling rock, a factor "outside" the event in question, the wheel would have rolled across the road. However, this is not a solid argument. Even if we counterfactually remove the rock which knocked the wheel over, this is not a guarantee that the wheel would then have made it all the way across the road. For example, if this rock had not been there to knock the wheel over, there may have been a second rock which would have prevented the wheel from crossing. If we remove the second, there may have been a third, and so on. Insulating an event can thus lead one to argue that the truth conditions of the progressive demand the elimination of all potential obstacles.

Unfortunately, this strategy produces another unpleasant paradox. Consider the sentence in (5) below.

(5) Keather was jumping over the Empire State Building.

Suppose Keather, a person of no superhuman ability, stands next to the Empire State Building and jumps as high as she can. Of course, she does not manage to jump over the building, but only goes a few feet into the air. However, if the truth conditions for a progressive sentence are designed to remove all *actual and potential* obstacles, impediments such as the pull of gravity and Keather's lack of superhuman powers might also simply be ignored. It is thus not clear why (5) would not be a true sentence in this case. This is the *problem of non-interruptions*. The balance between the requirements of the problem of interruptions and the problem of non-interruptions is very tricky to determine and also involves additional perplexing truth-value effects.

## 2.4 The Problem of Impossibilities

Further unusual effects can be observed in progressive sentences that I call *impossibilities*. Note that the starting point for all intensional analyses of the progressive is the intuition that if a progressive sentence is true, then the outcome described by the nonprogressive counterpart of the sentence must at least be a *possible* outcome of the event in progress, even if it is not the *actual* outcome. This is certainly a *necessary* condition in any intensional analysis, although it is obviously not a sufficient condition on its own to accurately capture the desired truth-conditional behavior.

For example, although one cannot apparently conclude from the sentence *John was drawing a circle* that John eventually drew a circle, intensional analyses emphasize that a circle must at least have been a *possible* outcome of John's activity. According to such an analysis of the progressive, although John may not have produced a circle actually, we can assume that if the sentence in the progressive is true, he at least *would* have drawn one if conditions had only been somehow slightly different. The task is to describe the sort of possible worlds in which the circle would have been drawn. This idea is thus the foundation of all intensional approaches to the progressive.

However, there is linguistic evidence that casts doubt on this notion. Abusch (1985, p. 159) cites an interesting sentence suggested to her by Barbara Partee, reproduced here as (6).

(6) John is building a perpetual motion machine.

According to the second law of thermodynamics, no machine could ever be built that runs forever without requiring the external input of energy. For this reason, Abusch asserts that (6) cannot be true and would be false even if John has the intention to build a perpetual motion machine. She uses this sentence to argue that an agent's intent cannot be a sufficient condition for the truth of progressive sentences. Abusch states (pp. 159-60) that it must be at least *possible* for the agent to fulfill his intentions. However, given natural laws, there is no way for John to build a perpetual motion machine. Any possible world where perpetual motion machines are a reality would not simply be a world slightly different than the actual one but indeed one very unlike the our own. However, Abusch does not go on to discuss an interesting issue that arises with this example.

Suppose that John is a somewhat eccentric inventor who decides to go about building a perpetual motion machine. John perhaps thinks he has discovered a way to circumvent the second law of

thermodynamics and construct such a working machine. He is busy in his laboratory assembling the parts of the device. If asked what John is doing right now, it seems to me that most people aware of John's plans would not hesitate to answer with (6). How is it that a speaker might blithely state such an arguably false sentence? Furthermore, if we accept that this sentence is false, how is it that someone stating (6) under these circumstances would not later be branded a liar for having told a falsehood?

I do not dispute that (6) is a false sentence in this scenario. Indeed, the truth-conditional account of the progressive I advance in the last chapter predicts that this sentence is false under this scenario. However, I do find it interesting that this false sentence may acceptably be used in conversation. As I have indicated before, use does not correspond to truth. Incidentally, note that the negative counterpart of (6), the apparently truthful sentence given here as (7), seems strangely out of place in the same conversational context described above.

(7) John is not building a perpetual motion machine.

For example, if someone asks if John is now wasting time and research grant money on building a perpetual motion machine, it would be deceptive to answer with (7). Even if this is a true utterance, it would be deceitful to state (7) without further clarification merely on the grounds that (7) is true since John has no hope of eventual success in the endeavor.

The simple point I wish to emphasize here is that there is an important difference between that which is literally *true* and that which we may *say* without violating Grice's maxim of quality. First of all, in order to avoid a violation of this maxim, we need only be in possession of *adequate evidence* that what we say is true. As I illustrate in Chapter 5, this "adequate evidence" that language users require is a rather quirky commodity. Secondly, not everything we say is meant to be taken literally. Non-literal usage is a demonstrable phenomenon.

In the semantic literature (and conspicuously so in the literature dealing with the progressive), we assume that our judgments of the semantic truth of a sentence are accurate. Although this is a natural and useful assumption, it is also one fraught with danger due to the two pitfalls I have just cited. Our judgment of what is true is often strongly influenced by what we may *say* in a given situation. However, as I discuss in this essay, what we say this is more often at variance with what is literally true than we might at first realize. It is important to check intuitions of truth against the

dictates of logical consistency, faithfulness to the existing theory, and the possibility that the usage of the sentence might be intended non-literally under the given scenario.

The problem of impossibilities has not, to my knowledge, been noted in the literature, yet it is an important issue to consider. Examples of it are more common than might at first be thought. For example, consider the scenario of making a pumpkin pie described in the previous chapter. If Shannon made a pie crust and then discovered that she was lacking several key items in the recipe, we might still say (8).

- (8) Shannon was making a pumpkin pie, but then discovered that she didn't have the ingredients to make one.

Just as impossible as building a perpetual motion machine is making a pumpkin pie without the necessary ingredients. Far from a pumpkin pie being the natural, normal, or expected outcome in this case, a pumpkin pie could not even have been a possible product of a kitchen lacking the requisite ingredients to produce it.

## 2.5 The Problem of Contradictions

Landman (1992) discusses another phenomenon closely related to the problem of non-interruptions, which I call the *problem of contradictions*. Glasbey (1996) calls such examples *progressives with contradictory outcomes* (p. 335). Consider (9a-c) below.

- (9a) I was flying to Boston.  
 (9b) I was flying to Bismarck, North Dakota.  
 (9c) I was flying to Boston and, at the same time, I was flying to Bismarck.

The curious scenario connected with these sentences was suggested to Landman by Roger Schwarzschild. Suppose the speaker is on a plane to Boston which gets hijacked to Bismarck, North Dakota. As Landman notes, "One thing I can say is: 'I was flying to Boston when the plane was hijacked.' This is reasonable. But another thing I could say is: 'I was flying to Boston. Well, in fact, I wasn't, I was flying to Bismarck, North Dakota, but I didn't know it at the time.' And this is also reasonable" (pp. 30-31).

The sentences in (9a-b) contradict each other. This is illustrated by the nonsensical claim made in (9c) which asserts that the speaker was somehow going to both places at once. Nevertheless, both (9a) and (9b) can apparently be uttered as truthful sentences. Landman suggests that a theory of *perspectives* might somehow solve this problem, but does not show in detail how this might work. The basic idea is that the same sentence relative to the same model-theoretic conditions may not have a single definitive truth value. Instead, there may be a way that it can somehow bear two truth values. The truth value might be *true* when the sentence is evaluated for truth at one time but *false* at another.

The notion that the same sentence relative to the same conditions might alternate for truth value depending upon the observer's perspective is easy enough to suggest in informal terms. However, I think it would be difficult to turn perspectives into a formal, model-theoretic notion. Although not clearly identified as such, perspectives seem to make the truth value of a sentence partly dependent on the speaker or rather on the speaker's beliefs or knowledge base at some point in time. I argue in this essay that this would be ill-advised. In addition, I suspect that there would be serious consequences to pay in the underlying system of logic if we opt for such a solution.

Many other examples of this same phenomenon have been cited in the literature. Most researchers have assumed that both sentences of the apparently contradictory pair must somehow be literally true. For example, Abusch (1985, pp. 177-78) gives us the sentences in (10a-b), as suggested to her by Ed Gettier.

- (10a) John was crossing the street.
- (10b) John was walking to his death.

Suppose that John walks into a street but is killed by a speeding truck. In this scenario, Abusch evaluates both sentences as true under her proposal.

As Asher (1992, p. 466) argues, "Of course, if these sentences can both be true ... so can their conjunction at the same time." To demonstrate this, Asher provides the sentence in (11) below.

- (11) John was crossing the street, but at the same time he was walking to his death.

In other words, Asher thinks that we should design a system that would make (10a-b) and (11) all literally true. However, consider (12) below.

(12) At the same time as he was walking to his death, John was simultaneously crossing the street.

If we alter the wording somewhat, as in (12), we see that the conjunction takes on the appearance of a genuine contradiction. Consider also our intuitions about (13) below.

(13) As it turned out, John was not crossing the street this time, since he was actually walking to his death.

The sentence in (13) also seems like a plausible utterance for this scenario. Of course, the negative clause in (13) is in direct logical contradiction with the progressive clause in the other sentences above. Classical logic would dictate that both the original clause and its negative counterpart may not be true simultaneously, yet all of these sentences, including (13), are acceptable utterances in this scenario.

Another interesting example of this type is given by Thomason (1995) and reproduced here as (14a-b) below.

(14a) The bear was pulling the hiker down as he was climbing the tree.

(14b) The hiker was climbing a tree, and at the same time a bear was preventing him from climbing it.

Thomason notes that (14a) seems acceptable as a true sentence, yet (14b) definitely sounds contradictory. "I am not sure what to make of this," writes Thomason, "Some of these examples ... can be reconciled by taking into account the relative granularities of the events, or vagueness in the sort of completion that is associated with a telic event. But we might be driven by such examples to say that inertial defaults hold relative to a context of some sort, and are true if there is an appropriate context in which they hold" (p. 4).

The example in (15a) below was noted by Irene Heim and discussed by Asher (1992, p. 466) and others to demonstrate that each of the clauses are not contradictory when put in combination. However, (15a) may also easily be turned clearly into a contradiction by restating it with somewhat different wording, as in (15b).

(15a) Irene is cooking fish stew, but the cat is eating the fish.

(15b) Irene is cooking fish stew with the fish that the cat is eating.

I argue in this essay that we cannot allow such logical contradictions (sentences which must always be false in any case) to be evaluated as literally true under our semantic account of the progressive. Nevertheless, it is important to explain in pragmatic terms why uttering such logical contradictions may still sometimes serve some communicative purpose.

## 2.6 The Problem of Indistinguishable Circumstances

A difficult issue for many different proposals addressing the semantics of the progressive is what I call *indistinguishable circumstances*. As was mentioned earlier, it is difficult to explain how sometimes when John draws a short arc, we may say that he is drawing a circle, but that he is not drawing a figure eight, a letter C, or some other similar shape. Since an arc can potentially become any of these shapes, or simply remain an arc, it is a challenge to differentiate these to find out what is actually going on.

This difficulty has been widely discussed in the literature on the progressive. For example, Naumann and Piñón (1997, p. 242) provide a version of the figure-drawing example, given in (16a-c) below. The scenario is that Rebecca is sitting at her easel and has just drawn a straight line and we wish to evaluate the sentences in (16a-c).

- (16a) Rebecca is drawing a square.
- (16b) Rebecca is drawing a triangle.
- (16c) Rebecca is drawing a figure.

The drawing of this straight line does not seem to have any typical or predictable further outcome. A speaker might therefore hesitate to assert either (16a) or (16b), but could safely assert (16c). However, our intuitions are that if Rebecca tells the speaker that she intends to draw a triangle, it would be possible to assert (16b) and deny (16a). This is probably the best argument for having the intent or plans of an agent figure in some way into the semantics of the progressive.

Naumann and Piñón (1997, p. 242) state, "Intuitively, unless we assume something about Rebecca's intentions, these assertions are difficult to evaluate as true or false; since a straight line could be part of either a square or triangle, how do we decide which of the two she is drawing? Again, we simply do not have any reason, given what we see, for favoring the one outcome over the other." Naumann and Piñón incorporate an agent's intention, or rather the speaker's beliefs

about the agent's intention, into their analysis of the progressive. Other proposals also appeal either directly or indirectly to the agent's intention to differentiate such circumstances.

It is difficult to find another factor that may be used so definitively to distinguish lookalike events. Yet, there are good reasons already cited in this essay for excluding the agent's plans from the analysis of the progressive. Recall the sentence in (4) above where the wheel is rolling across the road. It is not possible to appeal to an agent's plans if no agent exists. Other serious problems with this strategy will be outlined in Chapter 3. I argue in this work that there is a plausible way to avoid incorporating an agent's plans into the semantics that can also explain the difficulty involved with sharply distinguishing lookalike events.

## 2.7 The Problem of the Contingent Future (The Multiple-Choice Paradox)

There has been a great deal of discussion in the literature concerning an example from Dowty (1979, p. 147), suggested to him by Richmond Thomason, and given here as (17a-b). This is actually an example central to the formulation of Dowty's account of the progressive, summarized in the next chapter.

(17a) The coin is coming up heads.

(17b) The coin is coming up tails.

Suppose the coin has been flipped but has not yet landed. Dowty makes the assumption that the coin is not a trick coin of any sort and that nothing else about the situation predetermines how it will land. How should we evaluate the truth values of (17a-b) during this time?

First of all, this example needs to be modified slightly. There is much confusion as to whether (17a-b) are even sentences in the durative progressive or if they are actually futurate progressive sentences. As noted by Kearns (1991, pp. 278-79), the predicate *come up heads* seems to refer more accurately to the event of the coin landing on one side or another rather than the coin's motion through the air. Indeed, I also conclude that these sentences are in the futurate progressive, something that even Dowty himself worried about (1979, p. 147). However, instead of debating the issue, it is possible to replace this example with a similar one that unambiguously involves sentences in the durative progressive.

Suppose we have a roulette wheel marked with even and odd numbers. If we spin a ball in this wheel, we would be unable to know while the ball is still in motion as to which of (18a-b) is true.

(18a) The ball is rolling to an even number.

(18b) The ball is rolling to an odd number.

Thus, it is true that the ball is currently rolling and that the ball will eventually roll to either an even number or an odd number, but which remains to be seen. These are most naturally understood as durative progressive sentences with accomplishment predicates where the outcome is simply unknown, rather than as futurate progressive sentences.

Our intuition that either (18a) is true or (18b) is true but not both. This can be emphasized if we consider the past-tense counterparts of these sentences, as shown in (19a-b).

(19a) The ball was rolling to an even number.

(19b) The ball was rolling to an odd number.

Suppose the ball comes to rest on the number 36. In this case, one might state (19a) truthfully with reference to the time that the ball was in motion and possibly add *...but I had no way to know this at the time*. By contrast, (19b) would be judged false in this case. On the other hand, if the ball came to rest on number 9, (19b) would be true and (19a) would be false.

The difference with respect to (18a-b) is that before the ball actually comes to rest, a speaker lacks sufficient information to utter either sentence as true with any confidence. Nevertheless, note that our intuitions are that (20a) is clearly a contradiction (necessarily false) and (20b) is an obvious tautology (necessarily true).

(20a) The ball is rolling to an even number and the ball is rolling to an odd number.

(20b) The ball is rolling to an even number or the ball is rolling to an odd number.

Similarly, our intuitions are clear that (21a) is a contradiction and (21b) is a tautology.

(21a) The ball is rolling to an even number and the ball is not rolling to an even number.

(21b) The ball is rolling to an even number or the ball is not rolling to an even number.

Likewise, we may replace the word *even* with *odd* in (21a-b) and our intuitions are not changed.

Let us now consider what the truth conditions of (18a-b) should be. Although Dowty (1979) discusses the coin-flipping scenario, we may safely conclude that he would treat the roulette-wheel scenario in a similar fashion. According to Dowty's analysis, (18a) and (18b) cannot both be simultaneously *true*. This seems like a reasonable conclusion to reach, since the conjunction of (18a-b) with *and* is a clear contradiction, as shown in (20a) above. However, the same reasoning that Dowty uses to reach this commonsense conclusion leads him to a rather interesting view on the matter.

An intensional analysis of the progressive, such as Dowty's, is designed around the idea that a sentence in the progressive is true if and only if the ongoing event culminates in the future in all accessible possible worlds of a certain kind. As I discuss in the next chapter, in Dowty's theory these are all possible worlds where the "natural course of events" continues uninterrupted. Dowty would note that in events of spinning a roulette wheel, the ball statistically rolls to an even number half the time and to an odd number half the time. Under Dowty's theory, we would thus conclude that the ball rolls to an even number in only half of the accessible possible worlds which follow the "natural course of events" and not in them all. Therefore, he would conclude that (18a) cannot be true. He would use the same argument to deduce that (18b) cannot be true. Therefore, according to Dowty's analysis, both (18a) and (18b) would simultaneously be *false* in this scenario. Put another way, both sentences are false at this point since the matter of where the ball will eventually come to rest has not yet been determined.

This is Dowty's conclusion, but it is a problematic one. It runs into serious difficulties, as is noted by ter Meulen (1987, pp. 265-66). If (18a) and (18b) are both false, this would allow for the fact that (20a) is a contradiction. However, it is likewise important to note that our intuitions tell us that the disjunction of (18a-b) with *or* is a tautology, as shown in (20b) above. If, as Dowty claims, (18a) and (18b) are both false sentences, then (20b) would also be false under Dowty's theory. This result is in conflict with our intuitions. Some have accepted the analysis presented by Dowty, while noting its apparently paradoxical nature. For example, Bonomi (1987) calls this the *multiple-choice paradox* and notes that, in general, "it can be true that *a* is going to *b* or *c* although it is not true that *a* is going to *b* and it is not true that *a* is going to *c*" (p. 184). This is indeed an accurate summary of Dowty's analysis, yet it is certainly a remarkable one.

In spite of Dowty's account, observe that we can make the following claim in (22) that seems to be true.

(22) The ball is rolling to a number.

If both (18a) and (18b) are false sentences as Dowty claims, and since each of the numbers on the roulette wheel is either even or odd, it is not clear how we might conclude that (22) is a true sentence. Again, Bonomi expresses a closely related idea when she states that as a rule "it can be true that *a* is going to a place with such and such characteristics although it is not true that there is a particular place *x*, with such and such characteristics, such that *a* is going to *x*" (p. 184). However, I argue in this essay against the assertions of Dowty and Bonomi with examples involving the contingent future.

The characterization of the above examples leads to a number of effects which seem to fly in the face of our basic understanding of classical logic. For example, consider an issue raised by ter Meulen (1987) involving the negations of (18a-b), as given in (23a-b).

(23a) The ball isn't rolling to an even number.

(23b) The ball isn't rolling to an odd number.

Logic would apparently dictate that if (18a-b) are both false, then (23a-b) will both be true. However, note that the ongoing event described in either of these sentences also does not *fail* to culminate in all of Dowty's accessible possible worlds. In other words, the ball doesn't roll to an even number half of the time and the ball doesn't roll to an odd number half of the time. Therefore, by Dowty's original analysis, we might expect (23a-b) also to both be false.

The requirements of logic thus leads one to reject the notion that (18a-b) might either both be true or both be false in this scenario. Of course, another possibility to consider is that (18a-b) and (23a-b) are all somehow *undefined* for a truth value. This again jettisons the system of bivalent logic upon which truth-conditional semantics is founded. For example, if all these sentences have no truth values, it is not clear how we might then determine that (20a) and (21a) are false (i.e. contradictory) and (20b) and (21b) are true (i.e. tautological). Semantic truth, as it is used within a truth-conditional framework, does not permit a third truth value of *maybe*.

However, perhaps Dowty has in mind certain considerations of scope between a modal and negation. Suppose that the progressive aspect is indeed some kind of modal construction, just as

Dowty claims. For purposes of illustration, we might roughly paraphrase the meaning of Dowty's modal progressive as *in all inertia worlds it will eventually be that*. (Another informal paraphrase might be *it is necessarily in the natural course of events that*.) The progressive sentence repeated here in (24a) might then be approximately paraphrased as in (24b).

(24a) The ball is rolling to an even number.

(24b) In all inertia worlds the ball will eventually roll to an even number.

Under Dowty's theory, (24a) is false in this scenario for the same reason that (24b) is false. Although there is an event underway that may culminate with the ball finishing up on an even number, we may not claim that this is any more in the natural course of events than for the alternative to occur.

Turning now to the question of scope under Dowty's system, we may consider two alternate paraphrases of (23a) *The ball isn't rolling to an even number*. Either negation could have scope over the modal progressive, as shown in (25a), or the modal progressive could have scope over negation, as portrayed in (25b).

(25a) It is not the case that in all inertia worlds the ball will eventually roll to an even number.

(25b) In all inertia worlds it is not the case that the ball will eventually roll to an even number.

If negation is allowed scope over the modal progressive, as in (25a), the paraphrase comes out *true* (as would the counterpart sentence with the word *even* replaced with *odd*). This is not the result that Dowty would want his theory to predict. However, if the modal progressive is allowed scope over negation, the paraphrase comes out *false* (as would the counterpart sentence with *odd* and, of course, the non-negated counterparts of both sentences). Now the result conforms with the aims of Dowty's theory.

However, let us now follow this analysis to the end to see if it conforms to the truth-conditional behavior of progressive sentences describing contingent events. Consider the sentence in (21b) again, repeated here as (26a), and contrast it to an approximate paraphrase based on Dowty's theory, given here as (26b).

- (26a) The ball is rolling to an even number or the ball is not rolling to an even number.
- (26b) In all inertia worlds the ball will eventually roll to an even number or in all inertia worlds it is not the case that the ball will eventually roll to an even number.

The progressive sentence in (26a) is undeniably a tautology. When a ball is spun in a roulette wheel, the ball either is or isn't rolling to an even number, but there is no practical way for a human observer to presage which. On the other hand, since both *The ball is rolling to an even number* and *The ball isn't rolling to an even number* are evaluated as false under Dowty's system, (26a) is evaluated as false under this scenario, as illustrated by the paraphrase in (26b). Under Dowty's analysis, neither possible outcome is in the natural course of events for some particular spin of the roulette wheel. Thus, scope interactions of a modal and negation cannot be used to rescue Dowty's analysis.

There is yet another reason to reject Dowty's account. Consider what Dowty's analysis of the roulette-wheel scenario would predict about the sentences in (27a-b) below.

- (27a) The ball is rolling to an odd number.
- (27b) The ball was rolling to an odd number (but I didn't know it at the time).

Dowty would predict that no matter what number the ball lands on eventually, (27a) would be a false sentence if uttered at a time when the ball is in motion. This can be illustrated with the informal paraphrases of (27a-b) given in (28a-b).

- (28a) In all inertia worlds the ball will eventually roll to an odd number.
- (28b) It was the case that in all inertia worlds the ball would (eventually) roll to an odd number (but I didn't know it at the time).

Suppose the ball eventually rolls to the number 17. Our intuitions tell us that (27b) is a true sentence. However, under a traditional treatment of tense, Dowty's theory would predict that (27b) is false, as we see from the paraphrase in (28b). This is because the theory predicts that (27a) is false, as shown in (28a), which is also a rather counterintuitive result in this case.

Of course, perhaps the theory could be modified in some way to make (27a) false and (27b) true. This would mean that the truth value flips from false to true between the present-tense and past-

tense versions of the same sentence that both make reference to the same event at the same time. Thus, the progressive sentences in (27a-b) would exhibit truth-conditional behavior that is quite different from present-tense and past-tense pairs of non-progressive sentences. This behavior would be quite extraordinary indeed.

A more reasonable stance, and one that is apparently the most popular view currently, is that (18a) is simply true if the ball eventually rolls to an even number and (18b) is true if it rolls to an odd. Using Dowty's terminology, we might thus say that the "natural course of events" is what actually happens, although a human observer may often be unsure in what direction the "natural course of events" is moving at the time. This conclusion is appealing because it causes us no logical difficulties with the contradictions in (20a) and (20b), the tautologies in (21a) and (21b), and the negated sentences in (23a-b). The truth conditions simply involve future-time outcomes which, due to the probabilistic nature of the event, cannot be known or reasonably assumed by a human observer.

This would be a good explanation as to why a speaker would be disinclined to state either (18a), (18b), or their negations as a factual sentence when the ball is still spinning around the roulette wheel. The speaker understands that the truth values of these sentences depends on where the ball eventually comes to rest, but the speaker has no way of accessing this information. Therefore, since the speaker lacks adequate evidence to state any of these sentences, Grice's maxim of quality prohibits making such an utterance. Again we see that there is a difference between that which is literally false and that which a speaker lacks sufficient information to state is true or false. In the terminology I use in this essay, it is important not to confuse a sentence bearing a semantic truth value of "0" with a sentence bearing a pragmatic truth value of "\*." It seems to me that these two distinct notions have been muddled in discussions of the multiple-choice paradox.

This is a crucial sort of example for my analysis. In scenarios which depend only on the contingent, probabilistic future alone, the beliefs of the speaker can be completely *factored out* as a consideration. My statements regarding this important example offer a glimpse into the kind of comprehensive truth-conditional analysis of progressive sentences that I present in Chapter 6 and that I believe is defensible for a number of key reasons. Yet, before I advance this analysis, I must illustrate why I believe that other analyses have fallen short and also offer an explanation as to what is apparently behind the curious phenomena in the progressive which I have outlined above. These are the tasks I set out to accomplish in the following chapters.

## 2.8 Summary

In this chapter, I reviewed a number of interesting effects in the progressive. Many of these lead to uncertain intuitions about the truth value of a progressive sentence. In addition, the problem of contradictions and the multiple-choice paradox seem to predict alternations of the truth value when the same progressive sentence is evaluated at different times of utterance from different *perspectives*. As discussed here, other strange effects are evident with respect to the imperfective paradox (the problem of interruptions), the problem of non-interruptions, progressive sentences describing impossibilities, contradictions in the progressive, the problem of indistinguishable circumstances, and progressive sentences that involve descriptions of the contingent future (the multiple-choice paradox).

In the following chapters, I argue that these odd phenomena result from the interaction of two main causes. First is the confusion between the determination of the genuine semantic truth of a progressive sentence and the conditions relevant merely to its pragmatic truth. Secondly, there are non-literal effects, not confined merely to sentences in the progressive, that involve issues of the epistemic context and pragmatic truth. Once these phenomena have been elucidated, the semantic and pragmatic behavior of the progressive may be much more clearly understood. As the forthcoming evidence will demonstrate, an answer to the puzzling behavior of the progressive can be provided in the context of the more general phenomenon of semantic course corrections, as introduced at the start of this essay. However, in the next chapter, I take a look back at previous scholarship on the progressive in order to assist in the development of my own proposal.

## Chapter 3

### Semantic Studies of the Progressive

#### 3.1 The Controversial Semantics of the Progressive

In this chapter, we take a look back through previous semantic scholarship on the progressive. The commentary surveys, in roughly chronological order, a century of thinking on the topic. I do not attempt to be comprehensive, for the volume of literature is now quite extensive. Rather, I only touch on highlights relevant to the current essay, indicate major trends, and give credit to those who have presented various claims and evidence. Points raised by a number of other authors are also cited in the later chapters. The focus here is simply to compare and contrast previous attempts at formalizing the semantics of the progressive under a truth-conditional semantic framework and create a broad picture of the direction that research has taken.

Since my aim is to present a brief, comparative journey through the literature, I have found it necessary to simplify some of the technical rigor involved to permit greater readability and brevity. Most notably, in order to better understand the similarities and differences between many vastly different approaches formulated in a wide variety of ways, I have attempted to reduce each account to a set of truth conditions written throughout in a roughly comparable notation. Thus, although the truth conditions cited here are often not faithful in technical form to their originals, I trust that they will not overly misrepresent them in spirit. Readers interested in the precise details of each account are therefore encouraged to consult the original sources, as I have cited them.

Emphasis is placed in this commentary on where I or others have found previous accounts to be lacking. In order to keep the issues clear, I give each of the major and minor difficulties encountered a name, such as the *problem of inertial interruptions* or the *problem of no agent*. Obviously, these problems are all related to each other and are simply facets of the larger task of developing the proper truth-conditional semantics of the progressive aspect. In discussing the issues in particular accounts and in the direction that the semantic research has taken overall, it is not my intention that the critiques should sound harsh. Indeed, I have yet to read a contribution on this topic that has not been intelligent, thoughtful, well-reasoned, and inspirational for my own evolving views on the matter. There is certainly something valid and noteworthy in all the

proposals I have found and I greatly admire these scholars who have produced so much clever and detailed commentary over the years. Be that as it may, progress in academia is only made by building upon what came before, and this must always involve some moderate demolition as well.

Among the wide array of papers which address issues in the development of a formal semantic analysis of the progressive are Montague (1970), Scott (1970), Bennett and Partee (1972, 1978), Dowty (1972, 1977, 1979), Tedeschi (1973), Bennett (1977, 1981), Taylor (1977), Declerck (1979a,b), Carlson (1980), Vlach (1981), Goldsmith and Woisetschlaeger (1982), Hinrichs (1983), Saurer (1984), Abusch (1985), Cooper (1985), ter Meulen (1985, 1987), Bach (1986), Link (1987), Moens (1987), Mittwoch (1988), Ogihara (1989, 1998), Parsons (1989, 1990), Caenepeel and Moens (1990), Herweg (1991), Kearns (1991), Lascarides (1991), Asher (1992), Landman (1992), Thomason (1995), Glasbey (1996, 1998), Naumann and Piñón (1997), Bonomi (1997), Portner (1998), and Zucchi (1998, 1999). The semantics of the progressive has also been discussed extensively in grammatical accounts, such as Sweet (1898), Jespersen (1932), Granville-Hatcher (1951), Palmer (1965), Leech (1971), Scheffer (1975), Comrie (1976), Ljung (1980), Edgren (1985), and a host of others, as well as in the philosophical literature, such as by Graves (1997). Despite such an enormous volume of scholarship on the subject, many would still concur that some fundamental difficulties have still not yet been ironed out.

A recurring refrain in the semantic literature is that the progressive is simply vague. For example, Kearns (1991) refers to the truth conditions of certain progressive sentences as “inherently vague” (p. 300). Many other proposals also reflect this widespread attitude. As noted in the last chapter, the account given by Dowty hinges on the indistinct notion of “the natural course of events” (1979, p. 148). Although the proposal by Landman (1992) is significantly more complicated, his system is forced to appeal ultimately to what he calls “reasonable chance” (p. 25). Concerning his analysis of the futurate progressive, Dowty (1979, p. 158) writes, “The vague notion in this definition is of course ‘planned or predetermined by facts or events’, and at present I have no idea how to make this notion more precise in model-theoretic terms.” Certain problems for the analysis in Portner (1998) are attributed to “vagueness in determining what constitutes the modal base” (p. 783).

Indeed, it has not been easy to provide a sharp focus on the progressive. Many proposals take a somewhat apologetic tone when vagueness is introduced, either overtly or euphemistically. However, not everyone regards appeals to vagueness as a drawback. Abusch (1985) explicitly characterizes her account as relying on vagueness and titles the first section of her own analysis

“The Vagueness of the Progressive” (p. 171). Landman (1992), in discussing the idea that the progressive might express a part-to-whole relationship of events, employs the wording “realizes sufficiently much of,” and then notes, “This brings vagueness into the analysis of *part of* (when is sufficiently much realized?), but one could argue that it is precisely this kind of vagueness that we observe in [ such ] sentences ...” (p. 13). In other words, a vague account may be appropriate for an inherently vague construction.

A similar attitude is expressed by Portner (1998) in his appraisal of Dowty’s theory of the progressive that appeals to “the natural course of events.” As discussed at the end of the previous chapter, Dowty’s analysis predicts that the sentence *The coin is coming up heads* is false even if the coin eventually does come up heads. This is because he reasons that in “the natural course of events” a coin may come up either heads or tails for any given coin toss. Although this result strikes many people as wrong, there is still much confusion on this point. Portner, however, views this apparent failure as one of the theory’s potential strengths. He writes, “Certain vague judgments concerning the truth conditions of progressives can be explained in terms of this analysis” (p. 672). That is, the meaning of “the natural course of events” is significantly blurry as to allow the treatment of such sentences under Dowty’s theory to receive no clear explanation. Once again, the argument seems to be that since the progressive is inherently vague, a vague analysis is perhaps appropriate and useful.

However, I disagree with this view for several reasons. First of all, as a native speaker of English, the progressive does not seem vague to me. My instincts are sharp about its correct use. However, I admit to having experienced the common frustration as to how to translate my intuitions into a truth-conditional account. Second, although vagueness is an recognized feature of language in its own right, we should not simply use it as a catch-all for any problems whenever the theory is found wanting. Vagueness should be probably our last resort if we are unable to explain some phenomenon without it but I do not think we need vagueness to explain the progressive. Third, this view seems to imply that while the theory must be fine, there is obviously something defective about language itself. It is a strange way of looking at things since the theory’s only purpose is to pattern and predict linguistic behavior. If the theory fails to do this, it is the theory which should yield and either adapt, expand, or pass the problem on to an adjacent theory. Fourth, since truth-conditional semantics is an idealization in any case, it should be idealized to the extent that the practical issues that lead to vagueness in language are filtered out, leaving only the simple and straightforward account of literal meaning apart from issues of vagueness. Idealizing away such

practical issues is indeed why a sizable part of meaning must be explained under a theory of pragmatics. In fact, I will argue in this paper that the division of labor between semantics and pragmatics has been incorrectly proportioned with respect to a treatment of the progressive.

In general, it seems advisable to me to avoid institutionalizing vagueness into truth-conditional meaning itself. Even if there may be no such thing as ultimate truth, language users routinely act as if there is. For example, the colors *red* and *orange* are vague concepts since there is no sharp boundary dividing these two colors on the spectrum. However, notice that two people might argue back and forth as to whether a paint chip is actually orange or red. The issue may be forever in doubt, but the mere fact that they argue indicates that they behave as if there were some ultimate truth to the matter. Each one of them claims to be correct in the sense that each thinks his or her stance corresponds to the ultimate facts. As a theoretical idealization, it may therefore be permissible to treat *red* and *orange* as precise concepts. In other words, we may suppose that the sentence *This paint chip is red* bears one of the two possible semantic truth values, even though various language users may differ in the pragmatic truth value they assign to this sentence in conversation at various times.

There are those that contend that because people sometimes argue about the truth of a progressive sentence, this is evidence that the progressive is inherently vague. However, I counter that it is not that the truth conditions are vague, but rather that language users may differ in their opinions of the satisfaction of these conditions. If the truth-conditional semantic system allows some declarative sentence to receive a semantic truth value of *maybe probably kind of true* and its negation a semantic truth value of *sort of possibly perhaps false or else true*, there are consequences to pay later when the system of logic breaks down.

Another common view is that the progressive exhibits a semantic behavior that is both unique and diffuse. Kearns (1991) observes, "Of all the English verb forms, the progressive has perhaps the most interesting semantic properties ... The interest stems largely from the variety of apparently disparate semantic phenomena presented by the progressive... ." (p. 9). Lascarides (1991) wonders, "How can the uniformity of the progressive in syntax be squared with its semantic 'irregularity'?" (p. 401). If we accept a characterization of the progressive as unusual and divergent, it then seems only natural that the progressive requires an analysis that is both ad hoc and extremely complicated. This trend was established when Dowty (1979: p. 148) was forced to "reluctantly conclude" that the only option was to add to the definition of a model a new primitive

function with no other purpose than to deal with the progressive. Ever since, similar ad hoc solutions have been proposed in various competing accounts, though none yet seem entirely satisfactory in explaining the data.

An ad hoc solution might be necessary if the progressive actually does have an utterly schizophrenic and singular nature, semantically speaking. Yet, this would be unfortunate if indeed the case. No matter how successful we might be at refining an ad hoc account to explain *how* the progressive behaves, such a treatment would probably have little to say about *why* it behaves as it does. Unless the explanation is somehow grounded in larger principles of linguistic behavior, the full story cannot be told. In this work, I advance an analysis which maintains that larger principles are indeed in evidence, but that they properly lie in part outside of truth-conditional semantics, under the domain of pragmatics.

My own intuitions of the progressive contrast with those so often expressed in the literature. In my opinion, there is nothing vague, extraordinary, or diffuse about the semantics of the progressive construction itself. The impression that the construction is vague seems to me to result ultimately from practical issues of the *use* of sentences in the progressive. In illustrating the progressive, I am determined to present an analysis which is uniform, which does not rely on vagueness, which does not employ ad hoc measures, which answers in terms of wider linguistic principles why the progressive behaves as it does, and which does not violate William of Ockham's famous razor.

### 3.2 Sweet (1898) and Jespersen (1932)

Commentary on the progressive has had a long and extensive history. Over the years, many have observed that the progressive seems to express duration in time, but it was probably Henry Sweet (1898) who was the first to argue that this was not its primary semantic purpose. Rather, as Sweet maintains, the progressive is able to "use duration to define the time of a point-tense, as in *when he came, I was writing a letter*. Here the action of writing is supposed to be going on before the point of time indicated by *came*, and to continue after it ..." (p. 97). Although Sweet's comments form the basis of a widespread view of the progressive today, he is not the scholar most typically associated with the idea. Rather, it is Otto Jespersen (1932) who is better known for advocating the theory that Sweet had proposed before him. Jespersen's claim is that the basic function of the progressive is to present a *temporal frame* around a point in time (pp. 178-80).

Jespersen argues for this account partly on historical grounds by noting that the modern progressive construction, shown in (1a) below, is at least in part derived from the earlier construction, seen in (1b).

(1a) Peter is hunting.

(1b) Peter is on hunting. (Peter is a-hunting.)

Before it eroded to the prefix *a-* and then was lost in all but dialectal use, the word *on* in such contexts had a similar meaning to its modern usage in *Peter is on vacation*. Thus, in (1b), *on* places us at a temporally internal point to the event of Peter's hunt. As Jespersen suggests, we might then paraphrase the progressive with any of the alternatives in (2).

(2) Peter is in the course of / engaged in / busy (with) / in the middle of a hunt.

For Jespersen, the historical evidence suggests that the progressive sets up a temporal frame, such that the hunt is understood to extend temporally before and after something else.

To illustrate the temporal-frame in more detail, consider the sentences in (3a-d) below:

(3a) Peter was / is / will be hunting.

(3b) Peter was hunting at noon.

(3c) Peter was hunting when the wolf arrived.

(3d) Peter will be hunting when the wolf arrives tomorrow.

In the version of (3a) in the past, present, and future tenses, the time of Peter's hunt frames a moment in time: past, present, or future, respectively. In the case of the present tense, the hunt frames *now*, that is, the time of utterance. (3b-d) have adverbial expressions that make reference to the framed time either by naming it, as in (3b), or by relating it to the occurrence of another event in time, as in (3c) and (3d). Considered another way, each of these sentences makes reference to a time that falls during or *internal* to the total time interval of the hunt.

Objections have been raised to the temporal-frame theory over the years, which I return to discuss in Chapter 6. Nevertheless, the idea has generally had more supporters than detractors. A comprehensive modern defense of technical issues related to the temporal-frame idea is found in Kearns (1991). In any case, the temporal-frame theory lies at the heart of many significant

treatments of the progressive within the framework of Montague Semantics, which we now consider in the following sections.

### 3.3 Montague (1970) and Scott (1970)

It was Richard Montague himself, along with Dana Scott, who inaugurated the study of the progressive within classical Montague Semantics. In separate commentaries, Montague and Scott take an identical approach to the progressive aspect, though neither discuss it at any length. Indeed, Montague's comments on the matter (1970, p. 73, later reprinted in 1974, p. 125) are remarkably brief and Scott (1970, p. 160) provides no commentary whatsoever beyond a set of truth conditions for a progressive operator. I reproduce these truth conditions below, though for purposes of orderly presentation and ease of comparison, I have rewritten them in a notation used consistently throughout this work.

#### MONTAGUE AND SCOTT'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $t_0$  if and only if  $t_0$  is a moment of time and there exists an open interval of moments of time  $I$  such that  $t_0$  is in  $I$  and for all moments of time  $t$  in  $I$ ,  $[[ \phi ]]$  is true at  $t$ .

First of all, the term *open interval of moments of time* should be explained. Suppose  $T$  is the set of real numbers. The set  $T$  can also be thought of as the set of all moments of time. These moments are ordered with respect to each other in a dense simple ordering. An interval of time  $I$  can be constructed from this set of moments.  $I$  is an interval if and only if  $I$  is a subset of moments in  $T$  and for any two moments  $t_1$  and  $t_3$  in  $I$ , such that  $t_1 \leq t_3$ , if  $t_2$  is such that  $t_1 \leq t_2 \leq t_3$ , then  $t_2$  is also in  $I$ . For an interval  $I$  consisting of all moments of time  $t$  between  $t_1$  and  $t_2$ ,  $I$  is a *closed interval* if  $t_1$  and  $t_2$  are also included in  $I$  but  $I$  is an *open interval* if  $t_1$  and  $t_2$  are not in  $I$ .

The way the truth conditions work can best be illustrated by considering an example sentence, such as (4) below.

(4) John is walking.

First, we set  $\phi = \textit{John walk}$ , a sentence theoretically understood to be unmarked for tense or aspect. Then,  $\text{PROG } \phi = \textit{John be walking}$ , where  $\text{PROG}$  is a sentential operator that takes a tenseless, aspectless sentence and places it in the progressive aspect. The independent semantic contribution

of tense could be accounted for later with tense operators, such as PAST, PRESENT, and FUTURE. In the case of (4), we would want the tense operator to be PRESENT, so that  $t_0 = \text{now}$ . According to these truth conditions, (4) is true at a moment if and only if at this moment John walks and this moment is also a moment that falls within an open interval of moments where John walks at each of these moments as well. Therefore, in order for this sentence to be true under the analysis of Montague and Scott, John must walk now and also walk at every moment surrounding the present moment.

These truth conditions are meant to capture the temporal-frame idea proposed by Sweet and Jespersen since we may truthfully say that John is walking at any moment during a total time interval where it is true that John walks at each moment of that interval. Jespersen's description of a temporal framing interval is of an interval "lasting some time before and possibly (or probably) also some time after something else" (1932, p. 179). Montague and Scott consider this "something else" to which Jespersen alludes as a moment of time.

Unfortunately, although they had good intuitions about how to treat the progressive, the analysis advanced by Montague and Scott runs into a difficulty that we might call the *problem of truth at a moment*. As pointed out by Bennett and Partee (1978, p. 10), there are certain difficulties involved with taking moments, rather than intervals, as the most basic time units in tense and aspect semantics. The problem may be demonstrated with the example in (5) below.

(5) John is drawing a circle.

Following Montague and Scott, (5) could only be true if *John draw a circle* is true at  $t_0 = \text{now}$  and if *John draw a circle* is also true at every moment surrounding *now*. This requires that John draws a complete circle at the present moment and furthermore that John also draws additional complete circles at every momentary instant surrounding the present moment. This is nonsense. For (5) to be true, it obviously need not be the case that John draws one circle now and an infinity of other circles over the course of a framing interval. Indeed, it is not even reasonable to consider an event where John draws a circle at some *moment* of time.

Bennett and Partee note that the same difficulty ironically arises with the single example that Montague cites in his own comments: *Jones is leaving*. If Jones is leaving, this does not mean that he leaves at that moment and also leaves repeatedly at each past and future moment in an interval surrounding that moment. This and many other sentences may also not be considered true at a

moment of time. Indeed, it even takes some time to move one's legs sufficiently before one may truly be said to be walking. This is often called the *minimal part problem* in the literature. Thus, in sentences containing either telic or atelic predicates there is generally a problem with taking sentences to be true at a moment.

### 3.4 Bennett and Partee (1972, 1978)

With the innovation of interval semantics, Michael Bennett and Barbara Partee (1972, revision: 1978) are able to formulate more accurately Sweet and Jespersen's temporal-frame concept within a truth-conditional framework. Since they take sentential truth at an interval, rather than at a moment, as basic, they avoid the problem faced by Montague and Scott. In an interval semantics, a tenseless, aspectless sentence like *John draw a circle* is not true at a moment, but rather may only be true at some interval of time. *John draw a circle* is only true at an interval if John begins to draw a circle at the start of the interval and finishes at the end of the interval.

Bennett and Partee's truth conditions (1978, p. 13) are given here, again rewritten somewhat to conform to the notation adopted for this work.

#### BENNETT AND PARTEE'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and  $I_0$  is a subinterval (but not a final subinterval) of a larger interval  $I'$  and  $[[ \phi ]]$  is true at  $I'$ .

The basic idea is that a sentence in the progressive is true at any interval that falls during the total interval in which an action characterized by the nonprogressive counterpart of the sentence is true.

For example, consider (4) again. Suppose John starts to walk at 1:00 PM and stops at 2:00 PM. We may then say that *John walk* is true for this hour interval. Then, at any interval of time during this hour, we may truthfully say that *John is walking*, except for the very final subinterval, when the action ceases. Similarly, for (5), we would say that *John is drawing a circle* is true at any subinterval, other than the final subinterval, of the total interval that John spends to draw a circle.

This is an accurate translation into truth-conditional semantics of the temporal-frame idea and, for that reason, has great intuitive appeal. Incidentally, although possibly unaware of Bennett and Partee's treatment, Taylor (1977) independently advances a rather similar account, though his is

presented as a list of Davidsonian postulates. However, in the postscript to the 1978 revision of their paper, Bennett and Partee discuss the most significant flaws in their original 1972 version and write, "A ... major problem with the paper is that our analysis of the progressive is demonstrably wrong" (1978, p. 47). Although their common-sense truth conditions work well for (4), there is another issue in accounting for sentences like (5). The *imperfective paradox*, otherwise known as the *problem of interruptions*, is evident if we add to (5) the words ...*but John was interrupted and never finished the circle*. The same problem is evident in (6) below (example from Bennett and Partee, 1978, p. 47).

(6) John was building a house when he died at midnight on Tuesday.

According to Bennett and Partee's truth conditions, the progressive in (6) is only true at an interval that falls within some interval where John builds a house (to completion). Thus, their analysis would predict that the progressive clause in (6) is false in this case. As they explain in the postscript, "We were aware of the problem in 1972 ... but gave the analysis we did for two reasons: (i) we did not have a better one to offer; (ii) we were inclined to think then (though we are not so inclined now) that the progressive did have a reading on which [ (6) ] could not be true and which was correctly captured by our analysis, and that [ (6) ] when true might be elliptical for something like ... John was working to build a house when..." (p. 54). In the end, Bennett and Partee are simply at a loss as to how to deal with this complication.

### 3.5 Dowty (1977, 1979)

One of the more influential approaches to the imperfective paradox is the proposal advanced by David Dowty (1977, 1979). His account tries to determine the single key criterion which, for example, explains how *John was drawing a circle* can entail that John was engaged in an activity of bringing a circle into existence without actually entailing that he brought a circle into existence. It is true that John was drawing a circle not only when he eventually drew a circle, but apparently also sometimes, though not always, when he did not. Dowty finally concludes that this sentence is true, even if John is interrupted, if a circle would have been the normal outcome if the "natural course of events" had been allowed to continue.

However, Dowty does not arrive at this conclusion directly. At first, he considers basing his analysis around the *intentions of a sentient agent*. This is not an unreasonable first course of action.

Indeed, when native speakers of English are asked to explain the imperfective paradox, they frequently claim that *John was drawing a circle* may be true even when John only draws an arc, if John had nevertheless *planned* or *intended* to continue extending the arc into a complete circle. The intentions of an agent are also useful for discriminating lookalike events. If John is drawing a figure eight or a letter C, then he is not drawing a circle. Yet, if John is interrupted and does not finish, an incomplete drawing of a figure eight, a letter C, or a circle may all likewise result in a short arc on the page. Beyond John's mental plans or intentions, it is difficult to think what might be used to differentiate these events.

Though not discussed by Dowty, a variation on this same idea is mentioned by Parsons (1990). If Mary builds a house over the course of a year, it would be reasonable to expect that she might take a break in her work from time to time. Yet, even during such breaks, it may still seem reasonable to consider (7) to be a true sentence.

(7) Mary is building a house now.

As Parsons notes, "One natural idea for analyzing the progressive is that the analysis should appeal to intent or some other mental activity, since if Mary is sitting still taking a break, there sometimes seems little else, apart from her intent, to distinguish situations in which she is still building a house from situations in which she has abandoned that activity" (p. 170).

However, Dowty soon notes problems that would prevent an agent's intent from being the sole criterion upon which to base a semantics of the progressive aspect. I therefore digress somewhat to discuss the difficulties noted by Dowty and others to this strategy. First of all, there is what we might call the *problem of weak commitment*, as in (8) below:

(8) The old composer is writing a symphony.

As Dowty explains, "Consider the ninety-year-old composer who undertakes the composition of a symphony. He may not believe that he will live to complete the symphony nor seriously intend to try to complete it, but he still correctly describes his activity as *writing a symphony* (and not merely as *writing part of a symphony*)" (1977, p. 46). Thus, in Dowty's opinion, we may not reliably appeal to an agent's intent to explain the paradox since a person's intent can sometimes be weak. Because of his advancing age, the old composer does not seriously intend to write a complete symphony, yet it is apparently still true that he is writing a symphony.

There is a possible argument to counter Dowty's objection. The difficulty may be that words such as *intent* or *intentions* imply a firm conviction to succeed in a plan. The word *plan*, in the sense of a mere mental road map for future action, is perhaps the better term here. Notice that it is not the composer's plan to write a dozen pages of music and then drop dead. Indeed, the plan is to write an entire symphony, should he somehow get the chance. He will write as much of the planned symphony, if not the entire work, if Fate permits. The firm intention to succeed in a plan and the planned course of action itself are actually two entirely different things. The semantics could conceivably take this distinction into account. We might say that the ninety-year-old composer is writing a symphony truthfully if writing a symphony is his current plan, or road map for future action, even if he does not have much confidence that his plan will eventually yield a complete symphony, since his death will likely cut short this course of action.

Unfortunately, there are sentences which seem to defy even this revised interpretation. For example, consider (9a), suggested by Graves (1997, p. 85), and the sentence in (9b), adapted from an example in Dowty (1979, p. 149).

- (9a) The child is making a mess.
- (9b) Jones is ruining his academic reputation.

As Graves notes, (9a) can be true even if it is not the child's plan to make a mess. Similarly, even if Jones is not planning to ruin his academic reputation, (9b) may nevertheless be true. We may call this the *problem of contrary plans*. One might attempt to factor out such unwitting agents in some fashion, but this is a complex matter to deal with formally.

There are other serious complications with basing a truth-conditional account of the progressive around the plans of an agent, such as the *problem of no agent*. As noted in the last chapter, there are progressive sentences which involve no sentient agent. Dowty (1977, p. 46) provides the examples reproduced here as (10a-b) below. The sentence in (10c) is Abusch's example, cited previously.

- (10a) The rains are destroying the crops, but perhaps they will stop before the crops are destroyed.
- (10b) The river was cutting a new channel to the sea, but the men with sandbags stopped it from doing so.
- (10c) The wheel was rolling across the road when it was knocked over by the falling rock.

Such examples present a major challenge. As noted in the last chapter, it is impossible to base truth conditions around the plans of an agent if there is no agent to have such plans. We might try to argue that the plan in question is that of Nature, God, the Cosmos, or the like. However, this does not explain how we might understand that it is the plan of the “rain god” (or what have you) in (10a) to destroy the crops, yet also perhaps not, since the rains may stop after all, and this would also undoubtedly be somehow also be part of the plan. The same argument was noted in Chapter 2 regarding (10c) above.

Another serious pitfall noted by Dowty is what I call the *problem of an undecided agent*. Consider the sentences in (11a-b).

(11a) John is drawing a horse.

(11b) John is drawing a unicorn.

As Dowty explains, “Suppose John has begun making a drawing but has not yet decided whether it is ultimately to be a drawing of a horse or a drawing of a unicorn. ... I am not sure what the linguistic facts are in this case, and thus do not know what will be the best approach to treating it.” (1977, p. 59) Indeed, it is possible for a person to have no definite plan in mind, to change a plan midway through an event, or even to forget what the plan originally was. These and similar issues would all be difficult complications.

Lastly, we may note the *problem of impossible plans*. Consider an example sentence from the previous chapter, repeated here as (12).

(12) Keather was jumping over the Empire State Building (but she didn't make it over).

Even if Keather plans to jump over the Empire State Building and makes her best attempt, we would probably want our truth-conditional analysis of the progressive to predict that (12) is a false sentence in this scenario. If plans of a sentient agent were to be a factor in the semantics, they would apparently have to be constrained somehow to negate unrealistic plans. It would indeed be a challenge to determine how this might be done.

Despite such complexities, it remains a curious fact that the plans of an agent spring so easily to mind when the imperfective paradox is raised with native speakers. For this reason, semantic accounts of the progressive still toy with reincorporating this factor in some fashion as one of the

elements in the truth conditions, as can be seen in several of the proposals discussed later in this chapter.

Because of such difficulties, Dowty shifts to an entirely new strategy. He notes (1977, p. 57) that although one cannot conclude from the truth of *John was drawing a circle* that John eventually drew a circle, a circle must at least have been a *possible* outcome of John's activity. (Incidentally, this is a contention I dispute later. See my comments in Section 3.9 on Landman (1992) below.) Dowty thus works under the assumption that although John may not produce a circle actually, he may indeed have drawn one if the *world itself* had been somewhat different. He therefore decides to treat the progressive as a kind of counterfactual construction and identifies it with a mixed modal-temporal operator.

Dowty attempts to formalize the idea that the truth of a sentence in the progressive about the actual world does not rely strictly on conditions in the actual world, but rather on conditions in some set of possible worlds. These possible worlds should clearly all share some crucial quality in common that the actual world might sometimes lack. Whatever this quality might be, it must be that very quality that allows the nonprogressive counterpart of a progressive sentence eventually to be true whenever the progressive sentence is true, even if the nonprogressive sentence is never eventually true in the actual world. Hence, if *John was drawing a circle* is true in the actual world, then *John drew a circle* must eventually be true in every world in this crucial set of possible worlds.

The big question for Dowty, as for all others who attempt a possible-worlds analysis of the progressive, is what quality should characterize this critical set of worlds. One obvious requirement is that the possible worlds be similar to the actual world (or whatever possible world with respect to which one wishes to evaluate the progressive sentence). As a result, Dowty mandates that the relevant possible worlds should all be identical to the evaluation world up to the time of evaluation for the sentence. Afterwards, they may diverge in many of their details. Again, the key issue is what quality all the worlds share, such that whenever *John is drawing a circle* is true at the evaluation time in the evaluation world, the relevant possible worlds will all somehow be worlds where John eventually draws a circle, even if he is interrupted in the evaluation world and fails to draw a circle.

Following the suggestion of David Lewis, Dowty decides that a sentence in the progressive should be defined as true just in case the nonprogressive counterpart of the sentence will be true in all possible worlds similar to the actual one but in which the "natural course of events" takes place.

Dowty actually does not seem entirely satisfied with his own explanation. As he writes, "This may indeed be correct, but I presently see no way of making 'natural course of events' precise in model-theoretic terms" (1977, p. 59).

Nor does Dowty ever succeed in making this idea precise. As he explains, the "natural course of events" is not definable in terms of probability, since improbable events can happen and then later be said to have been in progress, even though the probability of their completion was remote. (Dowty thus wishes to avoid a variation of the famous *lottery paradox* which asks how anyone could ever win a lottery since for any entrant one considers, the odds of winning are utterly negligible.) Neither can the idea be defined according to Lewis' concept of a similarity relation among worlds. The most similar world to the actual world is the actual world itself. However, it is sometimes the actual world in which the course of events is interrupted and this is, as Dowty notes, "just the condition we want to avoid to account for the imperfective paradox" (1979, p. 148). Dowty is thus claiming that the actual world is not always the most natural one. As a result, the "natural course of events" is not to be found in those worlds where what occurs is most probable nor where what occurs is most similar to the actual world.

Whatever this phrase might mean, the "natural course of events" is the critical quality that Dowty finally adopts for his set of possible worlds. In the end, Dowty simply postulates (1979, p. 148) the existence of a rather mysterious primitive function called *Inr* which must be added to the definition of a model. *Inr* takes any index, consisting of a world and an interval of time, and returns a set of possible worlds which Dowty calls *inertia worlds*.

Dowty explains that inertia worlds are possible worlds "which are exactly like the given world up to the time in question and in which the future course of events after this time develops in ways most compatible with the past course of events" (Dowty, 1979, p. 148). Under Dowty's proposal, if John manages to draw a circle in all inertia worlds of our world, then *John is drawing a circle* is a truthful sentence in our world. In other words, a circle is the eventual outcome if events proceed normally. Because of this appeal to the *normal* (rather than the *actual*) course of events, Landman (1992, p. 3) describes Dowty's inertia-world theory as characterizing the progressive in terms of *normality*.

Dowty's truth conditions (1979, p. 149) are given below, rewritten slightly for notional consistency.

### DOWTY'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $\langle I_0, w_0 \rangle$  if and only if  $I_0$  is an interval and  $w_0$  is a possible world and for some interval  $I'$  such that  $I_0$  is a subinterval (but not a final subinterval) of  $I'$ , and for all  $w'$  such that  $w' \in \text{Inr}(\langle I_0, w_0 \rangle)$ ,  $[[ \phi ]]$  is true at  $\langle I', w' \rangle$ .

These truth conditions claim in essence that *John was drawing a circle* is true in the actual world even when John does not eventually draw a circle in the actual world, provided that he would have drawn a circle if only the actual world (like the inertia worlds of the actual world at the time of evaluation) had followed the “natural course of events.”

Of course, the obvious first criticism of Dowty's theory is that the entire system hinges on the vague and informal definition of the inertia worlds themselves. The primitive function that generates the inertia worlds is described in only sketchy terms. There is little clarification given as to exactly how the inertia worlds compare to the actual one. The inertia-world function *Inr* may also be criticized as an ad hoc formulation since it has no other purpose than to explain the semantics of the progressive.

In addition, Dowty's proposal may also be faulted on the more serious grounds that it does not reliably pattern the semantic behavior of the progressive and leads to other paradoxes and problems. First of all, the reader may look back to my comments in Section 2.7 concerning the *problem of the contingent future* (also called the *multiple-choice paradox*). As I indicated in that section, Dowty's treatment of the coin-flipping scenario (which I reinterpreted as the roulette-wheel scenario) produces a fundamental logical contradiction. I cannot see how the proposal might be rescued from this difficulty.

Others have noted additional problems as well. For example, there is what we might call the *problem of inertial interruptions*. Look again at the sentence in (10c). As Abusch (1985, p. 179) points out, both the rolling wheel and the falling rock are moving according to the “natural course of events,” as they must both obey the laws of motion as dictated by physics. Therefore, it would seem that also in every inertia world of our world, the falling rock would still knock over the rolling wheel. However, (10c) can still arguably be a true sentence. This is another serious difficulty for Dowty's theory.

A further issue is what we may call the *problem of when-clause interruptions*, as raised by Vlach (1981, pp. 285-86) and discussed in further detail by Abusch (1985, p. 162) and others. The sentence in (10c) is an example as is the sentence in (13) below.

(13) John was crossing the street when he was hit by a truck.

As Abusch observes (p. 162), since inertia worlds are identical to the actual world up to the point of evaluation, and since the point of evaluation for (13) is the moment *when* John was hit by a truck, John was hit by a truck in every inertia world of the actual world. Therefore, John never crosses the street successfully when we allow the natural course of events to continue past the moment when John is hit by the truck. Thus, (13) is evaluated as a false sentence. However, this is not the result that Dowty would desire for his account.

Finally, a difficulty with the normality account is cited by Parsons (1990, pp. 169-70). Let us call this the *problem of the non-inertial actual world*. Suppose that two people, John and Jane, start to walk across the same street at the same time. John is struck down by a truck midway across. However, Jane follows a path across the street that we might have sent John along if he had followed the "natural course of events" and she thus crosses without incident. In this case, considering a moment just before John was struck down, is the actual world an inertia world of itself or not? That is, was the actual world a world where the natural course of events took place? The actual world must be one way or the other. Jane's crossing certainly followed the natural course of events, so we might be inclined to say that the actual world was an inertia world.

However, if the actual world is an inertia world, then John does not cross the street in every inertia world because he did not cross the street in the actual world. Because under the theory John must cross the road in *every* inertia world for (13) to be a truthful utterance, (13) would here be judged false. Of course, this is exactly the result that Dowty would not want his theory to predict. On the other hand, if we exclude the actual world from the set of inertia worlds in this case, we run into a strange situation. Now the sentence *Jane was crossing the street* is true only with respect to a potential crossing in the inertia worlds but not the actual crossing that occurred in the actual world. Parsons thus proves that the actual world can never be an inertia world since some event somewhere in the Universe might not be proceeding according to the "natural course of events." As a result, the progressive aspect under Dowty's theory could never refer to events in the actual world.

Parson's argument also highlights how the phrase the "natural course of events" is really rather vacuous. Indeed, Lascarides (1990, pp. 414-18) uses a similar argument to contend that the inertia worlds themselves may very well be based on entirely circular reasoning. Lascarides first demonstrates that Dowty's inertia-world function is ill-formed. Then, if we attempt to make the function well-formed, we are led to a useless claim that the progressive is true if the truth conditions are satisfied in just those possible worlds in which the progressive is true. The reader is invited to consult Lascarides (1990, pp. 414-18) for the details of the proof.

Actually, I am concerned that the Dowty's proposal may be circular for somewhat different reasons than those cited by Lascarides. I note that the truth-conditional meaning of an expression of language (a sentence in the progressive) depends on the satisfaction of certain conditions (events occurring in the inertia worlds) which in turn depends on the meaning of an expression of language ("natural course of events"). Thus, I suspect that the normality proposal may actually be less of a truth-conditional account than it is a complicated, technical paraphrase of the progressive, and a faulty one at that. The fact that the account ultimately leads back to the interpretation of an expression of language has further unfortunate implications that I highlight later in this chapter.

In sum, Dowty's normality account of the progressive is vague, ad hoc, probably circular, and does not work. Nevertheless, the inertia-worlds concept continues to have appeal in the semantic literature. Others have attempted to rework or expand the basic idea behind the inertia worlds in some way in order to explain the behavior of the progressive, as I discuss elsewhere this chapter. The reason that Dowty's proposal is still given attention is that, in spite of all its problems, there is obviously *something* valid in what Dowty claims. Just as the progressive gives us the impression that it might have some kind of link with the plans of a sentient agent, so too does it strike us as being somehow connected with the natural or expected course of events. Nevertheless, it is difficult to explain in either case why this would be so and also why both ideas then fail so decidedly as the foundation of a truth-conditional account. Parsons (1990, p. 170) says of the role of an agent's intentions in the semantics, "The analysis must not require that intent be irrelevant, but neither must it require its presence." We may just as well state this also about the "natural course of events."

### 3.6 Vlach (1981)

A prominent critic of Dowty's inertia-worlds analysis is Frank Vlach (1981). "The most obvious modification that must be made," asserts Vlach, "...concerns the limitations of the natural course

of events. It is not the entire natural course of events that must continue uninterrupted, but some sort of restriction to the state and actions of the subject of the sentence" (p. 285). Many agree with Vlach that this is the major flaw in Dowty's theory. Landman (1992) writes, "[T]he problem with inertia worlds seems to be that *everything* is required to take its normal course of events in them. This directly suggests the following modification: we shouldn't require that in inertia worlds *everything* takes its normal course of events, but *only* [ *the event in question* ] (and everything that doesn't interfere with that)" (p. 11).

Vlach suggests a new analysis of the progressive that Landman (1992, p. 12) calls the *subjunctive approach*. This is because Vlach suggests that it is necessary to treat the progressive as a special kind of counterfactual construction which removes certain interruptions to an ongoing process. Vlach's intuitions are thus that *John was drawing a circle* is a true sentence even when John is interrupted, since if he had *not* been interrupted, he would have drawn a circle. In Vlach's theory, it is not the entire *world* that is required to continue on naturally, but only the *process* in question. This is done, by counterfactually removing the offending interruption. Vlach's truth conditions for the progressive (p. 288) are cited below, again rewritten to conform to uniform notation.

#### VLACH'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and at  $I_0$  there is a *process* underway such that if it were allowed to continue past  $I_0$ ,  $[[ \phi ]]$  would eventually be true.

Another way to think of Vlach's idea is that it "insulates" the process in question from potentially disruptive "outside" influences.

Due to a technical glitch, Vlach unfortunately does not accurately translate his intuitions about the progressive into a set of truth conditions. As Landman (1992, p. 12) points out, it is not sufficient merely to stipulate that the process continues past the time that the sentence is uttered. Suppose that John begins drawing a circle. As he is drawing one might state the sentence *John is drawing a circle*. We then allow the drawing process to continue past the time we uttered this sentence for awhile. However, at some time later than the time of utterance but before John completes the circle, John is interrupted. Under Vlach's truth conditions, this would predict that our utterance was false, because the truth conditions only stipulate that the process must continue past the *time of utterance*.

To bring the truth-conditional analysis more in line with Vlach's intuitions, Landman (1992, p. 12) suggests a corrected version of Vlach's proposal.

#### LANDMAN'S CORRECTION OF VLACH'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and at  $I_0$  there is a *process* underway such that if it were allowed to continue past the future interval where the process is interrupted,  $[[ \phi ]]$  would eventually be true.

These truth conditions reflect more accurately what Vlach had in mind for the semantics of the progressive.

However, even in this amended form, the account runs into trouble. The principle difficulty might be called the *problem of further interruptions*. Take another look at (13) above where John is crossing the street before he is struck down by a truck. Under Vlach's corrected theory, we may permit the process to continue by counterfactually removing the truck which struck John. However, suppose that there had been a second truck coming up directly behind the one which struck him. Even if we counterfactually remove the first truck and allow John to continue, this second truck would have struck him down and he would not have crossed the street eventually. We may remove the second as well, but there could have been a third, or a fourth, or a fifth, and so on.

Landman is led by this line of reasoning (p. 18) to consider an additional modification of Vlach's proposal.

#### LANDMAN'S SECOND CORRECTION OF VLACH'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and at  $I_0$  there is a *process* underway such that if it were allowed to continue past the future interval where the process is interrupted and *nothing* had interrupted the process thereafter,  $[[ \phi ]]$  would eventually be true.

This is a much stronger variation of Vlach's analysis as it counterfactually eliminates *all* obstacles in the world to the realization of the anticipated endpoint. As it so happens, such a reformulation is now too strong.

In successfully dispelling the *problem of interruptions*, this version simply trades it for what Landman calls the *problem of non-interruptions*. We now have the unwelcome effect of allowing

all manner of bizarre sentences in the progressive to be true. Under these truth conditions, a process advancing toward even the most ridiculous goal need only be initiated, and even the most insurmountable obstacles are swept away counterfactually. A good example of this is (12) above, reproduced here as (14b), as compared with (14a) below.

(14a) Keather was jumping over the fence, but didn't make it over.

(14b) Keather was jumping over the Empire State Building, but didn't make it over.

In both cases, Keather begins the jump. Because she did not jump high enough in the scenario in (14a), under the strong version of Vlach's proposal, we sweep away such obstacles as the height of the fence, the pull of gravity, and the like, and allow her to make the jump successfully. However, if we similarly eliminate all obstacles to Keather making it over the Empire State Building, then she will make it over and (14b) unfortunately is also evaluated as true.

Although the proposal does not work in general, Vlach's central idea nevertheless seems to be another important piece of the puzzle. The progressive does indeed sometimes give the impression that it "insulates" the process or event in question from interruptions that intrude from "outside" the event. The progressive aspect seems to ignore some, though not all, obstacles and interruptions. As with the plans of an agent and normality, the difficulty has been to translate the notion of the insulation of an event into an accurate set of truth conditions for the progressive.

### 3.7 ter Meulen (1985, 1987) and Others

There are a number of proposals, including that of Alice ter Meulen (1985, 1987), that attempt to formulate the intuition that a sentence in the progressive expresses a *part-to-whole relationship*. This idea is also an important element of many other commentaries, such as Hinrichs (1983), Cooper (1985), Bach (1986), and Link (1987). The claim is that a progressive sentence is true whenever current conditions realize the significant part of an event of the type that would make the nonprogressive sentence true. In other words, perhaps we say that *John was drawing a circle* is true when John only draws an arc, because drawing an arc is a significant portion of drawing a circle. Similarly, when John starts across a street but does not reach the other side, we perhaps say *John was crossing the street*, because an event of starting across a street is a significant part of an event of crossing a street. We may thus call this kind of analysis the *partitive approach* to the progressive.

This kind of proposal is innovative because it explicitly introduces an *event semantics* to deal with the imperfective paradox. Just as the interval semantics of Bennett and Partee (1972, 1978) had earlier been helpful, events are a useful notion in attempts to formalize the semantics of verbal aspect. Under the partitive approach, the actual event (e.g. drawing an arc) is compared to an event type (e.g. all events of drawing a circle) to indicate that the actual event was just like part of an event of the kind where a circle is drawn. The part must be of sufficient size to be recognizable as a part of the potential whole.

The idea of a part-to-whole event semantics for verbal aspect also has appeal because of an interesting analogy to nouns, as noted by Bach (1986, p. 12). Consider his example sentence, cited in (15) below.

(15) We found part of a Roman aqueduct.

As Bach notes, (15) does not entail that there is, or ever was, an actual Roman aqueduct that this object was a part of, as would be the case if in Roman times “progress on the construction was interrupted forever by hordes of barbarians from the north” (p. 12). This part may be all that there ever had been of this largely nonexistent aqueduct.

Landman (1992, p. 17) summarizes the findings of such proposals in a set of truth conditions for the progressive. I reproduce them below, rewritten in my own notation.

#### LANDMAN'S SUMMARY OF THE PARTITIVE ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and at  $I_0$  there is an event underway such that this actual event realizes sufficiently much of the type of event that would make  $[[ \phi ]]$  true.

This proposal shares three important characteristics with other accounts. First of all, the truth conditions seem to capture our commonsense intuitions about the progressive accurately. Secondly, they are formulated in a rather vague way since they depend ultimately on what “sufficiently much” might mean. Finally, the truth conditions do not quite seem to work in general.

To illustrate the kind of issues that arise due to the vagueness of the account, compare (16a-b) below.

- (16a) Matthew was walking across the field, but fell into an unseen hole on the first step.
- (16b) Matthew was walking across the surface of the lake, but fell into the water on the first step.

Matthew got just about as far across the field in (16a) as he did across the lake in (16b). Note that in neither case would it seem that “sufficiently much” of an event of crossing was realized, since he fell on his first step. However, (16a) is arguably a true sentence, even though the above truth conditions would apparently predict that this sentence is false. On the other hand, if we argue that one failed step across a field is indeed sufficiently much of an event of crossing a field, then it is not clear why one failed step across a lake would also not likewise be sufficiently much of an event of crossing a lake. We may call this the *problem of defining sufficiency* and note that the current formulation of these truth conditions do not provide an explanation for this issue.

In addition, there are other problematic cases that the partitive proposal cannot seem to explain. Consider (17) below, as suggested originally by Dowty and discussed by others, such as Link (1987).

- (17) Mary was making John a millionaire.

As Link notes, the entire approach “hinges upon the assumption that every accomplishment type of event has some kind of standard ‘definition’ ... [ but ] there is really no standard way of making somebody a millionaire: the only thing that counts is final success!” (p. 249). That is, the difficult question is how to describe what a part of an event of making someone a millionaire might look like in general. We may call this the *problem of vague event types*.

Similarly, we also have the *problem of discriminating event types*. The part-of proposal claims that one is drawing a circle when one draws an arc since drawing an arc is a sufficiently large part of drawing a circle. However, drawing an arc is *also* a sufficiently large part of drawing a figure eight, a letter C, or similar shapes. The part-of proposal thus evidently predicts that when John draws an arc, he is drawing a circle, a figure eight, a letter C, and so forth, all simultaneously. This is nonsensical. Likewise, under this proposal, if one steps out the back door of one’s house, one is not only walking to work, but also walking to Mongolia, and to every potential destination anywhere, since stepping out the back door could be a part of all these different kinds of events.

Without appealing to an agent's plans or to the natural course of events, it is unclear how we might solve this problem.

Suppose we then try to argue that an agent's intentions play a role in this case since, after all, the agent's plans are also included in the partial event. In this way, an event of drawing an arc where John plans to draw a circle would be part of an event of drawing a circle and an event of drawing an arc where John plans to draw a figure eight would be part of an event of drawing a figure eight. However, we then run into the difficulties already cited in the previous section which concern appeals to an agent's plans. For example, recall the *problem of an undecided agent* given in (11a-b) above, where an artist is drawing an equine figure but has not yet committed to making it a drawing of a horse or of a unicorn. This example seems to demonstrate that we cannot even reliably appeal to an agent's intentions in such a case to disambiguate events and see what the "genuine" part-to-whole relationship is in a given instance. In other words, it does not always seem possible to tell what "whole" this "part" is a part of. If the event is interrupted, how do we know how it would have finished?

The partitive approach does not succeed in general. However, it also makes some sense to us. The *actual* start of the *actual* event in question may indeed play some important role in the truth conditions of the progressive aspect. We note that the closer the "incomplete" event gets to a "complete" one, the more confident we seem to be that the progressive sentence referencing this complete event is true. Yet, why would this be the case? As is generally believed by those who defend an intensional analysis, the truth conditions of the progressive depend in no way on the *actual* conclusion of the event in question. Because of the entailment failure of the imperfective paradox, it does not seem possible to claim that the *actual* conclusion to the *actual* event in question might also bear some direct relevance to the truth conditions. Thus, although truth-conditional accounts of the progressive worry extensively about how an event *might* turn out, it is generally understood that how the event *actually* turns out must certainly be irrelevant to the solution. However, I argue in this essay that the nature of the entire event, from start to finish, indeed has relevance to the truth conditions of a sentence in the progressive.

### 3.8 Parsons (1989, 1990)

An account that takes a rather different approach to the problem is advanced by Terence Parsons (1989, 1990). As Parsons observes (1989, p. 225), although there evidently need never be a house

when John is building a house, there must be a cart when Mary is pushing a cart. Thus, other than with predicates that would be *intensional* in any case (e.g. *seek a unicorn*), only with what Parsons calls the “verbs of creation” (e.g. *build a house*) do progressive sentences seem to pick out objects which may not exist as an *extensional* entity. He notes that for many sentences in the progressive the pattern “if  $x$  is  $A$ -ing a  $B$  then there is a  $B$  that  $x$  is  $A$ -ing” holds quite well.

The apparent failure of this generalization with the verbs of creation is one important reason why many accounts treat the progressive as an intensional construction requiring a possible-worlds analysis. Parsons rejects the idea of the progressive as a modal-temporal operator and strives instead to describe it in entirely extensional terms. As he writes, “The inertia worlds approach focuses on the idea of what would be the case (described in nonprogressive terms) if present activities were to go on uninterrupted. I suggest that present activities are the whole story” (1990, p. 170).

Parsons adopts a neo-Davidsonian semantic analysis. Pre-theoretically the sentence in (18a) is represented in his notation with the form in (18b).

(18a) Mary built the bookcase.

(18b)  $(\exists e) [ \text{Building} ( e ) \ \& \ \text{Subject} ( e, \text{Mary} ) \ \& \ \text{Object} ( e, \text{the bookcase} ) ]$

Ignoring the tense of the sentence for the moment, what (18a) asserts may be recast in the event-based terminology of (18b). The formula in (18b) simply states that there is an event, it is an event of building, Mary is the subject of the event, and the bookcase is the object of the event.

Parsons further notes (1989, p. 219) that most events take up a certain duration of time and that we may typically carve up an event into significant subparts which each also occupy a certain duration. Thus, an event of Mary building a bookcase may be divided into its *development portion*, where the building is going on, followed by its *culmination*, where the bookcase is finished. This is, of course, provided that the event finally reaches its culmination unhindered.

To indicate explicitly that an event reaches its completion point, Parsons uses ‘ $\text{Cul} ( e, t )$ ’ to signify that an event  $e$  culminates at time  $t$ . Parsons then modifies the notation in (18b) as in (19) below.

(19)  $(\exists t) ( t < \text{now} \ \& \ (\exists e) [ \text{Building} ( e ) \ \& \ \text{Subject} ( e, \text{Mary} ) \ \& \ \text{Object} ( e, \text{the bookcase} ) \ \& \ \text{Cul} ( e, t ) ] )$

Restating (18a), the formula in (19) asserts that there is a time before the time of utterance at which there is an event, it is an event of building, Mary is the subject of the event, the bookcase is the object of the event, and this event successfully culminates at this past time.

So far, the treatment is unproblematic, but the real question is how to deal with events that are still underway, especially those which fail to culminate. A formula similar to that in (19) would seemingly not work for the sentence *Mary was building a bookcase*. The sentence in the progressive is true even during the early stages of the development portion of the event when there is not yet a bookcase. The bookcase only comes fully into existence at the end of the successful culmination of the event and indeed never comes fully into existence if the event fails to culminate.

Parsons invokes the notation 'Hold ( $e, t$ )' to indicate that an event  $e$  still "holds" (still fails to culminate) at time  $t$ . However, in order to make this idea work, Parsons is forced to adopt a controversial stance on nominal reference. Parsons argues that (20a) below may be rewritten as (20b), by arguing that a bookcase that is an *incomplete* bookcase is nevertheless still a bookcase.

(20a) Mary was building a bookcase.

(20b)  $(\exists t)(t < \text{now} \ \& \ (\exists e)[\text{Building}(e) \ \& \ \text{Subject}(e, \text{Mary}) \ \& \ \text{Object}(e, \text{the bookcase}) \ \& \ \text{Hold}(e, t)])$

Parsons thus interprets (20a) to assert that there is a time before the time of utterance at which there is an event, it is an event of building, Mary is the subject of the event, the object of the event is the bookcase, it so happens that this bookcase is an *incomplete* bookcase, and the event has not yet culminated but merely *holds* at this past time.

Parsons does not express his treatment of the progressive in the form of a sentential operator. However, for the purpose of contrasting his approach with others presented in this chapter, I approximate what such truth conditions might look like in very informal terms if his approach were reinterpreted in this way.

#### AN INFORMAL INTERPRETATION OF PARSON'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[\text{PROG } \phi]]$  is true at  $t$  if and only if  $t$  is a moment of time and at  $t$  there is an event  $e$  of the type that makes  $[[\phi]]$  true whenever an event of this type *culminates*, but at  $t$ , the event *holds*.

As in the original proposal advanced by Parsons, I simply express the truth conditions with his technical terms *culminates* and *holds*.

The notions of *Cul* and *Hold* are just primitives in Parsons' theory that do not get much further description. Of course, the meaning of *Cul* is not so worrisome. After stating that an event occurs, *Cul* merely asserts that it was a complete event of that type. However, *Hold* is more problematic. It is not at all clear what it means for an event of some type to "hold." Parsons (1989, p. 220) indicates it means an event is "in development," but this is no explanation, merely a restatement.

The idea of *Hold* is certainly reminiscent of the fundamental notion behind the partitive proposal discussed in the previous section. The two proposals are also similar in that the extensional account offered by Parsons suffers many of the same difficulties encountered by the partitive approach. For example, look back at the *problem of defining sufficiency* in (16a-b) above. Parsons would argue that (16a) may be true whenever there is an event where Matthew walks across a field that holds up to the time that he falls into the unseen hole. However, it is then not clear how his theory might avoid predicting that (16b), where Matthew attempts to walk across a lake, would not be true in the same way.

The *problem of vague event types*, illustrated in (17) above, is also troublesome for Parsons. It is not clear what it might mean for an event where Mary makes John a millionaire to hold. As has been observed, there is no typical way of making somebody a millionaire. Parsons answers this objection by claiming that if such an event holds, it merely indicates there is an event which belongs to a very abstract and diverse event type: an event of the kind where *something* is happening that is causing John to become a millionaire, even if he does not eventually become one.

However, almost any activity that Mary does, given the right circumstances, might make John a millionaire. Maybe a telephone call from Mary to the right person at the right time would bring John a million dollars. Perhaps Mary giving one of the cookies that John bakes to a wealthy investor could be the turning point that puts John on the road to riches by giving him the opportunity to sell his cookies nationwide. However, it is just as possible, if not more so, that making a telephone call or giving someone a cookie will not result in John getting a million dollars. It is therefore unclear how we might differentiate (21a-b) below.

- (21a) Mary was making John a millionaire, but failed.
- (21b) Mary was not making John a millionaire.

Under Parsons' approach to the imperfective paradox, (21a) can be true even when Mary does not make John a millionaire, the same as when (21b) is true. It is not clear how we might differentiate those events that were events of Mary making John a millionaire that held and never culminated from those events that were not events of Mary making John a millionaire at all.

Again, recall that Link (1987, p. 249) emphasizes that in making someone a millionaire, "the only thing that counts is final success!" (p. 249). I argue in this essay that it is indeed meaningless to talk objectively about "incomplete" events of Mary making John a millionaire. For an event to be literally of this event type, Mary must succeed (the event must culminate). For similar reasons, I argue that in no objective sense are there such things as incomplete events of drawing a circle or crossing a street. There are only mistaken judgments made by speakers, a matter outside of truth-conditional semantics.

In addition, Parsons must face the *problem of incomplete objects*. For his analysis to work, Parsons must defend the idea that an incomplete house is nevertheless a house, just an incomplete one. As Parsons explains:

"According to this analysis, if Mary is building a house, then her building event has an object which is a house, and so there is a house that she is building. Now suppose that Mary is struck down by lightning with the house only one fourth finished. The objector then takes me to the location and demands, "Where is the house? All I see is a foundation and portions of some wall framing!" My answer is that we are looking at the house. It is a house — an incomplete or unfinished one. This will no doubt raise some eyebrows, but I think that it is correct. That is, given the linguistic conventions of English, it is proper English to describe the object before us as a 'house.'" (1989, p. 225)

This is one position to take on the matter, yet it is then not clear why it is not *always* possible in language to identify a part of something with the word that normally identifies the whole. For example, a real estate agent would quickly get into trouble claiming to have a house to sell, with no further clarification, if the "house" were just a foundation and one wall.

I argue in this essay that this distinction is not an objective or factual one. Rather, it is purely a matter of expectations. In the case of the progressive, the speaker comes to a practical judgment that a complete house *will* exist in the future and thus discusses the object which is presumed will eventually exist. That is, it is an object which is currently in the process of coming into existence. However, if the speaker is mistaken and such a complete structure is never realized, it is only

possible to continue to speak of the “house” within the context of a semantic course correction. This is a matter relevant to the pragmatic truth of progressive sentences.

The *problem of incomplete objects* raises an analogous problem with nouns that the *problem of discriminating event types* raises with events. Suppose we claim that an *incomplete circle*, otherwise known as an *arc*, is nevertheless a *circle*. As noted before, an arc might also be considered to be an incomplete figure eight or any other incomplete figure that contains an arc. This seems to lead us to a position where arcs are not only arcs but also all shapes of which an arc is an incomplete portion. How can we then tell when an arc is an incomplete circle, an incomplete figure eight, some other incomplete shape, or a complete arc? Similarly, the *problem of discriminating event types* lingers as well under Parsons’ approach. An event of walking out the back door of one’s house would simultaneously qualify as an event of walking to work which holds, an event of walking to Mongolia which holds, and similar events of walking to every potential destination anywhere which hold. Once again, it is not clear how these incomplete journeys might be differentiated.

Despite its problems, the account given by Parsons is nonetheless interesting in that it advocates a completely extensional, event-based analysis. To many researchers, this is an appealing avenue of inquiry, since it often seems somewhat counterintuitive to us that the progressive would denote a modal operator. As with supporters of the partitive approach, Parsons emphasizes that a part-to-whole relationship may be important to the explanation of the imperfective paradox. However, his argument is too strong. While it is indeed true that we may *sometimes* refer to an unfinished construction as a house, we cannot do this in general. Under which conditions does language permit us to identify the part with the whole and under which conditions may we not? I think the answer to this question does not lie with the progressive operator itself nor with a vague understanding of what nouns denote. Rather, I argue that the actual source of this behavior is in the pragmatics of the epistemic and physical contexts of language use.

### 3.9 Landman (1992)

After two decades of trying, semanticists began to abandon the idea that there might be a single key factor which plays the pivotal role in accounting for the imperfective paradox. The research trend has instead shifted toward truth-conditional analyses which carefully blend two or more of the factors previously considered separately in the literature. This sort of strategy permits more of the

data to be explained, but also has the unfortunate effect of significantly complicating the analysis. One of the more important of such hybrid proposals is advanced by Fred Landman (1992).

Dowty's normality proposal, Vlach's subjunctive proposal, and the partitive proposal are all cleverly knitted together in Landman's treatment. As summarized by Landman, "This theory is like the part-of proposal in that it takes the progressive to be a relation between an event and an event type; it is like the normality proposal in that the modal part of it makes use of the normality notion, in this case, reasonable chance; and it is like the subjunctive proposal in that it builds the semantics from two distinct types of operations: continuation in a world and counterfactual reasoning" (p. 30). While borrowing from all these previous analyses, the proposal is innovative in the way it manages to combine all of them together.

Landman not only wishes to account for the imperfective paradox, which he calls *the problem of interruptions*, but also for *the problem of non-interruptions*, as was shown in (14a-b) above. It is a puzzle to explain how we may say *Keather was jumping over the fence*, even when she does not make it over, yet we may not similarly say *Keather was jumping over the Empire State Building*, even when she tries and fails. Landman takes great pains to work out a semantic account of the progressive that balances the behavior exhibited in both the problem of interruptions and the problem of non-interruptions.

One of Landman's examples to demonstrate his approach is the sentence reproduced here in (22).

(22) Mary was crossing the Atlantic.

Assume Mary starts out swimming from France in the direction of New York, but she is not an excellent swimmer. She is thus utterly incapable of successfully completing a transatlantic swim of over 3000 nautical miles. Perhaps she only swims a mile or so out into the water before sinking. Landman wants to design an account that will predict that (22) is false in such a scenario. This would correct the flaw with the strong version of Vlach's subjunctive proposal which simply sweeps away all potential obstacles.

In order to develop his account, Landman introduces two theoretical concepts: *event stages* and the *continuation branch* of an event. Landman proposes that an event should be divided into event stages and that each successive stage past the point of the interruption should then be checked to see

if it is *reasonable* to continue. The potential continuation of an event, stage by stage, constrained by a check of normality at each stage, is the idea of a continuation branch.

Although his account is elaborated in great formal detail, Landman explains his intuitions informally as follows:

“So the idea is that you follow  $e$  in our world: if its continuation stops, you follow it in the closest world where it doesn't stop, if that world is a reasonable option for  $e$  in  $w$ ; if the continuation stops in that world, you go to the closest world again, if it's reasonable, and you continue until either in some world it doesn't stop (and then you stay in that world) or, the more normal case, your [ sic ] reach a point where going to the closest world is no longer reasonable and you stop there.” (p. 27)

For example, in (22), Mary sinks in the real world, but she might have gotten a bit farther in a nearby possible world. However, as Landman explains, even when we repeatedly allow her a little more progress through the water, “it's quite clear that after a few of these thought experiments, it is no longer reasonable to think that she would have had a chance in the real world to get that far. The continuation branch stops long before she gets to the other side. The full crossing does not get realized on the continuation branch. [The sentence] is false” (1992, p. 29).

At the heart of the formal definition of the continuation branch is the function  $R$ , a primitive notion in the theory. This function locates the set of possible worlds in which there is a “reasonable chance” for the event to continue in the evaluation world. Landman (p. 25) defines  $R(e, w)$  as follows.

A possible world  $v$  is in the set of possible worlds  $R(e, w)$  if and only if there is a reasonable chance on the basis of what is internal to  $e$  in  $w$  that  $e$  continues in  $w$  as far as it does in  $v$ .

As we see, the removal of obstacles is constrained by an appeal to a normality concept of sorts. The idea of the “natural course of events” in a set of possible worlds has been replaced by the idea of “reasonable chance” in the next successive possible stage of an event. There is also a reference to a kind of *insulation* of events from outside factors, since reasonable chance is claimed to be only concerned with what is “internal” to the event in question. Landman does not, however, explain exactly what he takes the expression “internal” to mean.

Landman's truth conditions (p. 27) may now be summarized, as shown below. This is only an informal summary presented for purposes of exposition. I have taken the liberty of omitting many

technical details to allow the account to be more easily compared with the others discussed in this chapter in how it treats the puzzles under discussion. Most notably, in Landman's official treatment, the progressive is not a sentential operator (as I portray it here), but rather a verb-phrase operator.

#### AN INFORMAL VERSION OF LANDMAN'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at time  $t$  in world  $w$  if and only if there is an event  $e$  underway at  $t$  and in some world  $v$  on the *continuation branch* of  $e$  in the evaluation world  $w$ , some event  $e'$  realizes the event type that makes  $[[ \phi ]]$  true, relative to some stage on this continuation branch.

Note especially that Landman's use of normality is not implemented at the level of a possible world, nor even a possible event, but is rather at the level of each small, successive, possible stage of an event.

However, like Dowty's appeal to the "natural course of events," Landman's proposal rests on an ill-defined notion: "reasonable chance." At which point exactly does the removal of obstacles become *unreasonable*? Should the continuation branch be stopped if too many obstacles stand in the path of success? If so, how many obstacles are too many? Should the continuation branch be stopped if the obstacles are too difficult to overcome? If so, how difficult is too difficult? The idea of *reasonable chance* seems to imply a judgment call, yet whose judgment call is the official one? An appeal to reason tacitly includes an appeal to some reasoning individual, yet Landman does not address this issue. It seems to me that at its heart, Landman's account reduces ultimately to the claim that a progressive sentence is true if some undefined language user judges the sentence to be true. That is, the proposal seems to be about the pragmatic truth of a progressive sentence, rather than its semantic truth.

Put another way, just as with Dowty's proposal, I fear that Landman's account comes very close to circular reasoning. Observe that the truth-conditional meaning of a progressive sentence depends on conditions which in turn depend on the meaning of other expressions of language ("reasonable chance to continue at each successive stage of an event" and "internal to the event"). For this reason, I worry that the account may possibly only claim that a sentence in the progressive is true just in case a paraphrase of the progressive, couched in complicated and technical terms, would be true. However, even if the account is only a complicated paraphrase, it might be argued that perhaps it is at least a more accurate paraphrase than that suggested by Dowty. If we put aside

concerns of circularity and indirect appeals to speaker judgments, by blending the ideas of the “natural course of events,” the *insulation* of events from outside forces, and a part-to-whole relationship, Landman’s account may be considered somewhat successful.

This cautious version of normality, moving forward inch-by-inch, fairs rather better than previous accounts at patterning the balance between the problem of interruptions and the problem of non-interruptions. For example, we may compare two similar scenarios and see how Landman’s approach is apparently able to discriminate them. First of all, observe that Landman’s proposal predicts that (22) is false under the scenario described above, but not *precisely* on the grounds that it would be unreasonable for Mary to swim successfully across the entire Atlantic. Rather, (22) is evaluated as false because after the event of Mary’s swimming goes on for awhile, it becomes ever more unreasonable that she would be able to continue, since she would become more and more tired at each successive stage.

Landman uses the idea of a “reasonable chance” in his proposal and, although he does not define precisely what he means by such terminology, this implies to me a percentile probability of continuation. It might therefore be permissible to reinterpret the Atlantic-crossing scenario in terms of a falling probability for the event to continue at each stage. Mary might have a nearly 100% chance of continuing when she begins the swim, but as she progresses, her chance of continuing drops to 90%, 80%, and so on. Landman’s continuation branch always gives Mary the benefit of the doubt. If there is still a plausible probability of continuation, the continuation branch does not terminate. However, as she becomes quite exhausted, her chance of continuing, while perhaps never dropping absolutely to 0%, becomes negligible. As there is thus no longer a reasonable chance of continuation, the continuation branch is terminated and (22) is evaluated as a false utterance.

Contrast this example with the sentence in (23) (Sentence based on an example from Asher (1992) who credits it to Sandro Zucchi).

(23) Samantha is crossing the mine field.

Suppose the mine field has a huge number of mines, any one of which would be deadly enough to stop an individual from reaching the other side. Safe negotiation of this field might thus be an extremely unlikely outcome. Perhaps there is only a 0.0000001% chance of avoiding all the mines. Samantha may not eventually be successful in crossing it nor did she ever have a *reasonable*

*chance* to do so. However, if we consider Samantha's safe negotiation of any one *particular* mine at any *stage* of the event, we would judge that she would have at least a *reasonable chance* of avoiding it. Let us say that Samantha has a 5% chance of avoiding each mine. Unlike the successively more difficult stages of Mary's swim, Samantha would have approximately the same reasonable chance (e.g. a 5% chance) to continue past each successive mine. Thus, even if the crossing of the mine field would be judged extremely improbable if taken as a whole, Landman's proposal would be able to explain the reasonable negotiation of each successive stage of the crossing and permit (23) to be a true sentence. Indeed, (23) could be true under Landman's proposal even if the mine field is filled with thousands of mines and Samantha's journey is ended when she steps on the very first one. There would still be a counterfactual continuation branch where Samantha is extraordinarily lucky at each stage of a possible event of crossing the mine field.

While Landman advances an interesting, if somewhat elaborate, amalgamation of the work of Dowty, Vlach, and the partitive proposal, there are also a number of serious issues to be raised with his analysis. First of all, as with other accounts of the progressive, the theory is ad hoc. It is forced to create theoretical devices that have no other purpose than to explain away the imperfective paradox. Secondly, as I have already noted, the analysis is purposefully vague. It does not define precisely at what point the reasonable chance of following the continuation branch becomes unreasonable nor what is internal or external to an event. Landman considers such vagueness appropriate to a truth-conditional analysis of the progressive. However, in my opinion, this is not advisable.

Yet, setting aside these criticisms for the moment, even this carefully blended account seems to run afoul of the data. For example, Landman admits that there are progressive sentences which exhibit truth-conditional behavior which his theory in its current form cannot explain. Recall the sentences from Chapter 2, reprinted here as (24a-c) below, which exemplify the *problem of contradictions*.

- (24a) I was flying to Boston (but I was hijacked to Bismarck).
- (24b) I was flying to Bismarck, North Dakota (but I didn't know it at the time).
- (24c) I was flying to Boston and, at the same time, I was flying to Bismarck.

In the scenario where a Boston-bound plane is hijacked midway to Bismarck, it would seem that with reference to the early portion of this flight, it would be possible to state either (24a) or (24b)

truthfully. On the other hand, the conjunction of the two sentences in (24c) seems contradictory to us in this scenario, at least when taken literally.

Another example from Landman is the sentence in (22) with a variation on the Atlantic-swim scenario. Suppose that Mary begins her swim as before and, as predicted under Landman's truth conditions, *Mary is swimming across the Atlantic* is evaluated as a false utterance at that time. However, if then by some miracle of divine intervention, Mary happens to succeed in swimming across the Atlantic, there seems to be no way now to deny retrospectively that this sentence was nevertheless true even early on in her swim. Landman concludes, "Now if you ask me (watching, say, a tape of Mary made after half an hour of swimming), 'what was she doing there?' I could answer truthfully, 'Well, I would never have believed it at the time, but in fact she was crossing the Atlantic Ocean.' So on this scenario, [ the sentence ] is true." (p. 15) Thus, for one scenario and at one particular time within this scenario, (22) may apparently be a false utterance during the early portion of her swim but, again with reference to this early part of her swim, if we look back on it after she crosses successfully, (22) may apparently also be a true utterance. Naumann and Piñón (1997, p. 243) observe, "The interesting twist about such examples is that their truth value depends in part on the utterance time."

Landman informally suggests that a theory of *perspectives* on events, if combined with his own analysis, could allow us to predict shifts in the truth values. However, he does not work out this solution in formal detail. I doubt that the notion of perspectives that Landman seems to have in mind would be a good idea to pursue. Landman considers (22) to be *false* in the typical case where Mary drowns after only a few miles of swimming. Then, in the miracle case where divine intervention allows Mary to cross, he would want (22) first to be evaluated as *false* from the earlier perspective but then *true* from the perspective after the swim is completed successfully. Thus, in the miracle scenario, the sentence actually bears *both truth values* with respect to the same conditions at the same time in the world. Of course, if the progressive is some kind of temporal-modal operator with scope over negation, there might be some technical way to allow (24a) and (24b) to bear both truth values simultaneously.

However, this analysis runs into trouble. First of all, if (24a) and (24b) are both literally true, this actually goes against our intuitions that (24c) is a literal contradiction. Despite the fact that we may utter both (24a) and (24b) in this scenario, our intuitions concerning (24c) would indeed suggest that (24a) and (24b) cannot both be literally true at the same time. The difficulty is similar to one I

noted in Section 2.7. In the roulette-wheel scenario, Dowty's answer to the problem of the contingent future (the multiple choice paradox) is to claim that two seemingly contradictory progressive sentences are both *false* simultaneously. As I demonstrated, even if we assume that the progressive is a modal with scope over negation, this leads to a logical quandary. Although I do not go into the argument here, there would be similar logical problems if we follow Landman's argument that it might somehow be literally true that one is flying to Boston and literally true that one is not flying to Boston at the same time.

Of course, Landman might counter by saying that such a progressive sentence does not actually bear both truth values, since it merely bears one under one perspective and one under the other. In that case, I must then request an explanation of what exactly a *perspective* might be. The word itself carries some interesting connotations. A perspective is a *view*, either seen with the eyes or with the mind. However, a view implies someone who has this view. Are we to understand that a perspective is meant to represent the views, as in *beliefs*, of the speaker of the sentence at various times? If so, then this revision of Landman's theory would reduce ultimately to a claim that a progressive sentence is true if the speaker believes that it is. If this is not what Landman has in mind, then I fail to understand what perspectives are intended to represent.

Even if the problem of contradictions might somehow be resolved, Landman's proposal runs into other complications. For example, consider again the problem of the contingent future. What would Landman's theory predict for the truth values of (25a) and (25b) while the ball is still in motion?

- (25a) The ball is rolling to an even number.
- (25b) The ball is rolling to an odd number.

If Samantha's 5% chance of avoiding a mine would amount to a reasonable chance for a continuation branch to proceed forward in the mine-field-crossing scenario, it seems to me that the ball's 50% chance overall to roll to an even number would be considered a reasonable chance for this continuation branch to proceed into the future of some possible world where the ball actually rolls to an even number. Thus, Landman's theory would apparently evaluate (25a) as true in this scenario. For the same reason, the theory would also seemingly evaluate (25b) as true. Landman's theory thereby runs into a similar contradictory trap as Dowty's when dealing with the multiple-choice paradox.

Finally, I might note what Landman's theory would predict with respect to the pie-making scenario discussed earlier. Consider (26) below, which exemplifies the *problem of impossibilities*.

- (26) Shannon was making a pumpkin pie, but she then discovered that she did not have ingredients to make it.

Under Landman's theory, the continuation branch only continues if there is a "reasonable chance" on the basis of what is "internal" to the event, that this event could have continued forward. Although Landman does not formally define what is internal or external to an event, I would suppose that the ingredients of a pumpkin pie would be internal to an event of making a pumpkin pie. If the requisite ingredients were not available, what was the chance that Shannon might have continued on and made a pumpkin pie? It seems to me that this would have been 0%. Unless we may consider no chance as falling within the range of reasonable chance, Landman's theory would predict that the continuation branch would terminate before Shannon makes a pumpkin pie in any possible world on the continuation branch. Thus, the theory would evaluate the progressive clause in (26) as *false*. Unfortunately, this result does not conform to the kind of intuitions about (26) that Landman wishes to capture with his theory.

We might then attempt to modify the proposal in some fashion. Perhaps we should begin our counterfactual branching earlier than the time of evaluation. This would permit us to counterfactually stock the kitchen with pumpkin-pie ingredients. However, this is an unprincipled move. For example, by going far enough back in time and taking millions of (individually) reasonable counterfactual branches, we could probably provide Mary sufficient training, equipment, or assistance to allow her to swim across the Atlantic successfully.

Alternately, we might try removing the requirement to consider only conditions internal to the event in question at the time of evaluation. This would allow us to look at continuation branches into possible worlds in which someone suddenly arrives at Shannon's door with all the necessary provisions. However, once we move outside the event, we are back to trying to formulate something like Dowty's inertia-world theory once again. Although we might attempt to find a new selection function on possible worlds which might work better than *Inr* (the inertia-world function), there is good evidence that such a proposal can never be made to work. Yet, no matter what form a revision might take, it is not obvious how we might justify counterfactually providing Shannon everything she requires to make a pumpkin pie while we stand passively by and watch Mary drown in the Atlantic.

What is particularly noteworthy about Landman's theory is how it highlights the trend in the semantic literature to incorporate more and more factors into the truth-conditional account. Landman subsumes in one theory normality, insulation, and partitive notions. The trend to consolidate separate theories into ever larger and more inclusive formulations continues. Zucchi (1998, 1999), noting deficiencies both with Landman's hybrid proposal and Parsons' extensional account, advocates merging these theories into one in order to form a kind of super-hybrid theory of the progressive. The formulation of the larger theory is described in comments which he picturesquely titles "How to Landman a Parsons" (1999, p. 193). However, for reasons separate than those I have discussed here, Zucchi realizes that even this super-hybrid theory would still be insufficient to deal with all the data on its own. Therefore, he suggests that Landman's original theory, before its merger with the theory of Parsons, must still be retained to pick up the slack. He argues that progressive sentences are ambiguous between those which may be treated under Landman's original theory and those which must be deferred to the new super-hybrid. However, my feeling is that this trend is moving in the wrong direction.

### 3.10 Asher (1992)

Another attempt to combine the insights of various other semantic proposals of the progressive is that advanced by Nicholas Asher (1992). Like Dowty, Asher treats the progressive as a modal construction which describes an outcome which *would* or *should* result, even if it eventually does not. Asher's particular innovation is to claim that a progressive portrays the *typical* or *generic* case of a particular event type that follows from a commonsense entailment. The proposal may thus be thought of as an attempt to capture "the natural course of events" in a somewhat more exacting way than was done in Dowty's normality account. However, in order for Asher to advance his proposal, he must adopt a *default logic* that is not a traditional tool of truth-conditional semantics.

To illustrate the idea of a commonsense entailment, Asher gives the following example, reproduced as (27a-c) below.

- (27a) Birds fly.
- (27b) Tweety is a bird.
- (27c) Tweety flies.

Many people might automatically conclude from the truth of (27a) and (27b), that (27c) is also true. Of course, this is not a valid entailment. The sentence in (27a) does not express a universal truth, but only the typical state of affairs. If Tweety is a flightless bird, then (27c) may be false. Nevertheless, there is a plausible inference from (27a-b) to (27c). Such an inference pattern is called a *commonsense* or *defeasible entailment*. If a defeasible entailment holds, it is termed *nonmonotonically valid*.

Asher sees an important clue in progressive sentences which express *generic* states of affairs. Consider (28a) and the defeasible entailment that exists from (28a-b) to (28c).

- (28a) When you are crossing the street, you typically get to the other side eventually.
- (28b) Mary was crossing the street.
- (28c) Mary crossed the street.

Asher believes that this kind of conclusion based on the typical state of affairs is important to the semantic behavior of the progressive. He observes, "So when you are peeling a carrot, you typically finish peeling it, when you are running a three minute fifty second mile, you typically finish in three minutes and fifty seconds. These default statements are true in virtue of qualities that a state denoted by the progressive must have" (p. 470).

For Asher, this is the solution to the imperfective paradox. He writes:

"While the inference from Prog(  $\phi$  ) to eventually  $\phi$  is not valid for telic event types, it is a 'reasonable inference' or a 'common sense entailment.' I contend that in the absence of information to the contrary one could, from the information that Mary was crossing the street, reasonably conclude that she got across. The inference from the progressive to the nonprogressive for telic event types  $\phi$  is a 'reasonable' or plausible inference, one that one might infer by default. Natural language encodes the connection between the progressive and nonprogressive form with 'generic sentences' ..."  
(p. 464)

Using this insight, Asher attempts to construct a set of truth conditions for the progressive which appeal to default cases. For my own account, as discussed in the following chapters, I think the most important part of Asher's statement cited here lies in the phrase "in the absence of information to the contrary." In language, information to the contrary (i.e. information contradicting what may have been thought or claimed earlier) may be introduced by such expressions as *but*, *however*, *except that*, and others. This is one characteristic of the phenomenon

of *semantic course corrections* that I discussed at the outset of this essay and which I return to again in the next chapter.

As noted above, Asher's theory is couched in a system of default logic. To summarize this logical system here would constitute too great a digression from the issues at hand. The interested reader is therefore invited to study the formal details by consulting Asher (1992) directly. However, as a rough approximation, we may informally portray Asher's rudimentary truth conditions (before certain revisions which Asher himself makes) in the following way.

#### AN INFORMAL VERSION OF ASHER'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval of time and there exists another interval of time  $I$  such that  $I_0$  is in  $I$  and conditions at  $I_0$  would *typically* make  $[[ \phi ]]$  true at  $I$ .

These truth conditions are intended to portray the basic premise which Asher sets forth early in his proposal. (For the formulation of his ultimate truth-conditional account, consult Asher, pp. 485-86.)

Asher's theory is rather successful at accounting for the truth-conditional behavior of a variety of progressive sentences. For example, I think Asher's theory (or perhaps a slightly different version of it) could plausibly account for the pumpkin-pie scenario discussed at the end of the previous section. Consider (29a-c) below.

- (29a) When you are making a pumpkin pie, you typically make a pumpkin pie eventually.
- (29b) Shannon was making a pumpkin pie.
- (29c) Shannon made a pumpkin pie.

Indeed it is plausible that a defeasible entailment exists between (29a-b) and (29c). Assuming such a defeasible entailment and assuming that Shannon is busy mixing ingredients and doing the kind of things that one typically does to make a pumpkin pie, Asher's theory would be able to use these facts to evaluate (29b) as a plausibly true sentence.

However, Asher understands that a real challenge to his account is presented by an example like (23) above, reproduced here in full as (30a-c) below.

- (30a) When you are crossing the mine field, you typically get to the other side eventually.
- (30b) Samantha was crossing the mine field.
- (30c) Samantha crossed the mine field.

The generic sentence in (30a) would not be considered a true default statement about mine field crossings. Typically, when you enter a mine field, you do not reach the other side because you get blown up. Since we do not accept (30a) as true, we have no commonsense entailment from (30b) to (30c). Nevertheless, (30b) may be used to describe Samantha's journey into a mine field.

In order to deal with the apparent counterexample in (30a-c), Asher must greatly complicate his truth-conditional account (as I have summarized it above informally). Like Landman, he proposes to make his truth conditions relative to what he calls a *perspective* on an event. For Asher, a perspective represents information available to one of the participants in the event. As he argues, it is too hasty to conclude that people do not typically cross mine fields successfully, given that one may consider the event from a particular informational perspective.

Asher thus asserts that we must evaluate (30b) not only from conditions in a set of possible worlds but also from the mental attitudes of a particular individual. For example, suppose that Samantha is not aware that she is crossing a mine field. Asher then observes:

“If she is not aware of crossing a minefield ... then the perspective  $\pi$  that takes her intentional state might very well be such that in all the  $*(w, \pi)$  worlds, Samantha gets across the stretch of desert .... But from her perspective the desert doesn't contain any minefields .... So in this perspective she gets across this stretch of desert. The stretch of desert, in which the minefield exists is a component of the crossing state. ... Since the stretch of desert that is part of Samantha's perspective contains the minefield,  $*(w, \pi)$  also implies that she gets across the minefield” (pp. 492-93)

On the other hand, we may consider the case where Samantha is aware of the mine field. Asher writes:

“Then the situation is less clear. Is she crossing the minefield or simply trying to cross the minefield? My intuitions suggest that unless she has taken precautions and it is rational to assume given her information that she would normally get across the minefield, she is not crossing the minefield but only trying to cross the minefield. Thus, one cannot simply apply generic information about minefields to situations like that of Samantha's; once again it is crucial to see what are the perspectives  $\pi$  of the state in the world of evaluation and to see what generic information the normal  $\pi$  worlds support.” (p. 493)

In summary, Asher claims that the truth of (30b) depends crucially on whether or not Samantha knows if she is crossing a mine field or not. If she does not know that she is in a mine field, then (30b) is true. If she does know that she is in a mine field, (30b) may be true if Samantha believes that she is able to get to the other side or perhaps false if she is not adequately prepared to cross. Suffice it to say that Asher's tidy semantics based on commonsense entailment quickly devolves into an inordinately complicated system that must incorporate all manner of vaguely defined mental attitudes to explain away problematic cases.

Although his ultimate treatment of the progressive is complex and fraught with problems, Asher's fundamental intuition about the progressive, as summarized informally in the truth conditions given above, is helpful to advancing my own analysis. Asher also notes that the truth values of sentences in the progressive seem to mutate curiously depending upon the information available to language users about the event in question. I argue that knowledge of events is actually the epistemic context of an utterance. Epistemic context is a factor that should be dealt with properly under pragmatics, not truth-conditional semantics.

### 3.11 Naumann and Piñón (1997)

Yet another proposal that blends several factors to explain the semantics of the progressive is that advanced by Ralf Naumann and Christopher Piñón (1997). As we saw in the last section, although Asher is somewhat unclear to what extent he admits that mental attitudes play a role in the semantics of the progressive, Naumann and Piñón explicitly state that their truth conditions for the progressive are "relativized to the belief of the speaker at the utterance time" (p. 244). In other words, they make the bold claim that the individual who utters a progressive sentence actually figures in some fashion in the truth value of the sentence itself at utterance time.

To begin with, Naumann and Piñón analyze the progressive as "decomposed" into four independent notions: *realization*, *belief*, *ability*, and *intention*, which we may examine in turn. What they call *realization* is designed to capture a similar intuition about the progressive as found in the partitive proposal. That is, the event described by the progressive is a partial realization of a *possible* event of the type described by the nonprogressive counterpart. Naumann and Piñón assert that saying an event of type *P* is in progress now means that there is a *possible* world in which that event is a part of a complete event of type *P*, even if the event is not part of a complete event of type *P* in the actual world.

However, in their proposal, realization is taken to be relative to the *belief* of the speaker. As they explain, “Realization is subject to a *presupposition* requiring that the speaker believe at the utterance time that the event in progress is not the partial realization of two *incompatible* event types” (p. 244). That is, not only must there be a partial realization of the requisite event type, but the speaker must also *believe* that this is a genuine partial realization for the sentence to be true. Naumann and Piñón add this stipulation in order to avoid the problem that the part-of proposal faces with the sentence in (17). How can we tell when an event is a partial realization of Mary making John a millionaire? Naumann and Piñón claim that this is simply when the speaker would accept the event in progress as not being incompatible with an event where Mary makes John a millionaire. If the speaker believes that Mary making a telephone call now is not incompatible with Mary making John a millionaire, then (17) may be a truthful utterance.

The proposal also contends that *ability* plays a role in the truth conditions, but this factor is again relativized to the beliefs of the speaker. Naumann and Piñón note that “if the event in progress has an agent, then the speaker believes at the utterance time that the agent is *able* at the time of the event in progress to carry out an event of the type in question” (p. 245). In order to capture this idea, they introduce a new primitive accessibility relation among worlds  $R_{\text{Ability}}$  that relates those worlds  $w'$  that are compatible with the abilities of an individual in the actual world at the time of utterance. In their proposal, this is an appeal to a kind of normality.

Finally, the *intention* of an agent is proposed to exert some influence on the truth-conditional behavior of the progressive, or rather, the beliefs of the speaker concerning the agent’s intention. One additional variation in this proposal is that the agent’s intention is expressed in the negative. Naumann and Piñón write that “if the event in progress has an agent, then the speaker does *not* believe at the utterance time that the agent intends at the time of the event in progress *not* to carry out an event of the type in question” (p. 245). They propose another primitive accessibility relation,  $R_{\text{intention}}$  that relates those worlds  $w'$  that are compatible with the intention of an individual in the actual world at the time of utterance. For the progressive sentence to be true, the event in question must already have a partial *realization* in the actual world, and must be completely realized in a possible world where the speaker has the *belief* that the early portion is not incompatible with the later culmination for that event type, that the agent has the *ability* to bring about this culmination, and that the agent does not have the *intention* to refrain from bringing about such a culmination.

Although Naumann and Piñón express their truth conditions (p. 246) in terms of a number of primitive accessibility relations among worlds as well as other formal devices, we may informally portray their truth conditions as follows.

#### AN INFORMAL VERSION OF NAUMANN AND PIÑÓN'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $t$  if and only if  $t$  is a moment of time and at  $t$  there is an event  $e$  that is a partial realization of the type that makes  $[[ \phi ]]$  true and the speaker of  $\phi$  believes at  $t$  that the agent of  $e$  is able to carry out the event type in question and also believes that the agent does *not* intend *not* to carry out this event.

Naumann and Piñón promote this analysis as being “at once radical and conservative” (p. 246). “It is radical,” they claim, “in that it makes the roles of ability, intention, and the speaker’s beliefs more explicit than in any other analysis...” However, despite the need to posit primitive accessibility relations among worlds for the abilities and the intention of the agent of an event, they assert that the analysis is conservative “in that it does not appeal to otherwise unmotivated and unanalyzed notions such as *inertia world* (Dowty, 1979) or *reasonable options* (Landman, 1992).”

The proposal is thus that the progressive sentence is inherently context-dependent in that the beliefs of the speaker of a progressive sentence are directly built into the truth-conditions of the sentence itself. The phenomenon of indexicality and deictic expressions demonstrate that context-dependency is not an unknown phenomenon. However, Naumann and Piñón’s idea of relativizing these various factors in the truth conditions to the beliefs of the speaker at utterance time cannot be correct. Certainly some sentences are context dependent, such as those containing an indexical expression. Yet, the semantic truth value of a sentence is not in general dependent upon the opinions or beliefs of the speaker.

Under Naumann and Piñón’s theory if one speaker’s beliefs differ from those of another, the same progressive sentence could be literally true when spoken by the first but literally false when spoken by the second. Thus, consider our earlier example, repeated here as (31).

(31) John is drawing a circle.

Suppose John has already drawn a short arc and someone states (31) who believes that John is capable of drawing a circle and who also believes that John does not intend to refrain from drawing

a circle. Even if the speaker firmly holds such beliefs, if the speaker was mistaken and John is actually drawing a figure eight, then (31) is false. Yet, Naumann and Piñón's proposal would predict that this speaker's beliefs make the sentence true. Under their proposal, a sentence in the progressive would have no absolute semantic truth value, but rather only differing truth values for each speaker that may also vary for the same speaker over time. In addition, there would be various other complications for this account, such as what happens when speakers are not sure of their own beliefs and are thus unable to decide whether a sentence in the progressive is true or false.

Perhaps the reader has already concluded, as I have, that what Naumann and Piñón are concerning themselves with is not the *semantic truth* of progressive sentences, but rather their *pragmatic truth*. This is the kind of truth which I describe as varying over time and from speaker to speaker. It seems obvious to me that Naumann and Piñón are attempting to capture the conditions under which a typical speaker might *believe* that a progressive sentence is true rather than the conditions under which the sentence actually *is* true. This is not what truth-conditional semantics is designed to do. Unfortunately, by confusing beliefs of truth (i.e. pragmatic truth) with truth itself (i.e. semantic truth), I think many other proposals have advocated indirectly and inadvertently what the proposal of Naumann and Piñón does up front and on purpose.

### 3.12 Portner (1998) and Others

Another current trend in the semantic literature of the progressive is in the direction of elaborate modal analyses, such as that advocated by Paul Portner (1998). These proposals are mainly an outgrowth of the semantic treatment of modals developed by Kratzer (1977, 1981, 1991). The basic intuition behind Portner's analysis is actually quite similar to a variety of other diverse modal and non-modal accounts, such as Hinrichs (1983), Cooper (1985), Abusch (1985), and Glasbey (1996, 1998). Although differing widely on technical points, the common theme in all of these proposals is that the truth-conditional behavior of the progressive may be explained in terms of large amounts of contextual background information.

Portner illustrates his theory (p. 772) with the example sentence given in (32) below.

(32) At 7 o'clock, Mary was climbing Mount Toby.

According to Portner, the truth value of this sentence cannot be determined unless we consider the *circumstantial modal base* for this sentence, designated  $M(w)$ , which contains all propositions relevant to the interpretation of (32), as shown in the partial representation in (33) below.

(33)  $M(w) = \{ \text{'Mary is in good physical condition', 'Mary does not give up easily', 'It was raining lightly on Mount Toby at 7 o'clock', 'Mary was one third of the way up the Mount Toby trail at 7 o'clock', 'Mary was headed the right way on the trail at 7 o'clock', ... } \}$

Portner does not make absolutely explicit what a modal base is supposed to represent and how it is actually generated, but notes that “the modal base should be the set of facts relevant to whether [ the event in question ] is completed as an event of Mary climbing the mountain...” (p. 774). As Portner maintains, “It is obvious that things like whether she is in good shape and whether she is lost on the trail will be relevant” (p. 773). Nevertheless, it is notable that the set of facts in the world relevant to whether the event is completed as an event of Mary climbing the mountain excludes the fact of whether Mary actually climbs the mountain or not.

Portner argues that “the precise identity of the propositions in the modal base is not a matter for semantic investigation. Instead it is contextually determined, based on the actual facts of the matter at hand in combination with the knowledge and interests of the speaker and hearer” (p. 774). Since the truth conditions of a progressive sentence in Portner’s theory eventually lead back to the minds of the speaker and the hearer, there should be grave doubt as to whether the theory is actually designed to determine the semantic truth of progressive sentences, or whether it represents a misapplication of the possible-worlds mechanics of truth-conditional theory in the determination of their pragmatic truth for a particular speaker at a given time.

As well as the modal base, Portner proposes an *ordering source*, designated  $O(w)$ , which is used for ordering possible worlds from best to worst. For (32),  $O(w)$  is given in (34) below.

(34)  $O(w) = \{ \text{'Mary does not get eaten by a bear', 'Mary does not slip and hurt her ankle', 'A surprise summer blizzard does not start on Mount Toby', 'Mary does not get lost' ... } \}$

According to Portner,  $O(w)$  “...can be seen as the set of outside factors that need to go right for Mary if the proposition *Mary climbs Mount Toby* is to be true.” Portner claims that (32) is then

true in all worlds compatible with the modal base for (33) and where none of the mishaps in (34) come about.

The set of such worlds is designated *Best* (*M*, *O*, *w*). Portner's truth conditions (p. 774) are summarized below, where *T*(*e*) indicates the temporal trace of the event in question, *Circ* is the circumstantial modal base, designated *M*(*e*), and *NI* is the set of non-interruptions, *O*(*e*).

#### PORTNER'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $\langle I_0, w_0 \rangle$  if and only if  $w_0$  is a possible world and  $I_0$  is an interval and there is an event  $e$  in  $w_0$  such that  $T(e) = I_0$  and for all  $w'$  such that  $w' \in \text{Best}(\text{Circ}, \text{NI}, e)$ , there is an interval  $I'$  which includes  $I_0$  as a nonfinal subinterval, such that  $[[ \phi ]]$  is true at  $\langle I', w' \rangle$ .

These truth conditions assert that (32) would be true if and only if in all worlds where everything goes as well for Mary as the speaker and hearer expect and nothing goes poorly, Mary climbs Mount Toby. It is interesting that Portner writes of Landman's proposal that "...Landman's counterfactual theory is more about the kind of evidence one may present for the truth of a progressive than a semantic analysis of the construction itself" (p. 785). I would concur with Portner on this point, but add that I also believe the same may be said of Portner's own analysis.

Although somewhat disguised and not stated overtly, Portner's account may also be seen to reduce to the idea that a sentence in the progressive is true just in case the speaker and/or hearer believe that it is true. For example, Portner discusses Dowty's famous example, given in (35) below.

(35) The coin is coming up heads.

Portner argues that (35) is inherently vague and that its truth value would depend in part upon who was discussing this sentence at the time. As he writes,

"Whether it is seen as true or not depends on the precise nature of the modal base, and in this instance the context of use plays a central role. If the modal base for the sentence contains sufficiently detailed information about velocity and position of the coin, the environment, and physical laws, it may entail that the coin does eventually come up heads. If it does, then the sentence will be true. The kind of conversation that would tend to support this modal base is one between Newtonian physicists. On the other hand, if the modal base contains only the kind of information observable to an ordinary person, it will not entail that the coin comes up heads; the sentence will then be false. A conversation between gamblers might tend to have this kind of modal base." (p. 783)

Of course, it is difficult to know if Portner's analysis would predict (35) to be true or false in the case that a Newtonian physicist is conversing with a gambler.

Let us study Portner's approach to the *problem of the contingent future*. As noted before, since I take (35) to be a sentence in the futurate progressive, I will reinterpret this example with the similar roulette-wheel scenario and replace (35) with the sentence in (26a) *The ball is rolling to an even number*. Portner's analysis seems to be the following: With sufficient *knowledge* of the facts, a speaker would be able to make a good judgment as to whether the ball will eventually roll to an even number or not and would therefore be able to decide whether (26a) is true or false based on this. In this respect, where the ball eventually comes to rest is relevant. However, the semantic truth value of (26a) actually becomes literally false under Portner's theory when the speaker is no longer in possession of these facts. Under such an analysis, the sentence in (26a) is thus more about a human being's mental judgments of the facts than it is about the actual motion and eventual destination of the ball. For this reason, I believe Portner is concerning himself with the pragmatic truth of (26a), rather than its semantic truth. The key fact in determining the semantic truth of (26a), the fact about which gamblers and Newtonian physicists might disagree, is whether or not the ball actually rolls to an even number.

Arguments similar to that given by Portner may be found in the proposals of Hinrichs (1983), Cooper (1985), and Glasbey (1996, 1998). I note that Glasbey identifies her account as "truth-conditional" on the grounds that "it sets out to define the precise conditions under which a progressive sentence can be truthfully used" (1996, p. 332). However, semantic truth, the truth of truth-conditional, model-theoretic semantics, does not revolve around how sentences are *truthfully used*, but rather around when sentences *actually are literally true*, apart from their use and judgments of the pragmatic truth of sentences in conversation.

The blurring of this distinction is evident in Glasbey's discussion of the example in (36) below. The scenario is that a congregation is praying to God on Peter's behalf.

(36) Peter's sins are being forgiven.

In her *channel-theoretic* account, Glasbey argues that the truth of such a sentence may only be evaluated with respect to a particular information channel. Thus, according to Glasbey, (36) would be true if said by "a community of religious believers, who believe that when they pray, God forgives their sins." On the other hand, "a skeptical outsider might question the truth of this

progressive...” and judge this sentence to be false (1996, p. 357). It is unclear what the truth value of this sentence would be under Glasbey’s theory if uttered by an agnostic.

Truth-conditional semantics in the tradition of Montague was never designed to model judgments of truth based upon a speaker’s command of the facts. Rather, all objective facts are made explicit in model-theoretic fashion, such as whether or not a roulette ball eventually rolls to an even or an odd number or whether God is currently forgiving someone’s sins or not. Except in certain special instances of intensionality and epistemic modality which may make explicit reference to an individual’s mind or to the epistemic context itself, the speaker’s knowledge, beliefs, opinions, or lack thereof about an event are irrelevant in truth-conditional, model-theoretic semantics.

Although some argue that the progressive is an epistemic modal and therefore merits a special analysis, there is no compelling reason to think that some special property of progressive sentences causes them to refer in general only to epistemic context. For example, the progressive sentence *Peter’s sins are being forgiven* and the non-progressive sentence *Peter’s sins were forgiven* are both about the forgiveness of Peter’s sins and not merely about some speaker’s epistemic context when uttering such sentences. As I explain in Chapter 5, the epistemic context is a consideration for pragmatic truth, a speaker’s judgment of the truth of a sentence at a given time. This is a relevant quantity in the utterance of any declarative sentence, including those in the progressive aspect.

### 3.13 Summary

This chapter presented an overview of several significant accounts addressing the semantics of the progressive. The starting point for many semantic theories is the idea advanced by Sweet (1898) and Jespersen (1932) that the progressive aspect indicates a temporal frame around another time. Thus, we might say *John was drawing a circle when Mary arrived* to indicate that the time interval over which John drew a circle surrounded the time at which Mary arrived. This idea was given a truth-conditional treatment first by Montague (1970) and Scott (1970), which was later revised in terms of an interval semantics by Bennett and Partee (1972, 1978).

However, the imperfective paradox and other problems are not given any explanation under the simple version of the temporal frame account taken alone. A large body of literature has been devoted to proposed explanations of how we may say, for example, that John is drawing a circle whether or not John eventually draws a circle. Semanticists have searched for some key set of

criteria upon which to base truth conditions for sentences in the progressive aspect that would account for the imperfective paradox.

Ideas which have been either seriously considered or actively advocated in previous semantic accounts of the progressive include the plans of an agent, normality, the insulation of events from outside influences, and a part-to-whole relationship of events. Each of these factors alone or in various combinations have been incorporated into truth conditions for the progressive and arguments for and against each of them have been advanced. However, no analysis has yet been able reliably to predict the semantic behavior of the construction.

In summation, if we look closely at semantic accounts of the progressive, many authors construct truth conditions that inadvertently lead back to what some person either *believes* or *says*. In discussing his own proposal, Dowty observes, "Though the beliefs of an individual are clearly involved in his deciding what worlds count as inertia worlds, we must of course resist the temptation to make the meaning of the progressive sentences a function of the speaker of the sentence (i.e. a function of his particular beliefs) or the hearer or of any other particular person" (1979, p. 149). However, I believe Dowty's inertia worlds analysis of the progressive is tantamount to exactly the kind of account he wishes to avoid.

Dowty argues that even if various language users were to examine all possible worlds and compare them, there might still be differences of opinion as to which worlds would be inertia worlds. Yet, since differences of opinion are possible among language users as to what the set of inertia worlds might be, how is the ultimate truth of a progressive sentence to be determined? Of course, as we have seen, this is left to the function *Inr*. Even if we say that *Inr* is the final arbiter in such matters, we must then admit that it is *Inr* which makes some sort of judgment call as to what is or is not the "natural course of events." Although Dowty insists that *Inr* is not meant to represent the beliefs of any particular person, it evidently represents some form of discernment regarding the matter of the truth of progressive sentences. Dowty's theory thus appears to be an elaborate way of carefully *externalizing* the beliefs of some stereotypical speaker to the realm of unclear possible worlds.

Indeed, I think the same criticism may also be leveled at many of the other accounts discussed in this chapter as well. The argument I have advanced throughout this chapter is that these semantic accounts are actually dealing more with what I call the *pragmatic truth* of sentences in the progressive rather than with their literal *semantic truth*. An explanation of why and how this is the case is presented in the next chapter.

## Chapter 4

### Semantic Course Corrections

#### 4.1 Preview

In this chapter and the next, I develop an explanation of the imperfective paradox and other puzzles relevant to the progressive framed largely in terms of pragmatics. As I demonstrate, the analysis is supported by a variety of evidence. The core idea of the proposal is that the imperfective paradox is merely one example of the much wider phenomenon of semantic course corrections. After presenting the pragmatic analysis, I then round out the essay with a truth-conditional account in Chapter 6.

From the survey presented in the previous chapter, it is apparent that there remains a remarkable lack of unanimity as to what overall direction a truth-conditional account of the progressive should take. Indeed, there is not even consensus as to whether the progressive should be treated properly as a counterfactual construction under a possible-worlds or epistemic modal analysis or, alternately, whether the progressive is an entirely extensional construction. It has been suggested that a theory of perspectives may be able to explain the curious, chameleon-like alternations of truth values that sentences in the progressive seem to exhibit. However, no one is explicit as to what these “perspectives” are meant to represent beyond an indistinct theoretical device. Neither has anyone yet demonstrated how they might be used rigorously in a formal approach to account successfully for the semantic behavior of the progressive.

Despite evidence which has led to the development of possible-worlds treatments of the progressive, many native speakers of English find it difficult to envision the progressive as a modal construction. Although I do not take the progressive to be *entirely* extensional, I argue in this essay that the construction is intensional only to the extent that it depends upon conditions in the past and future of the time of evaluation. That is, I do not believe the progressive inherently expresses a counterfactual meaning. Nevertheless, it is admittedly quite a challenge to address the various paradoxes and problems involved under a single, unified analysis. In this respect, I would agree with Landman (1992) who maintains that “these problems pull in different directions, and

dealing with all of them is a bit like trying to perform a juggling act while sailing between Scylla and Charybdis” (p. 1).

Of all the problems under discussion, it is the imperfective paradox which has received the most attention in the literature. However, success in treating this paradox can mean failure in explaining the other various contradictions and impossibilities at issue. That is, if anyone were to develop some system which would accurately assign the truth values that most researchers desire to predict for progressive sentences exhibiting the imperfective paradox, these truth values would then in turn license the literal truth of what appear to be obvious contradictions. This can be seen clearly, for example, in the discussion of the airplane-hijacking scenario. We might attempt to formulate truth conditions expressly designed to predict that it could be literally true that someone is flying to Boston and, at the same time, that it is also literally true that someone is flying to Bismarck. Similarly, as illustrated by the roulette-wheel scenario, we may design a semantics which asserts that tautological sentences dealing with the contingent future may somehow be false. However, it seems like a particularly bad idea to construct this kind of account since it predicts that literal contradictions may be true or that literal tautologies may be false.

However, recall the comment of Asher cited in the previous chapter, which states in part, “I contend that in the absence of information to the contrary one could, from the information that Mary was crossing the street, reasonably conclude that she got across” (1992, p. 464). As was discussed, Asher’s account unfortunately runs into some serious problems. Nevertheless, in this particular comment, the phrase *in the absence of information to the contrary* strikes me as extremely relevant. We may contemplate further the effect on the truth values of declarative sentences that supplying information to the contrary can have. If we look deeper into this behavior, I think it is possible to discover certain regularities which we may seize upon to explain the perplexing puzzles and paradoxes that trouble semantic accounts of the progressive.

My account of this behavior, presented in Chapter 5, concerns the epistemic context under which a progressive sentence must always be uttered. The important point is that in uttering a sentence in the present progressive, we never actually know for sure how future events will unfold. Because of this, virtually every statement about the future contains an implicit pragmatic caveat, such as *...but I may be wrong, ...unless I’m mistaken, ...if all goes well, or ...God willing*. Then again, since there is always the possibility that any speaker may be incorrect in making almost any declarative sentence, virtually any use of language contains such an implicit caveat. This is why Grice’s

maxim of quality is based on pragmatic truth, rather than on semantic truth. In other words, human beings are fallible in language use and we only demand adherence to what is believed to be true and not what is literally true. Then, if it is later discovered that a mistake was made in postulating a pragmatic truth value for some sentence, the stage is set for the use of a semantic course correction.

Departing from the usual examples cited in the semantic literature, I now branch out to look at other indicators that might help us determine the semantic and pragmatic nature of the progressive aspect. As I explain, there are clues that progressive sentences which exhibit the imperfective paradox may indeed be instances of semantic course corrections. For example, as discussed with reference to the pie-making scenario where insufficient ingredients were on hand, we can and do utter progressive sentences naturally in instances where the realization of the nonprogressive counterpart of the sentence is impossible.

Another example of this can be constructed from the circle-drawing scenario. Suppose John states the sentence in (1) below.

(1) I was drawing a circle, but I didn't finish it because my only pen ran out of ink.

Such an example goes against Dowty's fundamental idea that although one cannot conclude from the truth of *John was drawing a circle* that John eventually drew a circle, a circle must at least have been a *possible* outcome of John's activity (1977, p. 57). Without sufficient ink in the pen to begin with, there was no *possible* way this event could have proceeded forward to the completion of an event where John draws a circle. Only in magical, miraculous worlds would more ink suddenly appear in the pen midway through the drawing. Such examples would suggest that a progressive clause exhibiting the imperfective paradox may indeed not be literally true, but rather may be *literally false*.

As *improbable* as this proposal might seem at first, I find it indeed *impossible* to support the claims of others that truth-conditional semantics should be designed to predict that logical contradictions and other nonsensical situations might somehow be literally true. Concerning the mysterious case of the progressive aspect, the words of Sir Arthur Conan-Doyle's immortal (though fictional) detective Sherlock Holmes are most illuminating. "When you have eliminated the impossible," Holmes explains to his friend, Dr. Watson, "Whatever remains, *however improbable*, must be the truth" (from *The Sign of Four*, 1890, chapter 6).

## 4.2 Logical and Semantic Evidence

### 4.2.1 A Question of Truth

I claim that the imperfective paradox is merely one example of a semantic course correction. My solution to this dilemma is thus that there is indeed no literal entailment failure from a progressive sentence to its nonprogressive counterpart. This is because, in my view, a progressive sentence exhibiting the paradox is actually *literally false*. The notion that such progressive sentences might be false is, in fact, a solution which has been entertained on rare occasion in the literature. However, it was never given much serious consideration. In the postscript to Bennett and Partee (1978), the authors mention that they had earlier suspected that there might be a reading of a progressive sentence that was false in instances involving the imperfective paradox. However, they later abandoned this notion (p. 54).

There is also an interesting, though obscure, exchange in the literature between Taylor (1977) and Dowty (1979). Taylor advances an analysis of the progressive similar to that of Bennett and Partee (1972, 1978), but makes only brief mention of the imperfective paradox. The sentence he discusses is repeated here in (2).

- (2) Coleridge was writing 'Kubla Khan' at the time  $t$  of the Porlock person's untimely arrival.

As Taylor (1977, footnote 9, p. 210) notes, his account of the semantics of the progressive does not predict the famous entailment failure. However, with respect to (2), Taylor observes that "the interruption ensured that no time was to be a time *of* his writing the poem. (Assume, for the example, that 'Kubla Khan' is the whole of Coleridge's projected work, not just its successfully completed fragment.) Very briefly, my response is to deny that Coleridge really was writing 'K.K.' at  $t$  (since  $t$  did not fall within a period *of* his writing the poem)." I agree with Taylor that the progressive clause in (2) is actually, literally speaking, a false utterance.

However, Taylor gives a different explanation than I advance in this essay as to how it is we may utter such a literally false sentence. Taylor suggests that (2) really means that Coleridge "...was at  $t$  doing something which *would have been* writing 'K.K.' had the arrival not occurred (i.e.  $t$  falls within a period  $t'$  which would have been a time of Coleridge's writing 'K.K.' had the Porlock person not arrived). If all purported counterexamples to the entailment can be met with this

counterfactual construal, my postulates stand; though a systematic treatment of the counterinstances must await a Davidsonian analysis of the subjunctive conditional” (footnote 9, p. 210). Thus, Taylor has the intuition that the progressive might somehow involve an “insulation” of the event in question, a position that was discussed with respect to several accounts, such as Vlach (1981).

Dowty (1979, footnote 10, p. 189) finds Taylor’s explanation of the imperfective paradox implausible in several respects. Indeed, he is even somewhat unsure what Taylor has in mind exactly, though he suggests that Taylor’s comments might perhaps be reinterpreted in any of the following four ways, repeated here as (a) through (d) below:

- (a) examples like this one, which appear frequently in ordinary conversation, are always false when we regard them as true, in spite of the fact that people communicate successfully with them,
- (b) though false, we take them as a kind of figure of speech,
- (c) there is a syntactic rule which deletes a subjunctive conditional connective and turns the sentence into a progressive-and-*when*-clause structure under mysterious circumstances, or
- (d) the semantics of *when*-clauses works in mysterious ways to block entailments in certain cases that go through in all other cases.

Dowty concludes, “None of these positions seems tenable as a linguistic analysis of English to me...” (footnote 10, p. 189). In contrast to Dowty’s position on the matter, I indeed find three of these four points tenable: (a), (b), and (d), and I actually agree with them wholeheartedly.

We may consider each of Dowty’s points in turn. With respect to point (a), in this essay, I illustrate how false sentences do indeed appear frequently in ordinary conversation. Such utterances are permissible only because they are stated within the non-literal context of a semantic course correction. In this way, an untrue sentence is not allowed to stand unchallenged. Rather, it is corrected or amended in some fashion within the larger discourse. Even while a particular sentence or clause may be false, we indeed regard the overall discourse as *true* since, as a whole, it corrects an error in order to express truth (as far as the speaker can determine this). Not only are people able to communicate successfully when correcting false sentences in this way, I would argue that a semantic course correction is surely a linguistic device which helps to *promote* successful communication. Furthermore, it is at least conceivable that progressive sentences exhibiting the imperfective paradox represent a particular instance of this larger linguistic phenomenon.

With respect to point (b), we do indeed interpret such false sentences within a semantic course correction non-literally. That is, we do not ultimately understand the sentence as expressing its literal, truth-conditional truth in the way we would if the same sentence were stated without further correction or qualification. Rather, this sentence may serve as an error quotation. In addition, the entire semantic course correction generally features unusual forms such as contradiction or irreferentiality and thus plausibly may be regarded as a figure of speech. Nevertheless, this is a figurative construction which clearly has certain well-defined pragmatic purposes: the fine-tuning of linguistic expression and the correction of mistakes.

With respect to point (c), it seems doubtful that Taylor (1977) has in mind a syntactic transformation of his subjunctive paraphrase to an expression with a progressive and a *when*-clause. It is far more likely that Taylor has somewhat similar intuitions about the meaning of the progressive as does Vlach (1981). That is, Vlach argues that the progressive expresses a subjunctive notion about what could or would have happened if things had gone differently provided that an event (or *process*, in Vlach's terminology) were "insulated" from "outside" factors. Although his meaning is not entirely clear, Taylor may only be suggesting this subjunctive interpretation as a non-literal paraphrase of such a progressive sentence. Vlach, on the other hand, clearly argues that the subjunctive meaning is a feature of the literal meaning of a progressive sentence just as Dowty argues that the notion of the "natural course of events" is somehow an in-built feature of the progressive aspect itself. If we interpret Taylor to be referring to the non-literal rather than to the literal meaning of (2), instead of how Dowty interprets the comments in (c) above, then I would concur.

With respect to point (d), Dowty finds it doubtful that a *when*-clause might work to block an entailment since "cases where the entailment goes through and cases where it doesn't are syntactically indistinguishable and semantically 'the same' construction according to intuitions of native speakers" (footnote 10, p. 189). Be that as it may, as I discuss in Section 4.4.5 below, a *when*-clause can indeed signal a semantic course correction. The word *when* evidently refers to the time at which the error in question was discovered and corrected.

#### 4.2.2 Contradictions and Impossibilities

It is obvious from the discussion of semantic course corrections in Chapter 1 that this phenomenon would not be reducible to a possible-worlds analysis. For example, recall the book-purchasing

scenario. A world where a book on stamp collecting is simultaneously a copy of *Wuthering Heights* would be an *impossible* world. In other words, taken *literally*, the sentence is a clear contradiction. Certainly, it would be a bad idea to try to force such a nonsensical and paradoxical sentence to be literally true under a truth-conditional framework. The only conceivable argument for doing so would be that it is permissible to utter such a sentence as a “truthful” utterance in conversation. Nevertheless, what we *say* is not necessarily equivalent to what is *literally true*. Truth-conditional semantics only deals with what is literally true, not with the conditions under which a sentence might be spoken.

Similarly, as we saw in Chapter 3, sentences in the progressive surprisingly do not seem amenable to a possible-worlds analysis, or any other simple semantic account for that matter. Indeed, many semantic researchers consider the progressive to exhibit bizarre and unique behavior that simply defies all conventional attempts at an explanation in terms of truth conditions. Hinrichs (1983) expresses a commonly held view when he writes, “It turns out that the semantic properties of the English Progressive ... seem to be particularly resistant to any treatment that is based on the apparatus of set theory, as analyses in Formal Semantics invariably are” (p. 171). Perhaps this resistance is just because the phenomena in question lie outside the domain of what the theory is designed to explain.

As was noted in Chapter 2, expressions of both the physically and logically impossible apparently creep into the usage of progressive sentences. We can thus seemingly assert that someone is making a pumpkin pie without the necessary ingredients or that a hiker is both climbing up and being pulled down from a tree at the same time. It is my advice that we eliminate all thought of trying to make such impossibilities and contradictions somehow literally true. Contradictory sentences are, by definition, false. Having said this, however, it is then necessary to explain why it is that such obviously false sentences might still be uttered in conversation to serve a communicative purpose and also somehow avoid violating Grice’s maxim of quality. I think that semantic course corrections offer the most reliable, plausible, and straightforward solution to all the problems involved.

The proposals given in Chapter 3 are all designed to explain, for example, how it can still be true that Mary was drawing a circle when, as it turned out, she was only drawing a short arc. Does this approach stand up to scrutiny? Consider (3) below.

- (3) Mary was actually drawing *only* a short arc and, in so doing, Mary was also drawing a circle.

If both descriptions are stated at once, there is a clear *contradiction*. It seems to me that it is not literally possible to be drawing a circle if one is *only* drawing a short arc. Although many complicated explanations might be invented to deal with this fact, the most straightforward solution is that *Mary was drawing a circle* is only literally true if it is later true that *Mary drew a circle*.

Abusch (1985, p. 171) writes, "If Mary is interrupted, then no circle is completed. Many will insist that an incomplete circle is no circle at all but an arc with constant curvature. There is a present object of Mary's activity, but it is not clear which object exactly it is. There is no single way to describe the activity she is involved in: is it the drawing of a circle or the drawing of an arc?" I would answer Abusch by saying that there is actually only one *literal* way to describe her activity, but that we may also appeal to non-literal expression to talk about the same event.

#### 4.2.3 The Existential Problem

If we reject, as I do, the kind of analyses of the progressive presented in Chapter 3, we must then deal with an issue as central to the foundation of truth-conditional, model-theoretic semantics as that of truth: the question of ontological reference. This is relevant to the difficulty which I identified in Chapter 1 as *the existential problem*. As noted in the last section, if Mary is drawing a circle (so to speak!), but is interrupted, then there is no circle whatsoever in existence. However, the use of the indefinite description *a circle* includes the claim that a circle exists. As has been discussed at length, the answer that Dowty (1977, 1979) suggests is that the circle in question is a *possible circle* found in one or more possible worlds. Parsons (1989, 1990), on the other hand, claims that the circle we seek is an *incomplete circle*. My own feeling on the matter is that there is just no circle, and that we eventually have to learn to live with this fact.

A variation of this problem is discussed by Graves (1997). His example (p. 86) is repeated here as (4). In (4), the proper noun *Freedom* refers to the space station which was only planned by NASA but never built.

- (4) NASA is building *Freedom*.

Although Graves seems to confuse the durative progressive with the futurate progressive in the example sentence he provides, the argument is still a valid one. Indeed, I argue later in this chapter that the issue is crucial for both readings of the progressive. However, considering only the durative reading, let us suppose that construction had begun on the space station but was then quickly abandoned. There might not be anything in existence that even remotely approaches the completed design of the space station. In that case, if we do not accept Parsons' views on nominal reference (incomplete objects) or that the progressive is a modal construction, (4) is false (or even perhaps anomalous) since the expression *Freedom* fails to refer.

Graves (1997, p. 88) summarizes the puzzle in terms of the following paradoxical tetrad. His point is that (a) through (d) cannot all be true.

- (a) The truth of a simple sentence containing a denoting phrase has been held to depend on the successful reference of that denoting phrase.
- (b) In the imperfective progressive generation sentence, the denoting phrase for the thing to be generated is typically irreferential.
- (c) Such sentences appear to be simple.
- (d) Such sentences are sometimes true even though their denoting phrases fail to refer to (even broadly construed) existing objects.

We may use our example in (4) to consider these points in order. According to (a), because our semantic system is based upon correspondence truth, for (4) to be a true sentence (or perhaps even to be assigned any truth value whatsoever) there must be something to which the expression *Freedom* refers, assuming that (4) is not a modal sentence. According to (b), the sentence in (4) apparently contains an expression which lacks any reference whatsoever. According to (c), a sentence like (4) does not appear to be a modal sentence. According to (d), in despite of (a)-(c), our intuitions tell us that (4) is a true sentence. These four assertions create a logical trap. In order to escape, we must deny the truth of one of these four.

From the discussion of semantic truth in Chapter 1 and the survey of analyses of the progressive in Chapter 3, we may consider the ramifications of arguing against any of (a) through (d). The most radical move would be to reject (a). Meaning in a semantic system such as Montague Semantics is based on truth and truth in such a system is determined in terms of ontological entities. Thus, to deny the referential requirement is to reject the definition of truth upon which truth-conditional, model-theoretic semantics is founded. Our alternatives are just to reject one of (b) - (d). In his

theory of the progressive, Parsons (1989, 1990) chooses to argue against point (b). That is, he would not consider the expression *Freedom* to be irreferential since he would take it to refer to an *incomplete* space station. On the other hand, those who argue for an intensional analysis of the progressive, beginning with Dowty (1977, 1979), argue against (c). As I see great importance in preserving (a) and great difficulties involved in rejecting either (b) or (c), I have decided to argue against point (d).

Graves (1997) briefly entertains the principle difficulty in denying (d) and thus claiming that (4) is literally untrue if the space station is never completed. "The principle objection to this analysis [ of a progressive sentence ]," he notes, "is that it does not conform to English usage. We say freely that we are doing such-and-such even though in the imperfective mood, strictly speaking, success is seldom guaranteed until the goal has been achieved. ... We can therefore countenance [ rejecting ] (d) only if we choose this case as one where our understanding of logic should convince us to reform our speech. I am not persuaded" (p. 89). In other words, Graves cannot imagine a way that a sentence such as (4) might be false (or anomalous) since there are many circumstances under which we may *say* such a sentence naturally.

However, Graves is echoing the same point as the other commentaries surveyed in Chapter 3. As I again emphasize, what we *say* and what is *literally true* cannot in general be equated in any way. First of all, as language users, even when attempting to speak literally, we are only required to state sentences which we postulate bear a pragmatic truth value of true, irrespective of what semantic truth value they actually bear. As mere mortals, we have no way of tapping into ultimate truth. Thus, it could be that a language user might venture to use an expression such as the name *Freedom* based on the belief that such a space station will actually come into existence at the end of the construction which is currently underway.

Secondly, there is the entire phenomenon of non-literal usage. Truth-conditional semantics does not even deal with this topic. However, if we encounter non-literal usage in language, there is no reason why we would need to reform this in our speech to match the patterns of logic. Hoard (1998) expresses a similar idea when he writes that "the semantics of natural language has a logic of its own, which must be dealt with on its own terms, as part of linguistics proper" (p. 198). A good example of the idiosyncratic character of the logic of natural language would be the phenomenon of semantic course corrections discussed in this essay. In addition, semantic course corrections seem to me to be a good way to explain an utterance such as (5).

(5) NASA was building *Freedom*, but the space station was really just a small collection of prototype modules that were never used.

The first clause asserts that such a space station would come into existence, but the second clause contradicts this assertion. It seems to me that if NASA never built such a space station, an assertion of (4) might just have been an honest mistake and (5) is a semantic course correction which quotes this error and makes the correction.

Since I do not find usage to be a compelling argument upon which to explain truth, I escape the tetrad above by rejecting the assertion made under (d). It is only necessary to find a reference for an irreferential expression in a sentence if we are stuck on the idea that the sentence must somehow work out to be literally true. If the sentence can somehow be literally false, then we can happily live with the consequences stated under (a)-(c). In the remainder of this essay, I demonstrate in detail just how this analysis may be rigorously defended.

## 4.3 Phonetic and Lexical Considerations

### 4.3.1 Intonation

To begin defending my idea that progressive sentences exhibiting the imperfective paradox are actually literally false, I first turn to phonetics and examine some prosodic considerations. Although admittedly not compelling evidence for any particular analysis, I nevertheless find the behavior notable in that it suggests that a non-literal reading could be at work in the use of progressive sentences exhibiting the imperfective paradox. Of course, the intonation contours I discuss in this section could merely indicate the cancellation of a conversational implicature, yet I argue in this chapter that independent evidence supports the idea that the specialized intonation may also be used to signal semantic course corrections, the cancellation of truth-conditional truth asserted elsewhere in the discourse. Thus, I merely hope to demonstrate in this section that the prosodic evidence does not contradict the kind of analysis I develop in this essay.

English is an intonation language. Unlike a tone language, where pitch is used to distinguish meaning at the level of individual words, in an intonation language, it is the pitch contour of an entire phrase or sentence that is significant. For example, a yes-no question in English typically exhibits a rise in pitch on the last accented syllable, whereas the pitch on this syllable in the

corresponding statement descends. In an intonation language, there is thus an interaction between prosody and semantics at the level above the word.

To emphasize this important connection between phonetics and semantics, note that intonation can even be used to clear up ambiguity in the utterance of a sentence. For example, the sentence below is ambiguous between two meanings that may each be brought out clearly by the two distinct intonation contours indicated in (6a) and (6b).

(6a) The general issued an **ORDER** for the commander to follow.

(6b) The general issued an order for the commander to **FOLLOW.**

When the sentence is spoken with the pitch contour indicated in (6a), the sentence may be paraphrased as *The general issued an order which the commander was to carry out*. When the pitch contour in (6b) is used, we may paraphrase the sentence as *The general wanted the commander to follow behind and issued an order to this effect*. In (6a), it is the order that the commander must follow, whereas in (6b), it is the general that the commander must follow.

The utility of intonation for clearing up ambiguity is evidently related to its use, together with volume (called *stress*) and length, in marking the *focus* of a sentence. The focus emphasizes a particular word in a sentence, often with the purpose of contrasting this word with something else. In English, the focus accent normally falls on the last major word of a sentence, but can come earlier in order to shift the focus. Such a shift is thus often enough to bring out clearly one or another reading of an ambiguous sentence.

Another semantically relevant use of intonation is to express that a sentence is not meant to be taken literally. Thus, an unusual change in pitch, stress, and/or length can be used to express disbelief, sarcasm, or teasing. A typical example is shown in (7) below.

(7) That was a **REAL** **LY** **INTEREST** **ING** **MO** **VIE.**

A dramatic, see-sawing, mocking intonation in uttering (7) may be used to indicate sarcasm. The sarcastic reading of (7) expresses exactly the opposite of what the sentence literally means. This is one of the best illustrations of how intonation can be used to indicate a significant departure from literal meaning.

When is (7) true? This is a somewhat involved question to answer. The *literal* interpretation of the sentence would be true if and only if the movie actually was really interesting. However, given the sarcasm indicated by this intonation, the *non-literal* interpretation of the sentence would be true, to the extent that we even consider the *truth* of a non-literal sentence, if and only if the movie was actually very uninteresting. Of course, truth-conditional semantics does not study the non-literal use of language, but only the truth conditions of sentences under their strictly literal interpretations. Non-literal readings are considered to be pragmatic offshoots of the core, literal meaning.

Also in the utterance of certain progressive sentences, intonation can be used to make clarifications in meaning. Contrast (8a) with the specialized intonations shown in either (8b) or (8c).

- (8a) Mary was drawing a circle.  
 (8b) Well... Mary was **DRAWING** a circle...  
 (8c) Well... Mary **WAS** drawing a circle...

Even without any further words of clarification, in either (8b) or (8c) the idea may be conveyed by distinctive intonation alone that Mary failed to draw a circle. In (8b), on the word *drawing*, there is a pronounced rising pitch on the first syllable and a falling pitch on the second. This intonation causes the listener to anticipate ...*but she did not finish* or words to this effect. Note that this same intonation sounds distinctly odd when followed by the words ...*and she drew one* or ...*and she pasted it on the wall*. In (8c), the word *was* is stressed and this intonation conveys the same message as in (8b), that Mary failed to draw a circle. These intonational cues seem to be available with any sentence in the progressive that exhibits the imperfective paradox.

I find it noteworthy that striking prosodic effects may also appear with semantic course corrections. Consider the intonation contours on (9a-c) below. In (9c), Beth might utter the sentence with a marked intonation as she demonstrates visually to her audience that what she actually bought was a book on stamp collecting with the wrong dust jacket.

- (9a) Tracy **BOUGHT** a male hedgehog, but he turned out to be a girl.  
 (9b) Mark **DISCOVERED** a new planet, but it was actually only a speck of dirt on the telescope lens.  
 (9c) Look, I **BOUGHT** a copy of *Wuthering Heights*...

Admittedly, such prosodic behavior is not compelling evidence that the imperfective paradox is indeed one manifestation of a semantic course correction. However, the contrast at least serves as a clue that something unexpected may be at work here. These specialized intonation contours can indeed sometimes be used to signal a semantic course corrections and are also possible with progressive sentences exhibiting the imperfective paradox.

### 4.3.2 The Wording of Clarifications

In the previous section, intonation contours were discussed with the addition of certain phrases of clarification. It is revealing now to take a closer look at the wording of typical clarifications that accompany sentences in the progressive. Because the first example I use in this section also involves a contrast that could raise side issues of focus stress, I forego further discussion of intonation here and study only the wording of the clarifications involved.

Consider first our pie-making scenario where Shannon successfully makes a pumpkin pie and we state (10) below.

(10) Shannon was making a pumpkin pie and Todd watched until she finished.

The conjunction linking the two sentences here is *and*. This conjunction is used in (10) straightforwardly to join up two literal, factual statements. The word *and* could simply be eliminated, turning this compound sentence into two distinct sentences. Note also the interesting fact that the second clause presupposes the truth of *Shannon made a pumpkin pie*.

Now suppose instead that Shannon did not have the correct ingredients and was unable to finish. Instead, she decided to use the pie crust to make a pecan pie instead. We might then state any of (11a-d).

- (11a) Shannon was making a pumpkin pie, but she did not have the correct ingredients and never managed to make it.
- (11b) Shannon was not making a pecan pie, but because she could not make a pumpkin pie, she made one after all.
- (11c) Shannon was actually making a pecan pie, but she did not know it at the time.
- (11d) Shannon was actually not making a pumpkin pie, but she did not know it at the time.

Observe that the most natural choice of conjunction in any of (11a-d) is *but* rather than *and*. From the point of view of its discourse function, the use of the conjunction *but* in (11a-d) is more complicated than the use of *and* in (10) above. The conjunction *but* is used to transition to a following sentence which contrasts in some way with the first. This conjunction is less studied in truth-conditional semantics, however the mere fact that *but* is the more natural conjunction in (11a-d) is noteworthy.

Although *but* is used naturally in all of (11a-d), I detect an important difference in its use in (11a-b), as opposed to (11c-d). In both (11a) and (11b), the clarification added after *but* directly involves the outcome of the pie-making event referenced by the earlier progressive sentence. The information contained in the clarification therefore has some direct relevance to the actual event identified in the preceding progressive sentence. In fact, the clarification explains that the event in question did not proceed to its expected conclusion. On the other hand, the clarification in both (11c) and (11d) note merely that Shannon was, as it so happened, unaware of what was actually occurring. This kind of clarification may not be seen in any way to correct the literal truth of the preceding progressive clause. Rather, since it would have been a commonsense assumption (what Grice calls a *conversational implicature*) that Shannon had been aware of this fact, the clarification simply informs the listener that she was not. Since the clarifications in (11a-b) explicitly mention the event in question, we must consider the possibility that they may be *taking back* some of the information that would normally have been conveyed by the preceding clauses in the absence of such clarifications.

Let us investigate this possibility further. First, we may study a side-by-side comparison of a semantic course correction, as exemplified by the book-purchasing scenario from Chapter 1, with a typical example of the imperfective paradox, as portrayed with the circle-drawing scenario. Compare (12a-b) below.

(12a) I bought a copy of *Wuthering Heights* today.

(12b) I was drawing a circle.

For the sake of argument, let us begin with the assumption that both (12a) and (12b) make rather simple assertions. We may suppose that (12a) is true if and only if there was indeed an event in which the speaker did buy a copy of *Wuthering Heights* on the same day as this statement is uttered and this event is prior to the time of utterance. Following a simple semantic analysis, somewhat on the order of Bennett and Partee (1972, 1978), let us assert that (12b) is true if and

only if the time of utterance is in the past and falls somewhere during the duration of an actual event in which the speaker (we may call her “Mary”) draws a circle. In other words, (12b) asserts that the time of evaluation falls somewhere in the midst of an event where Mary would indeed draw a circle by the end of this event.

In the book-purchasing scenario in Chapter 1, Beth discovers that she was mistaken in uttering the sentence in (12a), and then utters the semantic course correction reproduced here in (13a). We may compare (13a) with the sentence in (13b), which repeats the example (1) from above.

(13a) I bought a copy of *Wuthering Heights* today, but it was actually a book on stamp collecting.

(13b) I was drawing a circle, but I didn't finish it because my only pen ran out of ink.

Concerning (13a), note that Beth earlier believed that (12a) was true. This was later demonstrated to be in error. The semantic course correction in (13a) reasserts the error as an error quotation and then corrects it by taking back some of what the sentence asserts. Concerning (13b), Mary earlier believed that it was true that she was drawing a circle. However, can we be certain that this was ever *literally* true? The sentence in (13b) reasserts the progressive clause from (12b), but in the past tense. Yet, given that semantic course corrections, such as (13a), permit false (or even anomalous) clauses to be reasserted in conversation for the purpose of correcting them, we should investigate the possibility that (13b) is likewise a semantic course correction. The progressive clause in (13b) might simply be an expression, much in the form of an indirect quotation, which functions as the error quotation of a semantic course correction. If this hypothesis is correct, my explanation of the imperfective paradox in (13b) would thus involve asserting that the progressive clause here is not true, but is instead *literally false*.

It has apparently long been assumed that the contrastive conjunction *but* in sentences exhibiting the imperfective paradox is merely serving to eliminate a conversational implicature. This is certainly what Asher (1992) has in mind in his account. However, let us now see if this is indeed supported by the evidence. We may consider our intuitions in the use of conjunctions in (14a-d).

(14a) Furbanks ate a treat and went to the park, and did so in that order.

(14b) Furbanks ate a treat and went to the park, but didn't do so in that order.

(14c) Furbanks ate a treat and went to the park, but did so in that order.

(14d) Furbanks ate a treat and went to the park, and didn't do so in that order.

The most natural utterances are given in (14a-b). In (14a), the conjunction *and* is used to affirm the normal conversational implicature, whereas in (14b), the conjunction *but* signals the elimination of this implicature. The use of *but* in (14c) is somewhat odd, but can be given a plausible interpretation in context. For example, suppose Furbanks usually goes to the park first and then eats a treat. If we adjust the conversational context in this way, (14c) is acceptable. However, a natural context for an utterance of (14d) is even more difficult to determine.

We may then compare (14a-d) with a semantic course correction, as given in (15a-d) below.

- (15a) Beth bought a copy of *Wuthering Heights* and she paid for it.
- (15b) Beth bought a copy of *Wuthering Heights*, but it was actually a book on stamp collecting.
- (15c) Beth bought a copy of *Wuthering Heights*, but she paid for it.
- (15d) Beth bought a copy of *Wuthering Heights* and it was actually a book on stamp collecting.

The sentence in (15a) is not a semantic course correction. The second clause, following *and*, simply asserts something truth-conditionally compatible with the first clause. In (15b), we see a semantic course correction signaled with *but*. This sentence seems acceptable to us in the context of a non-literal utterance. On the other hand, our intuitions about the acceptability of (15c-d) are different. These sentences strike us as both very strange. Their most probable use might be to effect some unusual sort of humor.

Now, we may consider the use of conjunctions with progressive sentences to see if the pattern is closer to that of the elimination of a conversation implicature, as in (14a-d) above, or to that of a semantic course correction, as portrayed in (15a-d). The relevant examples are given here as (16a-d) below.

- (16a) I was drawing a circle and I finished it.
- (16b) I was drawing a circle, but I didn't finish it.
- (16c) I was drawing a circle and I didn't finish it.
- (16d) I was drawing a circle, but I finished it.

The usage of conjunctions with progressive sentences in (16a-d) more closely corresponds to the pattern of a semantic course correction, as seen in (15a-d), rather than to an elimination of a conversational implicature, as in (14a-d).

Although I do not claim that (16c-d) are incomprehensible sentences, their usage would be restricted to very particular contexts. For example, in (16d), if the speaker has a reputation for starting drawings but not finishing them, a speaker might utter (16d) as an assurance that even though the speaker was the person drawing, the circle actually was completed. The use of the conjunction *but* in this instance thus serves a function at the discourse level of eliminating a particular, context-dependent conversational implicature. However, setting aside this ever-present possibility, I still believe that (16a-d) pattern closer to (15a-d) than they do to (14a-d). If the truth conditions for a progressive sentence are utterly indifferent as to whether a circle is eventually drawn or not, then it is not clear why we encounter this particular effect in the choice of conjunctions.

It thus seems to me that the imperfective paradox might plausibly be a semantic course correction, yet there are still many questions and issues that must be addressed. In any case, the possibility seems worth investigating. The progressive might therefore simply indicate that an actual event is in progress. This would be the literal meaning of the sentence *in the absence of information to the contrary*.

Admittedly, this is a difficult analysis to accept at first glance. For example, we have deep intuitions as native speakers that we may not conclude from the truth of *Samantha is crossing the mine field* that eventually *Samantha crosses the mine field* must also be true. However, as I argue in this chapter and the next, I think I have found some solid arguments to support that, *taken literally*, this entailment nevertheless holds and does not fail.

There is also another special twist on the phenomenon of semantic course corrections which may make the account more plausible. Note the contrast between (17a-b) below.

- (17a) Samantha is crossing the mine field, but she may not make it.
- (17b) Samantha is crossing the mine field and we must wait here to have lunch with her when she gets across.

If my analysis is correct, (17a) may also be a semantic course correction. Indeed, it is a special kind of course correction that makes the adjustment in advance of a potential mishap. I call this a *preemptive semantic course correction*. It serves to warn the listener that what another sentence asserts is doubtful and does not confidently bear the pragmatic truth value of *true*. By contrast, suppose Samantha is an expert in crossing mine fields. Then, it might be plausible to utter (17b). Again, I emphasize here that, unlike the analysis of the mine-field-crossing scenario advanced by Asher (1992), I am now not discussing the literal semantic truth of these sentences but rather the pragmatic truth values that such sentences might bear and their plausibility to be uttered in a particular conversation context.

However, note that in (17b), the second clause, introduced by *and*, presupposes that the semantic truth value of *Samantha will cross the mine field* is true, although this fact is nowhere stated overtly. If the literal reading of the first clause in (17b) fails to entail *Samantha will cross the mine field*, it is not clear how we may explain the presupposition in the second clause. However, if the literal meaning of the progressive clause *entails* (rather than *failing* to entail) *Samantha will cross the mine field*, then the presupposition of the second clause is explained.

#### 4.4 Judgments of Modality

As we have seen, much of the difficulty in accounting for the semantics of the progressive involves dealing with the imperfective paradox. The entire paradox hinges on the *supposed* failure of a sentence in the progressive to entail the same sentence in the simple tense. In order to explain the progressive, most authors have resorted to the idea that the progressive represents a counterfactual construction. However, Parsons has instead argued for a reinterpretation of nominal reference.

I argue in this essay that when the progressive sentence is taken *literally*, there is no entailment failure and thus that the progressive should not be understood as a counterfactual construction. The entailment only *appears* to fail in cases where we interpret the progressive sentence in a non-literal, albeit common, way. Taken literally, I maintain that a progressive sentence means that an event is in progress to its *actual completion*. Nevertheless, whenever we then add a clarification that the event in progress was interrupted, we take back part of the literal meaning of the progressive sentence. Thus, there is nothing *inherently* counterfactual about the progressive aspect itself. A reasonable way to lend credence to this argument would be to try to locate examples of behavior

similar to the imperfective paradox in sentences that do not contain the progressive aspect. In this section, I set about looking for such examples and conclude that they indeed exist in abundance.

#### 4.4.1 In the Middle

We may begin by looking at paraphrases of the progressive, such as *in the middle of*. As discussed in the last chapter, Jespersen (1932) notes that the modern sentence (18a) would have corresponded to the historical construction *John is on drawing a circle* (*John is a-drawing a circle*), which could be plausibly paraphrased as any of the variants in (18b) below.

(18a) John is drawing a circle.

(18b) John is in the course of / in the midst of / in the middle of drawing a circle.

It seems to me that each of these variants is also a reasonably close paraphrase of the modern progressive construction.

Consider the progressive paraphrase in (18b) with *in the middle of*. The expression *in the middle of* can be used to convey an *interior* location in either a spatial or a temporal sense, as illustrated in (19a-b) below.

(19a) At the side of the stream, I was in the middle of the forest.

(19b) At 6:23 PM, I was in the middle of dinner.

Although sometimes taken to mean *at the absolute center point of*, the phrase *in the middle of* can also simply mean *inside and not at the edge of* (spatially) or *during and neither at the beginning nor at the end of* (temporally). Thus, (19a) could be true if the stream is somewhere in the forest and not absolutely at the forest's edge. Similarly, (19b) could be true if 6:23 PM was sometime after the start of dinner and sometime before its conclusion, but neither at its inception nor at its finish. In other words, if an individual or event is located at an edge or endpoint, the individual or event is no longer located *in the middle of* the spatial or temporal confines in question.

Let us now focus on the temporal use of the phrase *in the middle of*. Consider the sentence in (20).

(20) In the middle of dinner last night, I received a phone call.

Suppose the speaker was planning to eat dinner at home from 6:00 PM until 7:00 PM. We may then think about two different scenarios. In the first scenario, the phone rings at 6:23 PM, the speaker answers the telephone, explains to the caller that dinner is in progress, concludes the call, and returns to eat the remainder of the evening meal. In this scenario, the call literally occurs in the middle of dinner in the sense that it was actually an interruption midway through an otherwise continuous event of eating dinner. The phone call caused the event of dinner to be discontinuous in time, with the event of the phone call occupying the interim. Given our understanding of what *in the middle of* literally means, we may take the sentence in (20) to be literally true in this scenario.

In the second scenario, the phone rings at 6:23 PM, the speaker answers the telephone, the caller explains that there is an emergency and to come quickly, the speaker departs at once, and the uneaten remainder of the meal is discarded in the trash later. In this scenario, the speaker's dinner was brought to an unexpected conclusion by the telephone call. It is thus not true that the speaker's dinner continued after 6:23 PM. Of course, the earlier *expectation* was that the dinner was going to continue until 7:00 PM, but one consequence of the phone call was that the time period of the *planned* dinnertime did not match with this expectation. As it turned out, the call did not literally occur in the middle of dinner, but rather at the end, though this endpoint was an unexpected one. In this case, it seems reasonable to conclude that the literal proposition expressed by (20) is not true. In other words, given our understanding of the meaning of *in the middle of*, we would expect the truth conditions for (20) to predict the semantic truth value of *false* in this scenario.

Nevertheless, if understood in a non-literal way, the sentence may still be meaningful. In the second scenario, notice that the wrong impression would be sent if the speaker stated (21) instead of (20).

(21) At the end of dinner last night, I received a phone call.

The sentence in (21) is literally true in the second scenario since the speaker's dinner was in fact at its end when the phone call arrived. Indeed, the phone call actually prevented the speaker from consuming any more of the uneaten food. However, (21) gives the listener the incorrect impression that the phone call occurred at a time that was the *expected* end of the dinner. Here is the crux of the problem.

Now consider again the progressive sentence in (18a). As noted, this sentence can be plausibly paraphrased by any of the variants in (18b). It is interesting to observe that the imperfective paradox carries over to these paraphrases, as demonstrated in (22).

(22) John was in the middle of drawing a circle, but he was interrupted and never finished it.

The progressive aspect appears nowhere in (22). Nevertheless, (22) exhibits the imperfective paradox as readily as sentences in the progressive. This is an important piece of evidence.

The imperfective paradox has long been considered to be a phenomenon resulting from the inherent semantics of the progressive aspect. Thus, efforts to solve the paradox have often tended to involve a claim that the progressive aspect is a counterfactual modal construction. Despite increasing complexity, none of these accounts has succeeded. However, even if such a modal analysis could be developed for the progressive, this would not account for the similar behavior of the progressive paraphrase in (22). Of course, one might try to argue that *in the middle of*, like the progressive, is *also* a modal construction and *also* merits a separate modal analysis on par with an ornate account of the progressive. However, in the following sections, I hope to build a case that this would be as futile a project as it has been for the progressive.

#### 4.4.2 The Future Tense with Will

By and large, semanticists consider the progressive to exhibit particularly idiosyncratic semantic behavior. Of course, if the progressive is regarded as an unusual construction, a complex and ad hoc explanation seems more plausible. However, if behavior similar to that exhibited by the progressive also may be shown to exist in many nonprogressive sentences, the justification for a divergent account would be undermined significantly.

In fact, such similar behavior is easily demonstrated. We have already noted the paradox with *in the middle of* in the last section. The common factor with both the progressive and *in the middle of* is the *expected completion* of events in future time which then, nevertheless, fails to be realized as an *actual completion*. Perhaps it is not any grammatical property of the progressive or of the construction *in the middle of* which is responsible for the paradoxical behavior, but rather some property inherent to speaking about events that still lie in the future. Whatever this property of

future time is, its influence is still apparently felt even when expressions are put into the past tense, after what *was* the future is now the present or already in the past.

The immediate argument against such a proposal is that the imperfective paradox is not a phenomenon we encounter with constructions that express the future tense in English, but only with the progressive (and now, perhaps, with *in the middle of*). Semanticists frequently draw a clear distinction between the future-tense constructions, which may apparently only be true if what is predicted actually comes to pass, and the eccentric progressive, which seems to walk a line between reality and unreality. Bonomi thus writes that “one might hope that the same semantic realism adopted to deal with the future tense will work nicely with the progressive as well, and that the same kind of plain truth-conditions can be associated with this aspectual form. Unfortunately, the progressive raises further problems” (1997, p. 174).

I would counter this objection by noting that, although I can find no description of it in the literature, something analogous to these “further problems” do indeed occur with future-tense constructions. First of all, we may consider the future tense expressed with *will* + infinitive. Consider the scenario described in (23) below. Instead of providing only the sentence in question, I set the future-tense sentence within a larger narrative. Suppose at 11:55 AM, Private Houston is in the barracks and is talking on the telephone to a friend and explains why he must hang up at once.

- (23) The soldiers in my company are all busy straightening the barracks now. The sergeant will conduct his noon inspection in five minutes, but I’m ready for it. But I have to go now. Private Smith just spilled coffee all over the floor, and I need to help him clean it up.

The truth conditions for sentences expressing the future tense in *will* + infinitive have traditionally been non-modal, even though morphologically the word *will* is a modal verb. The formulation of tense developed under Montague Semantics simply treats the past and future tenses symmetrically, as indicated below.

[[ PAST  $\phi$  ]] is true at the interval  $I_0$  iff [[  $\phi$  ]] is true at an interval  $I$  and  $I < I_0$

[[ FUTURE  $\phi$  ]] is true at the interval  $I_0$  iff [[  $\phi$  ]] is true at an interval  $I$  and  $I > I_0$

The semantic treatment of the tense operator PAST require that the sentence *The sergeant conducted an inspection* is true if and only if we could have truthfully reported at some past time

*The sergeant conducts an inspection*, because such an inspection actually took place at that past time. In mirror image fashion, the analysis of the operator FUTURE require that the sentence *The sergeant will conduct an inspection* is true if and only if we will be able to report truthfully at some future time *The sergeant conducts an inspection*, because such an inspection actually will take place at this future time. In (23), the starting point of the future time interval is actually mentioned explicitly: five minutes into the future from the time of utterance. Put another way, according to the standard analysis of the future tense, unless the sergeant actually does conduct the noon inspection five minutes after the time that (23) is uttered, the sentence *The sergeant will conduct the noon inspection in five minutes* is false. This is because the future tense is understood to be entirely temporal in nature and not modal.

After the sergeant arrives and conducts the inspection, suppose that Private Houston gets back on the telephone later and recounts the events to another friend. The narrative could proceed as in (24).

- (24) At five to noon today, the soldiers in my company were all busy straightening the barracks. The sergeant would conduct the noon inspection in five minutes, but I was ready for it. Then Private Smith spilled coffee all over the floor, and I needed to help him clean it up. We worked fast and got it all clean again, so we received no demerits.

Note that the second sentence contains the word *would*, which is the past-tense form of *will*. This is therefore a *future-in-the-past* sentence, expressing that at some time in the past, certain events were still in the future. The sentence *The sergeant would conduct the noon inspection in five minutes* is true because there is a time earlier than the time of utterance (namely, 11:55 AM) which was five minutes before another time (namely, noon), at which the inspection actually occurs.

Now, suppose that events had gone somewhat differently and Private Houston recounts the alternate version of the narrative shown in (25) below.

- (25) At five to noon today, the soldiers in my company were all busy straightening the barracks. The sergeant would conduct the noon inspection in five minutes, but I was ready for it. Then Private Smith spilled coffee all over the floor, and I needed to help him clean it up. We worked fast and got it all clean again. But as it turned out, we need not have worried. The sergeant was called away and the inspection was canceled.

In this scenario, the inspection was called off unexpectedly. Thus, the sentence *The sergeant will conduct the noon inspection in five minutes* from (23) above is false. Likewise, the sentence *The sergeant would conduct the noon inspection in five minutes* from (25) above is false. As we see, both the sentence in the future tense, uttered at the time events were unfolding, and the future-in-the-past sentence, uttered after the fact, are false.

We might forgive the error of stating the false sentence in (23), since as far as Private Houston was concerned the inspection actually *would* take place. However, at the time that Private Houston states (25), it is a fact *known* to him that the noon inspection never took place. It is not immediately obvious how Houston might first state that the inspection *would* take place, and then shortly afterward state that it did not. It appears that the truth conditions for our tense operators are found lacking. In addition to a counterfactual account for the progressive and *in the middle of*, we also seem to require one for *will / would* + infinitive, in order to account for the scenario in (25). The other possible explanation, of course, is that (25) is yet another example of a semantic course correction.

#### 4.4.3 Periphrastic Future-Tense Constructions

Although I think my example in (25) is valid, I admit that it is not the most idiomatic way of speaking. Note that in order to bring out this reading, I was not simply able to provide the example sentence in question. Rather, it was necessary to present an entire conversational context to support the utterance. As the reader may also confirm, *would* + infinitive rarely appears in this sort of counterfactual context. Although I have some ideas why this may be so, these would only be speculations on my part and would, in any event, constitute a major digression from the point I hope to make in these sections. However, the relative scarcity of this phenomenon is probably the major reason that, to my knowledge, it has never been observed before. In any case, I find (25) and similar examples like it with *would* + infinitive acceptable under a counterfactual interpretation. Of course, the reader should be aware that when I speak of the “counterfactual” interpretation in this chapter, I am actually arguing that this is merely an error quotation appearing within a semantic course correction.

Far more idiomatic in demonstrating this sort of counterfactual effect are many of other constructions that English relies on to express the future tense. Some of these expressions admittedly involve the syntactic form of the progressive and might thus be suspected of having

some sort of connection to the semantics of the durative progressive. However, there are other periphrastic constructions for the future which do not have the syntactic form of the progressive, yet which still exhibit an effect similar to the imperfective paradox.

Truth-conditional semantics has never been very successful in explaining the semantic differences between the various future-tense constructions, but it has always been understood that their semantics must all somehow be roughly similar to that indicated for the FUTURE operator given above, which does not permit a counterfactual reading under its current formulation.

First of all, consider the counterfactual effect when we express a scenario using the *futurate progressive*, as shown in (26a-c).

- (26a) The sergeant is conducting the noon inspection in five minutes. We need to clean up the floor.
- (26b) The sergeant was conducting the noon inspection in five minutes. We needed to clean up the floor. Luckily, we got it clean and received no demerits.
- (26c) The sergeant was conducting the noon inspection in five minutes. We needed to clean up the floor. We got it clean, but we should not have worried, because the inspection was actually canceled.

As we see, the futurate progressive may be used whether or not the event in question ever actually occurs. Thus, the futurate progressive exhibits the paradox as readily as the durative progressive. I might add parenthetically, that this fact is also clearly demonstrated by the extent to which the two constructions have been confused in the literature on the imperfective paradox. Although most authors officially treat the two as separate phenomena, the distinction quickly gets blurred.

Next, we may consider the *future durative progressive*, as shown in (27). This is the future-tense form of the durative progressive.

- (27) The sergeant would be conducting the noon inspection in five minutes, but it was canceled.

Just as the paradox is evident with either *will / would* + infinitive or with the durative progressive, so too we find it when both constructions occur in combination.

Third, there is the future tense expressed with the periphrastic phrase *be going to* + infinitive, as shown in (28).

(28) The sergeant was going to conduct the noon inspection in five minutes, but it was canceled.

Although the paradox is evident with any of the many constructions used to describe future-time events, the future expressed with *be going to* + infinitive is one of the more idiomatic ways used to present the paradoxical version of events.

Thus, consider (29a-b), with either of the distinctive intonation contours indicated.

(29a) Well, I was GOING to do my homework...

(29b) Well, I WAS going to do my homework...

Without any further clarification, we understand from either (29a) or (29b) that the speaker did not eventually get the homework done. Although not worked out in detail in truth-conditional semantics, the expression *be going to* + infinitive has simply been thought to be a rough paraphrase of *will* + infinitive. As we see, the standard truth conditions for the tense operator FUTURE would also evidently be at a loss to account for the semantic behavior of *be going to* + infinitive in examples such as (28) and (29a-b) above. However, a plausible solution is that such sentences are semantic course corrections, as I have described them in this essay.

Just to assure the reader that the effect remains even with future-tense paraphrases that do not involve the *-ing* suffix on the verb, we may consider the future expressed with *be to* + infinitive, as shown in (30).

(30) The sergeant was to conduct the noon inspection, but it was canceled.

Also, as given in (31) below, there is the construction indicating the near-term future in *be about to* + infinitive.

(31) The sergeant was about to conduct the noon inspection, but it was canceled.

A rather ironic example is the future-tense paraphrase in *be certain to* + infinitive, as given in (32) below.

(32) The sergeant was certain to conduct his noon inspection, but it was canceled.

On the one hand, it is possible to claim that something was *certain* to happen, but then immediately correct course and say that it did not. To my knowledge, there is no hint in the semantic literature that any of these constructions require a counterfactual analysis. We may examine construction after construction for the indication of future tense in English and the same paradox appears in every one.

#### 4.4.4 The Historical Present

The only apparent counterexample to the trend that future-tense constructions demonstrate paradoxical behavior seems to be the future expressed in the form of the simple present tense, often called the *tenseless future*. Note that we may say the tenseless future sentence (33a), and although the sentences with the past-tense forms in (33b-c) are not meaningless, they do not carry a meaning analogous to the examples in the last section.

- (33a) The sergeant conducts the noon inspection in five minutes.
- (33b) \*The sergeant conducted the noon inspection in five minutes. We needed to clean up the floor. Luckily, we got it clean and received no demerits.
- (33c) \*The sergeant conducted the noon inspection in five minutes. We needed to clean up the floor. We got it clean, but we should not have worried, because the inspection was actually canceled.

The past-tense form is thus not the past-tense counterpart of the tenseless future form. Yet, since the tenseless future was the most important way of expressing the future in Old English and since this form persists in the modern language, we might expect that the past-tense counterpart would also have been retained.

It seems to me that just such a counterpart may indeed exist. Examine the behavior of the sentences in the *historical present* in the narratives in (34b-c) below. The sentence in (34a) simply repeats (33a), a sentence in the tenseless future. To get the correct reading, (34b) and (34c) must be read in a story-telling fashion, designed to put the listener into the action as recounted in the anecdote. (After all, the historical present is a form in English used stylistically within the context of a narrative to make the account seem more vivid.)

- (34a) The sergeant conducts the noon inspection in five minutes.
- (34b) So, the sergeant conducts the noon inspection in five minutes and we need to clean up the floor! Luckily, we get it clean and receive no demerits.
- (34c) So, the sergeant conducts the noon inspection in five minutes and we need to clean up the floor! We get it clean, but we shouldn't have worried. Wouldn't you know the inspection actually gets canceled.

We might surmise therefore that the historical present represents the analogous past-tense construction to the tenseless future. Thus, the historical present, which we might also plausibly call the *tenseless past*, can be observed in (34c) also to exhibit paradoxical behavior.

#### 4.4.5 When

Because of the imperfective paradox, much of the focus in the semantic study of the progressive has been on the behavior of telic predicates in the progressive. However, there is an interesting phenomenon in progressive sentences that is as apparent with atelic predicates as with telic. The behavior involves the temporal framing effect, that is at the heart of most treatments of the progressive in truth-conditional semantics. Furthermore, this leads to an important generalization about *when* clauses, which have been considered to exhibit an interesting semantic quirk.

To illustrate, consider the sentences in (35a-d).

- (35a) When Mary was sleeping, Bill arrived.
- (35b) Bill arrived when Mary was sleeping.
- (35c) When Bill arrived, Mary was sleeping.
- (35d) Mary was sleeping when Bill arrived.

All of (35a-d) mean essentially the same thing. If we think of Bill's arrival as occurring at a point in time, then the interval when Mary was asleep frames the time of Bill's arrival. That is, Bill arrived sometime *during* the total time interval that Mary was asleep. In (35a-d), the phrases with *when* may be paraphrased as *at the time that Bill arrived* or *at a time that Mary was sleeping*. The event of Bill's arrival can be thought of as occurring at a very short interval, which might actually be the shortest interval: a moment. This momentary interval, *the time that Bill arrived*, is a subinterval of the total time interval during which Mary slept. Thus, this moment was also *a time that Mary was sleeping*.

It is important to take great care in the interpretation of the word *when*, since this word also has a sequential reading corresponding to the paraphrase *shortly after*. For example, consider (36a-d) below.

- (36a) When Fred ran away, Brenda arrived.
- (36b) Brenda arrived when Fred ran away.
- (36c) When Brenda arrived, Fred ran away.
- (36d) Fred ran away when Brenda arrived.

The word *when* in (36a-d) would most typically not indicate simultaneity, but rather sequential ordering. Note that the meaning of (36a-b) is that first Fred ran away and then Brenda arrived, whereas in (36c-d) the meaning is that first Brenda arrived and then Fred ran away. We may thus contrast (35a-d), which are all roughly synonymous, with (36a-d), which exhibit a shift in meaning between the first and second pairs of sentences.

As has often been noted in the literature, the simultaneous reading is obtained when one of the predicates involved is a stative, whereas the sequential reading is obtained when both predicates are non-stative. As I argue in Chapter 6, the progressive aspect can be understood as a stativizer. That is, it takes a non-stative predicate and converts it into a state predicate. A sentence such as *Mary was sleeping* can be considered stative in that it describes the ongoing state of Mary being asleep.

We may try this diagnostic test for the simultaneous versus sequential interpretation of *when* on the sentences in (37a-d) below.

- (37a) When Jaroslav was jogging, he fell.
- (37b) Jaroslav fell when he was jogging.
- (37c) When Jaroslav fell, he was jogging.
- (37d) Jaroslav was jogging when he fell.

Since the meanings of (37a-d) are all roughly synonymous, we may conclude with some confidence that the word *when* is meant here to be interpreted in its simultaneous reading, paraphrased as *at the time that* or *at a time that*. This is only to be expected if the progressive acts as a stativizer and that *Jaroslav was jogging* is thus a stative clause.

However, now compare the sentences in (35a-d) and (37a-d). In (35a-d), we understand that Mary was literally asleep at the same time that Bill arrived. On the other hand, we understand in (37a-d)

that Jaroslav was not literally still jogging at the same time that he fell. Thus, note the contrast between (38a), which is a true sentence, and (38b), which is, strictly speaking, false.

(38a) Mary was sleeping and Bill arrived at the same time.

(38b) Jaroslav was jogging and fell at the same time.

What we have here is a paradox for progressive sentences that involves both telic and atelic predicates alike. Was Jaroslav *literally* still jogging at the time that he fell or not? It seems reasonable to assert that Jaroslav did not literally fall and continue to jog at the same time. Thus, (38b) is literally false since his jogging ended unexpectedly when he began to fall.

Likewise, I contend that (37a-d) are also literally false. Jaroslav was not actually *jogging* when he fell. Rather, he was *falling* when he fell. His jogging was interrupted by the fall. However, it must be explained how we might still utter (37a-d) without these being considered falsehoods. In my view, these sentences are acceptable because we commonly understand them in a non-literal way. The key here is that Jaroslav's jogging ended *unexpectedly* with his fall. If asked just moments before he fell what he was now doing, Jaroslav might have responded as in (39a). If again asked before he fell what he would be doing five minutes from now, he might have responded as in (39b).

(39a) I am jogging now.

(39b) Five minutes from now, I will be jogging.

All expectations were that Jaroslav's jogging would continue into the future. Jaroslav attempted to state the truth when he said (39b). However, as events unfolded, (39b) turned out to be false. We may speak on the basis of our expectations or assumptions, but facts may not comply with what we say. Nevertheless, even after our expectations and assumptions do not play out as we have foreseen, these may still have some continued linguistic importance for us. We may still wish to talk about what our expectations were at the time, rather than what the facts were.

Of course, the examples given here are not marked with such words as *but*, *however*, and the like. Rather, the clauses are connected with *when*. This word is not recognized as having a contrastive discourse function. Nevertheless, there are a number of interesting points to note. First of all, I think that we may fairly closely paraphrase (40a) with (40b).

- (40a) Jaroslav was jogging when he fell.  
 (40b) Jaroslav was jogging, but he fell.

Secondly, it is indeed possible to indicate a semantic course correction with *when*, as demonstrated in (41a-b) below. Furthermore, I think it is plausible that (41c) could also be a semantic course correction in the same way. The only difference is that (41c) has a simultaneous interpretation, whereas the simple past-tense sentences in (41a-b) may naturally only have a sequential interpretation.

- (41a) When Beth opened the copy of *Wuthering Heights*, it turned out to be a book on stamp collecting. (Beth did not open a copy of *Wuthering Heights*.)  
 (41b) When I looked at my long-lost cousin's driver's license, I saw that he was not my long-lost cousin. (I did not look at my long-lost cousin's driver's license.)  
 (41c) When Jaroslav was jogging, he fell. (Jaroslav was not jogging anymore.)

We may also speculate as to the purpose of using *when* in semantic course corrections. It seems to me that *when* marks the time when the error was realized. Taken literally, the semantic course corrections seem to assert that the facts in reality actually shifted magically at a particular point in time. Of course, it is only an individual's *understanding* or *expectations* of reality that shift and not reality itself. This is indeed how we understand such sentences under a non-literal interpretation.

If this analysis is correct, we would be in a position to develop an important generalization about the semantics of *when* clauses. Given two predicates *A* and *B*, the truth conditions of a sentence of the form *A when B* can be characterized in terms of the predicate types (Aktionsarten) of *A* and *B*. In particular, suppose that *A* is a telic predicate (e.g. an achievement) and *B* is a stative (e.g. a predicate in the progressive), as in (35d) above, repeated here as (42).

- (42) Mary was sleeping when Bill arrived.

This sentence would be true if Bill's arrival falls during the total time when Mary was asleep. Similarly, suppose that *A* is a stative and *B* is a telic, as in (35a) above, repeated here as (43).

- (43) When Mary was sleeping, Bill arrived.

Again, this sentence would be true if Bill's arrival falls during the total time when Mary was asleep. It would therefore seem possible to make a truth-conditional claim about a sentence of the

form *A when B*, where one of *A* or *B* is a stative sentence and the other is telic. A sentence of this kind is true if and only if time referenced by the tense of the telic sentence falls during the time referenced by the tense of the stative sentence. This is, of course, a very common-sense generalization. However, apparent counterexamples have been noted.

Thus, refer back to the sentences in (37a-d) above. Jaroslav's fall does not occur during the total time when Jaroslav jogged. Rather, the jogging is interrupted by the fall. In addition, consider an example advanced by Dowty, given here in (44).

(44) John was watching television when he fell asleep.

According to Dowty, this sentence "clearly does not require us to suppose that the period of John's watching television extended beyond the time of his falling asleep..." (1979, p. 150). He uses this example as further evidence for a modal analysis of the progressive. However, as with (37a-d), if (44) is a semantic course correction, then the clause *John was watching television* is actually literally false in this scenario at the time in question. If so, a very straightforward analysis of *when* clauses is possible.

#### 4.4.6 Before

The meaning of the words *before* and *after* seem obvious enough, yet certain interesting semantic issues have been raised in the literature. It should be noted at the outset that, just as with *in the middle of*, the words *before* and *after* can be understood in either a spatial or a temporal sense. Thus, consider (45a-b) below.

(45a) Anna was before Colin in line. Colin was after Anna in line.

(45b) Anna was helped before Colin was. Colin was helped after Anna was.

Despite the apparent simplicity and symmetry exhibited by (45a-b), there are a number of complications concerning the semantics of *before* and *after*.

For example, as described by Anscombe (1964), the temporal use of *before* and *after* must contend with events which possibly overlap in time. Suppose we wish to evaluate the truth of (46) below.

(46) Colin sang after Anna sang.

There are quite a variety of scenarios which would make this sentence true, as indicated in (47a-h) below.

- (47a) Colin sang after Anna began singing, though not beforehand.
- (47b) Colin sang after Anna began singing, as well as beforehand.
- (47c) Anna sang before Colin began singing, though not afterward.
- (47d) Anna sang before Colin began singing, as well as afterward.
- (47e) Colin sang after Anna stopped singing, and Anna did not sing again.
- (47f) Colin sang after Anna stopped singing, though Anna did sing again.
- (47g) Colin sang after Anna stopped singing, as well as beforehand.
- (47h) Colin sang after Anna stopped singing, though not beforehand.

For a treatment of this matter, see Anscombe (1964) and Ogihara (1995). Beyond noting this tricky difficulty with overlapping events, I do not attempt to address it here. Instead, I wish to highlight another interesting problem.

There is the curious phenomenon that Ogihara (1995) terms *non-factual before*, as demonstrated in the examples in (48a-c) below. The sentence in (48a) is taken from Heinämäki (1972, 1974) and (48c) from Lakoff (1970).

- (48a) John died before he saw his grandchildren.
- (48b) Mary was pulled from the water before she drowned.
- (48c) Bill left the party before he punched someone.

Despite the fact that (48a) contains the clause *he saw his grandchildren*, the most plausible message we get from the overall sentence is that John never saw his grandchildren. Similarly, we understand from (48b) that Mary did not drown and from (48c) that Bill did not punch anyone.

We may compare the non-factual *before* sentences in (48a-c) above with similar sentences with the straightforward factual *before* interpretation, as in (49a-c).

- (49a) John learned some magic tricks before he saw his grandchildren.
- (49b) Mary hit her head before she drowned.
- (49c) Bill put on his boxing gloves before he punched someone.

In contrast with (48a-c), we understand that the *before*-clauses in (49a-c) may simply be true when the events do indeed take place as stated and are ordered in the proper way in time. However, unlike the straightforward case of factual *before*, there is apparently a surprising entailment failure from the entire sentence with the non-factual *before*-clause to the clause introduced by non-factual *before*. This situation is quite reminiscent of the imperfective paradox in the progressive.

Lakoff (1970) suggests that there are two different *before* words: one factual and one counterfactual. Lakoff notes that the counterfactual *before* occurs under “somewhat different conditions” than the factual *before*, but that exactly what these conditions are is not completely understood (p. 240). Heinämäki (1972, 1974) advances various principles to discriminate between sentences that express factual and non-factual interpretations of *before*, however she notes that there are also many examples where such sentences are simply ambiguous. Hornstein (1990, pp. 67-73) provides a Reichenbachian analysis of *before* and agrees that certain examples are ambiguous between the factual and non-factual interpretations.

To illustrate the potential ambiguity, consider (49c) above. In addition to the non-factual reading, this sentence could also have a factual interpretation meaning that after Bill left the party, he punched someone elsewhere. Thus, pragmatic context plays the most important role in determining whether a given sentence with a *before*-clause will receive a factual or non-factual interpretation. Ogihara (1995) notes, “Although these inferences are context-dependent, one thing is clear: the truth of the entire sentence does not guarantee the truth of the *before*-clause it contains” (p. 273). Under the assumption that the entailment failure is due to some truth-conditional property of the word *before*, Ogihara analyzes the counterfactual construction under a possible-worlds analysis.

I would agree with Ogihara that the entailment failure is indeed undeniable, provided that a sentence containing a non-factual *before*-clause is actually intended to be taken under its *literal* reading. If a sentence with a non-factual *before*-clause is a non-literal reading of the corresponding factual *before*-clause, then the supposed failure of the literal entailment would only be an illusion. The possibility that non-factual *before* is simply an example of non-literal usage is hinted at in the comical reaction we can have to certain examples, such as (50a-b) below.

(50a) Steve gave up before he started.

(50b) Tammy was roused out of bed before she was finished sleeping.

Of course, such examples in no way prove that sentences with non-factual *before* are non-literal, yet they certainly heighten this suspicion.

More compelling evidence can be found by examining paraphrases of sentences with factual *before* clauses and comparing them with paraphrases of sentences with non-factual *before* clauses. Note that we may prepose the *before* clause in (51a) (identical to (49a) above) as in (51b) and then paraphrase the sentence as in (51c).

(51a) John died before he saw his grandchildren.

(51b) Before John saw his grandchildren, he died.

(51c) John was going to see his grandchildren, when / but he died.

Although it is not the standard view in the literature, observe that the non-factual reading of (51a) can be retained even if the *before*-clause is preposed, as in (51b). The paraphrase in (51c) is also interesting, since we saw in an earlier section that future paraphrases exhibit this kind of paradoxical behavior, similar to the progressive. This raises the possibility that non-factual *before* may simply be another way to indicate a semantic course correction.

To investigate this further, we may now compare (51a-c) with the factual *before* clauses in (52a-c) below.

(52a) John learned some magic tricks before he saw his grandchildren.

(52b) Before John saw his grandchildren, he learned some magic tricks.

(52c) John was going to see his grandchildren, when / and (so) he learned some magic tricks.

If we compare (51c) and (52c), we note that the conjunction *when* can be used in either case. However, if we use another conjunction instead of *when*, (51c) more naturally takes the contrastive conjunction *but*, whereas (52c) takes *and* (*so*), a conjunction used to join together two simple, literal statements. To make this point even clearer, try replacing *and* with *but* in (52c). Note that we now interpret (52c) to mean that John learned magic tricks instead of going to see his grandchildren. The selection of conjunctions in these sentences would tend to support my claim that non-factual *before* clauses represent non-literal usage. The plausible meaning is that instead of describing two events ordered in time, non-factual *before* marks a semantic course correction which expresses a mistaken expectation and orders it in time with its subsequent correction.

## 4.4.7 After

On the face of it, there seems to be a contrast in behavior between *before* and *after*. Thus, we may compare (48a-c) above with (53a-c).

- (53a) John saw his grandchildren after he died.
- (53b) Mary drowned after she was pulled from the water.
- (53c) Bill punched someone after he left the party.

Unlike with *before*, there appears to be an entailment from the full sentences in (53a-c) to the *after*-clauses. Since (48a) and (48b) are clear examples involving non-factual *before*, the corresponding sentences rephrased with *after* are contradictory, as in (53a-c). On the other hand, since (48c) is ambiguous between the non-factual and the factual interpretations of *before*, we are able to understand (53c) under a purely factual understanding of *after*.

Similarly, when we turn the sentences around with clearly factual *before* readings, as in (49a-c) we come up with reasonable factual readings with *after*, as in (54a-c).

- (54a) John saw his grandchildren after he learned some magic tricks.
- (54b) Mary drowned after she hit her head.
- (54c) Bill punched someone after he put on his boxing gloves.

Based only on the evidence of such sentences, it might be possible to argue that *before* represents a temporal-modal construction, whereas *after* is merely temporal. However, there are other examples which must also be taken into consideration.

To be consistent, it would indeed also be necessary to analyze *after* as a temporal-modal construction due to the examples in (55a-c) below. Although I can find no mention of it in the literature, I note instances of what I call *non-factual after* in these sentences.

- (55a) Keith only realized that the lens cap was still on the camera after he took Hillary's photograph.
- (55b) Melissa found out that the printer had no ink only after she printed out all the brochures.
- (55c) Beth only discovered that it was really just a book on stamp collecting after she bought the copy of *Wuthering Heights*.

Despite the fact that (55a) contains the clause *he took Hillary's photograph*, the most plausible message we get from the overall sentence is that Keith did not (successfully / factually) take Hillary's photograph. Similarly, we understand from (55b) that Melissa did not print out all the brochures with no ink in the printer and from (55c) that Beth did not buy a copy of *Wuthering Heights*. As with non-factual *before*, the clauses introduced by (*only*) *after* may be preposed and still retain the non-factual reading.

What seems to be the key here with non-factual *after*, is that the subject of the sentence was operating under an incorrect assumption and that the content of this assumption is expressed in the *after* clause. The same sort of analysis also seems to work with non-factual *before* clauses. Perhaps the reason that non-factual *before* clauses are so much more common than non-factual *after* clauses is because it is so much more common to be wrong about events which still lie in the future (since the future is fundamentally unknowable) than to be wrong about those already in the past (since we often have personal memories or records of these events). Yet, as we see here, it is possible to be wrong about events lying in either direction in time.

Although one may argue that *before* has a temporal-modal semantics, in light of the non-factual *after* clauses in (55a-c), consistency would demand that one also argue that *after* is similarly temporal-modal in nature. However, my position is that there exists neither a non-factual *after* nor a non-factual *before*. For that matter, I argue that none of the other constructions discussed in this chapter are modal in nature. Most importantly, for the same reasons, I do not believe that the progressive is modal. Their use in such paradoxical sentences are simply in the context of semantic course corrections.

#### 4.4.8 The Past Tense and the Perfective

In section 4.3.4 above, I demonstrate that the historical present, which is really an expression of the past tense, may be shown to exhibit behavior similar to the imperfective paradox in the progressive. In light of the examples with *after* from the previous section, it is now possible to show how sentences in the simple past tense and the past perfect can also be made to exhibit the same paradoxical behavior as well.

Note that we may first prepose the *after* clause in (56a) (identical to (55a) above) as in (56b) and then paraphrase the sentence as either (56c) or (56d).

- (56a) Keith only realized that the lens cap was still on the camera after he took Hillary's photograph.
- (56b) After Keith took Hillary's photograph, he realized that the lens cap was still on the camera.
- (56c) Keith took Hillary's photograph, but then realized that the lens cap was still on the camera.
- (56d) Keith had already taken Hillary's photograph, when he realized that the lens cap was still on the camera.

We may then also compare (56a-d) with the factual interpretations in (57a-d) below.

- (57a) John saw his grandchildren after he learned some magic tricks.
- (57b) After John learned some magic tricks, he saw his grandchildren.
- (57c) John learned some magic tricks, and (then) he saw his grandchildren.
- (57d) John had already learned some magic tricks, when he saw his grandchildren.

Note critically that (56c) takes the conjunction *but*, whereas (57c) takes the conjunction *and (then)*. The pattern remains consistent throughout all the examples presented in this chapter. The evidence would tend to suggest that the counterfactual readings are due to some overall phenomenon of language use, rather than to any truth-conditional feature inherent to any of the various constructions.

#### 4.4.9 Generics

If a sentence in the progressive can be true when nothing progresses, can a sentence expressing a habitual series of events be true when there is no habit? The answer is in the affirmative according to Kearns (1991). The example she discusses is (58), interpreted in its generic (i.e. habitual) reading.

- (58) The engine smokes.

Under a commonsense understanding of what a generic sentence means, (58) would be true only if the engine smokes regularly on several occasions. Indeed, one would get the impression that (58) would only be true if the engine smokes as a general rule.

However, Kearns (p. 76) suggests the somewhat counterintuitive neo-Davidsonian formula in (59) to represent the meaning of the sentence in (58).

(59)  $\exists e$  [ smokes (*e*) & Theme ( the engine, *e* ) ]

In other words, according to Kearns, (58) may be true even if there exists only a single event where the engine smokes. Kearns contends that “although the habitual here does not refer to any particular occasion of the engine smoking, I claim that the bare existence of such occasions is just what [ *The engine smokes* ] asserts” (p. 75). Anticipating objections to such a formulation of the semantics of generics, she notes, “A difficulty with the existential quantifier is that it is indeterminate for plurality, asserting the existence of ‘at least one’, but the habitual is generally understood to assert several or many such events. Nevertheless, I think the existential is correct here, strictly speaking” (p. 75). Indeed, the argument she advances is quite compelling and reasonable.

The defense that Kearns gives can be demonstrated with a scenario of my own devising that makes essentially the same point as her own. Suppose that Ben goes to a car dealership and buys a brand new car. As it so happens, this car is directly off the production line and has zero miles on the odometer. However, as he drives it off the lot and down the street, thick black smoke begins to pour forth from under the hood. Turning around, he makes his way back to the dealership with the car continuing to smoke. Ben approaches the dealer and demands his money back. When asked what the problem might be, Ben explains by stating (58) above.

Suppose the dealer argues with Ben and accuses him of lying and exaggerating. The dealer is an amateur philosopher of language and, as he explains, when Ben stated (58), he made an assertion that the car smokes *regularly*. However, since this car is absolutely new and the engine has only smoked on just one occasion, (58) should be considered false. Under these circumstances, Ben might very well argue for the same interpretation of the semantics of the progressive as that advanced by Kearns (1991). In this scenario, it seems reasonable to assert that (58) is true even with only one event of the engine smoking.

However, we may carry this scenario even further. Suppose that later someone tells Ben that he plans to buy a car from the same dealership. In fact, he intends to buy the same exact model and one that incidentally rolled off the assembly line immediately after the lemon that Ben purchased. Ben states (60) below.

(60) Whatever you do, don't buy that car! The engine smokes.

Is the assertion in (60) a false statement? Even the analysis advocated by Kearns requires at least a single instance of an event of the engine smoking to justify the truth of a generic sentence. However, what Ben asserts does not exactly seem false either.

On the other hand, suppose that Ben had not uttered (60). Instead, suppose that Ben's friend asks him about the car and, remembering the lecture on the meaning of the generic aspect that Ben received from the dealer, he decides to tell the truth and states (61).

(61) The engine does not smoke.

This sentence is evidently true, since the car has never been driven. Yet, if Ben were to utter this sentence, it would seem to be a very deceptive statement. It seems to me that there is an overall principle at work here that might rescue our instincts that the literal meaning of the progressive requires that something progresses and that the literal meaning of habituals requires that there be a habit, yet which also explains the *use* of these constructions in such apparently contrary scenarios as we have seen here.

Suppose that the semantics of a generic sentence requires that there be a series (and thus, a plurality) of events of the type in question that occur over a span of time. Then, uttering a generic sentence would not be true unless such a series exists. However, it seems plausible that in stating (58) Ben is speaking under the assumption that such a series of events will indeed take place in the future, assuming that the car is eventually driven without being repaired and that it behaves as he expects it will. The only problem with such an account is that if the dealership fixes the car he brought back and it never smokes again after the first occurrence, it would not seem possible for Ben to utter (62) truthfully under a generic reading.

(62) The engine used to smoke, but the dealership fixed it.

However, we may rescue a commonsense semantics of generics if we suppose that (62) is merely an example of a semantic course correction. The earlier expectation was that the engine would smoke repeatedly. However, since it only did it once, this turned out not to be the case after all and (62) is thus a non-literal utterance expressing this correction. In this essay, I employ similar reasoning to restore a simple, commonsense semantic account of the progressive.

#### 4.4.10 Part Of

Recall from Chapter 3 that the partitive proposal for the semantics of the progressive is given additional credibility due to similar intriguing behavior in nominal expressions, as noted by Bach (1986, p. 12). I repeat one of Bach's example sentences here as (63) below.

(63) We found part of a Roman aqueduct.

Bach argues that (63) does not entail that there is, or ever was, an actual Roman aqueduct that this object was a part of. For example, the stone or fragment in question might still be understood as part of an aqueduct even in the event that the Romans had been building an aqueduct but the construction was halted by an attack from barbarians. The stone is only part of an "unfinished aqueduct." This seems to support the contention of Parsons concerning incomplete objects.

However, if this is correct, there should be a plausible explanation for the contrast between (64a-b).

(64a) We found part of a Roman aqueduct and this aqueduct was never built.

(64b) We found part of a Roman aqueduct, but this aqueduct was never built.

If (63) is a literally true sentence, then why does (64a) sound rather odd and (64b) seems the more natural utterance? Also, if (63) were allowed to stand alone without any further clarification, would the average language-user conclude from this that the aqueduct may have been an aqueduct that was never built? It seems reasonable to me to conclude that this is merely yet another example of a semantic course correction. The sentence in (63) references mistaken expectations, rather than facts.

#### 4.4.11 Semantic Course Corrections as a Non-Modal Phenomenon

Many more sentences that can be shown to demonstrate the same behavior. Consider (65a-c).

(65a) On my last trip to Washington, D.C., I went to my favorite restaurant for dinner. But when I got there, I discovered it was a bookstore.

(65b) Harold arrived at his sister's home, but she had moved away six months ago and now the house belonged to an elderly man.

(65c) Robert returned to his childhood home, only to find that it was a parking lot.

(65d) Oedipus' mother seemed quite young to me, but then I discovered she was his wife.

In (65a), the restaurant may have long since been converted to a bookstore. Therefore, it was not actually possible to return to this restaurant. It no longer existed at the time in question. Nevertheless, the speaker can claim to have returned to the restaurant in the sense that the speaker still believed at the time that the establishment was a restaurant until this was found to be otherwise. The story is much the same for (65b-d).

This does not appear to me to be an intensional phenomenon, in the sense of a modal phenomenon, but rather something else. The reason I say this is that modality in truth-conditional semantics is dealt with under an appeal to possible worlds, with the operative word here being *possible*. Consider (65d), where the sentence literally asserts that Oedipus' mother was also his wife. Given what we know about the Oedipus of the Greek tragedy, this reading is possible. Thus, we may find a possible world where Oedipus is married to his mother. However, for any other individual, this sentence would be understood to mean that the speaker was first mistaken as to the familial relationship that Oedipus bore to the woman he was with.

The contradiction is more obvious in (65c), where the sentence seems to claim that a childhood home is also a parking lot. This would clearly only be found in an *impossible* world, very much unlike the actual world. Nevertheless, these sentences appear on the surface to be about the actual world and contain no constructions typically understood to induce an intensional context. Therefore, it seems to me that these are non-literal utterances used to bring about a semantic course correction in the discourse.

#### 4.5 Summation of the Evidence

The phonetic, lexical, logical, semantic, and pragmatic evidence presented in this chapter has tended to support my contention that the progressive is not a modal construction. As I have argued, the progressive is not amenable to analysis under a possible-worlds framework. In addition, we can begin to understand the nature of the what we face. The imperfective paradox seems to be just one manifestation of the larger phenomenon of semantic course corrections. A course correction looks first like a literal utterance of a sentence, but then a correction is appended in some fashion to the statement. As I have shown above, this correction is typically signaled by such contrastive conjunctions as *but*, *however*, or *unless*, but may also be indicated with *before* or *after*, or merely with the intonation contour alone. The correction takes back an assertion of the literal truth of what the declarative sentence in question asserts, turning it essentially into what I call an *error quotation*.

If not understood in this way, a sentence containing a semantic course correction can look like a wildly paradoxical statement.

In the case of the imperfective paradox, I assert that the progressive sentence is only an error quotation of what the speaker would have earlier asserted was pragmatically true. As with other error quotations arising from course corrections, it is in no way necessary to demand that this sentence be evaluated as literally true. The sentence as a whole is now an example of non-literal usage. Therefore, we are able to avoid the messy problems that arise with apparently contradictory assertions and referential failures. Once again, the key to this is that there is a difference between that which we say is true (i.e. pragmatic truth) and that which is literally true (i.e. semantic truth). Truth-conditional semantics is only designed to explain the semantic truth of sentences and cannot address the phenomenon of pragmatic truth, although this could be dealt with under a separate theory of pragmatics. The next chapter takes a look at how we might begin to open up such a study of pragmatic truth.

## Chapter 5

### Pragmatic Truth and the Progressive

#### 5.1 The Semantics-Pragmatics Interface

In the previous chapter, I presented evidence that the entailment failure known as the imperfective paradox is simply one manifestation of a larger phenomenon which I call a *semantic course correction*. I have thus explained *what* I think is responsible for the unusual behavior observed with progressive sentences, but I have not yet given an account of *how* these course corrections work and *why* I think they can provide an account of the imperfective paradox. These are more difficult matters to address satisfactorily, but I endeavor to do so in this chapter.

As we have seen, semantic course corrections are quite often uttered for the purpose of error correction. The untrue sentence amounts to nothing more than an error quotation: an untruth that the speaker earlier mistakenly said, thought, expected, or supposed was true. The task is therefore to explain how it is that a speaker might make a practical judgment of the truth of a sentence (i.e. postulate a pragmatic truth value for a sentence at a given time), which hopefully corresponds to the sentence's semantic truth value, but may indeed not. At issue is thus how speakers may make performance errors in the practical determination of the truth of a sentence. This is indeed an enormous topic to investigate and one which I can only broach in a general way.

For example, someone might suppose at a given time that the sentence *Arthur C. Clarke is happy* is true. The speaker's judgment may be right or wrong, but it is indeed a complicated question how a given language user weighs indirect evidence to come to a practical judgment of truth. Clearly, this matter would not normally be of concern to those who study truth-conditional semantics, since the question lies entirely outside the theory. Nevertheless, it is important at least to begin to discuss the question here, since I believe the distinct notions of semantic truth and pragmatic truth have become unfortunately confused or merged to a great extent in the literature. As we discuss pragmatic truth, such things as the "natural course of events," the "insulation" of events from "outside" influences, and other familiar ideas resurface. This would suggest that previous semantic accounts of the progressive have actually been unwittingly discussing the pragmatic truth of

progressive sentences, rather than their semantic truth, around which truth-conditional theory is designed.

### 5.1.1 The Weather Computer: An Analogy

In order to get across some fairly subtle ideas to the reader in the smallest number of words, an analogy might be useful at this point. Think about a computer programmed to predict the weather and how such a machine works. Although typically housed in the interior of a building away from the rain and sun, such a device is patched into an enormous array of barometers, thermometers, rain gauges, radar, and other sensors in order to *observe* outside weather conditions and relay this raw data back to its electronic brain. The computer may also be able to *recall* data from an electronic almanac going back a century or more and correlate this with the new information. Also, the computer might sometimes download a *report* from another computer gathering information in a similar way at other locations nearby and factor in this data into its predictions.

Furthermore, the computer make work under a series of useful assumptions. For example, the computer might simply assume that a large meteor will not unexpectedly strike the Earth in the next 24-hours, plunging most of the globe into meteorological chaos. That is, as a rule-of-thumb, the computer simply *insulates* the environment from all unknown factors. As a consequence of this assumption, it might be further assumed that the weather will proceed along in a normal fashion, as dictated by *inertia*. To determine what the normal or “natural course of events” for the weather might be, the computer could check its historical database. For the given time of year and for given current conditions, the computer would look to the past to identify a *regularity* of behavior that might give a hint about future behavior. Finally, any data which does not seem to fit well into the regular pattern would most likely be rejected by the computer. Contradictory indications must be resolved in this way so as to preserve the overall *logic* of the knowledge base. A meteorological computer, while often effective at predicting the weather, only plays a passive role. The computer has no power whatsoever in influencing what the weather will be. Some have speculated, however, that it might one day be possible to have computers which direct the seeding of clouds to make it rain and orbiting solar panels to make it sunny. In this way, the computer could actually *plan* future weather and then be the agent of bringing it about in reality.

Yet, let us think further about the sort of weather computers we have today for predicting the weather. Suppose we ask such a computer for tomorrow’s weather report and it predicts a warm,

sunny day. We might be skeptical if the TV news has instead predicted overcast skies and a cold snap. However, when the following day arrives and the computer's prediction is borne out, we might be inclined to consider the machine to be a genuine meteorological oracle. Suppose that on the following day, the computer again forecasts a warm, sunny day and no precipitation. Therefore, we might state (1) to others.

(1) The weather is going to be warm and sunny with no precipitation tomorrow.

We may have every confidence that tomorrow's weather report is a truthful and accurate one.

Suppose, however, that on the following day, there is a massive thunderstorm with torrential rains and record cold temperatures. Of course, a meteorological computer would just log this as a failed prediction and move on with the business of hopefully doing a better job at predicting the weather in the future. On the other hand, a human being is more likely to cling to the failed prediction as if it still has some validity or importance. Looking back at the faulty weather report, we are prone to say an utterance such as (2) below.

(2) Look! It *was going to be* warm and sunny! There *was supposed* to be no rain!"

Naturally, as we now discover, it was actually *not going to be* warm and sunny. There was *supposed* to be no rain only in the sense that we *supposed* there would not be any.

A human language user is indeed in much the same position as this computer in predicting the future (or, for that matter, knowing about what goes on outside our direct sphere of experience). We must rely on observation, recollection, and the reports of others to gather indirect indications of the ultimate truth. We also make similar rule-of-thumb assumptions about the "insulation" of a situation from "outside" influences, the general inertia of the world, the regularity of behavior, and how to discard apparently erroneous information so that our world view still conforms to the dictates of logic. In addition, whenever we have some control over events ourselves, we are able to plan for the future. We can thus know the future to the extent that we make it ourselves.

The other point of this analogy is once again to contrast semantic truth and pragmatic truth. The semantic truth of (1) is simple enough to determine in principle, but not in practice. If the weather turns out to be as (1) purports, then the sentence is semantically true. Otherwise, it is semantically false. However, since it is impossible to see into the future, the satisfaction of these simple truth conditions is unknowable to human or machine. For this reason, in order to arrive at some practical

approximation of the truth value of (1), it is necessary to resort to complicated guesswork and indirect factors which indeed may ultimately be unrelated to its semantic truth value. The methods used would be different for a computer or a person and would also vary among computers or from person to person. Indeed, there are those who think that a groundhog seeing his shadow is one method of judging the weather in the future. While it is certainly possible, in theory, to attempt to outline all the complicated, extended reasoning which may go into such determinations of pragmatic truth on a case-by-case basis, it is obviously only possible for me to discuss such procedures in a general way in this essay.

### 5.1.2 Information-Based Approaches to Semantics

This essay has focused on the study of semantics under a referential framework. Consider what an information-based (or representational) theory of semantics would have to say about the weather-computer analogy. Such a theory would claim that a statement such as (1) is actually about some mental representation of tomorrow's weather in the mind, rather than about tomorrow's weather itself. That is, many such approaches may be characterized as entirely *information-conditional* rather than truth-conditional and referential in nature. The claim might be that the words in a person's utterance of (1) are not about tomorrow's weather, but only about the person's beliefs. Similarly, the computer's report would also not be about the weather, but only about the computer's calculations. Indeed, many such approaches are computational in their leaning. This kind of analysis has its adherents and I certainly see value in studying meaning in this way. However, I think it best to categorize representational and information-conditional theories as dealing with the *pragmatics* of language use, not with semantics.

One major problem with such approaches is that they generally attempt to explain meaning *in complete independence* of conditions in the outside world. Yet, we are obviously also concerned with how language refers to the world and not just with our thoughts about the world. Thus, when the weather is predicted to be sunny, we leave the umbrella at home (sometimes to our regret). This is because we expect the world to behave in a certain way on the basis of what has been claimed or predicted about it. We understand that there is a semantic difference between *It's going to be sunny* and *The person who just spoke to me thinks that it's going to be sunny*. In addition, non-referential theories run into problems in dealing with indexical and demonstrative expressions such as *you*, *he*, *here*, *that*, *now*, and others. Such words seem to have no meaning beyond a referential denotation. This has been discussed in the literature by Hall-Partee (1979, p. 4), and many others.

Of course, a common argument against a referential system (such as Montague Semantics) is that it cannot “fit inside the head” of a language user. For example, tomorrow’s actual weather does not exist in the mind, but rather at a future time and out in the environment. However, I see no problem with a system that involves putting linguistic labels on things away from us in time and space, even when we cannot fully know all facts about these things we label. Although it is not the principle aim of this paper to debate the relative merits of referential and representational approaches, I merely wish to explain the position I take within the context of this essay.

To illustrate, consider the common noun *comet*. The extension of this expression under Montague’s system would be the set of all comets in the universe at this time. Of course, this would be a set with a vast number of members throughout the enormous reaches of outer space. This seems to make a semantics based on reference implausible. Yet, consider (3) below.

(3) For any object in the universe, this object either is or is not a comet.

Since we assume the universe is logical, and since what (3) expresses is a logical tautology, we immediately understand how we are able to grasp that there can and must be something like the set of all comets in the universe, even if we are not personally acquainted with the membership of this set. Indeed, suppose there were a universe where (3) could somehow be false. Such a universe in which it would not even be theoretically possible to segregate things linguistically into all those that are comets and all those that are not would be an illogical universe. I am, of course, idealizing away from the problem of vagueness. For example, it might be difficult to discriminate whether a particular object is a comet or a meteor. However, I do not perceive this as a difficulty for a theory of semantics which is taken to be something of an idealization in this respect.

Nevertheless, those who argue for a representational semantics also raise an important issue. Suppose we wish to evaluate the semantic truth value of the sentence in (4) under a truth-conditional system.

(4) Hale-Bopp is a comet.

A referential semantics would demand that we know to which object the extension of the name *Hale-Bopp* refers and to which set the extension of the expression *comet* refers in order to evaluate this sentence as bearing a semantic truth value of true or false. In other words, if a language user wanted to learn the literal semantic truth of (4), it would first be necessary to have certain

knowledge of the exact membership of the set of all comets. This is obviously a concept beyond the abilities of the human mind to know completely. As a result we reach an insurmountable obstacle if we consider a semantic system in the tradition of Montague Semantics to be a psychological model of language use.

However, this semantic tradition has never purported to be a theory of *language use* (i.e. a theory of pragmatics), but merely a theory of truth-conditional semantics. As such, is not implausible psychologically. Our minds have no problem accepting the idea that (4) would be true if and only if the object to which the name *Hale-Bopp* refers is among the set of objects to which the expression *comet* refers. Indeed, our understanding of logic would not permit us to comprehend the truth conditions any other way. Similarly, in considering a prediction about tomorrow's weather, we know just what conditions will make the prediction come true or else fail, even though we do not know tomorrow's weather. However, truth conditions cannot be employed directly by a language user wishing to utter a true sentence. We simply do not have the requisite knowledge of the universe inside our finite minds to verify the satisfaction of such truth conditions directly.

Yet, this is not a concern for truth-conditional semantics, but rather for a separate theory of pragmatics. Truth-conditional semantics illustrates how language may typically refer to entities larger than ourselves, that exist outside ourselves, and that are mostly unknown to us. Although a remarkable feature of language and consciousness, there is nothing outrageous about this notion. However, it must also be acknowledged that if a person wishes to apply such a system to actual language use, it would be necessary to defer to independent pragmatic measures. As I described in Chapter 1, pragmatic truth serves as a practical stand-in for semantic truth. In actual conversation, we have no choice but to speak on the basis of our best understanding of reality, rather than on the basis of a direct, divine knowledge of reality itself.

In my view, the long-standing controversy between referential and representational approaches to semantics amounts largely to a confusion over two different notions of truth. Referential approaches are founded on the concept of semantic truth. Representational approaches focus on the pragmatic truth of a sentence relative to the speaker or the hearer. I think it makes good sense to consider our semantic system to be referential and truth-conditional (i.e. external to ourselves), even if our pragmatic system is obviously representational and information-conditional (i.e. internal to our minds). Thus, even though we are forced for practical reasons to implement our semantic

system in an indirect and imperfect way (i.e. through our system of pragmatics), utterances themselves are still about conditions in the larger reality and not merely about our mental states.

As language users, we thus generally attempt to adhere to Grice's maxim of quality and, when speaking literally, produce only sentences that we believe bear a semantic truth value of *true*. However, misjudgments can lead to the accidental production of false or anomalous sentences, though such mistakes need not be seen to detract from the fundamentally referential nature of the semantics of language. If we thus talk about "tomorrow's sunny weather" when it then turns out to be rainy, this is just a mistake. The accidental production of false sentences or irreferential expressions are the result of semantic performance errors, as I discuss in the following section.

### 5.1.3 Competence and Performance for Semantics and Pragmatics

For any discipline of linguistics, many consider the principle object of study linguistic *competence* rather than *performance*. Thus, syntactic or phonological competence of a somewhat idealized typical language user is studied by factoring out any performance errors that may crop up due to slips of the tongue or confusion. It seems that we may employ a similar reasoning to understand semantic competence. As I have argued here, human semantic competence may realistically be expressed in terms of truth conditions and referential connections, even though such connections may be beyond our human abilities to know completely.

However, the characteristics of pragmatic competence are rather different. Pragmatics involves practical strategies to implement such a semantic system. Practical strategies employed for any purpose are designed to make the most of an imperfect situation. For the same reason that no weather computer will ever reach perfect accuracy in predicting the weather, it must be realized that the human mind is only just so skilled at guessing the truth and can never know everything absolutely. As a result, mistakes are *inherent* to the normal, practical use of language and thus coping with *semantic performance* errors is a part of normal *pragmatic competence*.

That said, just because it is inevitable that we make mistakes in actual language use, this does not mean we do not have linguistic measures to acknowledge or correct such mistakes later. I argue in this essay that the imperfective paradox and other linguistic effects outlined in this essay are part of the more general phenomenon of semantic course corrections. These are a feature of our pragmatic competence. In part, semantic course corrections are used to point out semantic performance errors verbally and then recover from them. Given that one of our typical goals in using language is to

utter sentences that bear the semantic truth value of *true*, accidentally producing sentences that are not literally true (i.e. are either false or anomalous) can be seen as a semantic performance error. The pragmatic difficulty involved in using the progressive aspect, most significantly due to the unknowability of the future, is the reason why semantic performance errors may occur in the use of progressive sentences, and thus why false and anomalous progressive sentences may then appear frequently in the context of a semantic course correction.

In the following sections, I explain why pragmatic truth works rather differently than semantic truth. First, I outline some of the general characteristics of the pragmatic system as I see it. Then, I turn to the specific methods that language users seem to employ in the postulation of pragmatic truth. I express these methods as a series of assumptions, much like rules-of-thumb, to which language users seem to defer for purely practical reasons. Many of these assumptions should look familiar to the reader since I argue that they have crept across the semantics-pragmatics interface into many recent truth-conditional accounts of the progressive aspect. As I discuss each assumption, I repeatedly bring the discussion back to the use of the progressive and various ways that the imperfective paradox may arise in its use.

## 5.2 The General Characteristics of Pragmatic Truth

The first thing to note about pragmatic truth is that since Grice's maxim of quality applies across language, the determination of pragmatic truth is an issue for the utterance of virtually *any* declarative sentence. Although more obvious when considering sentences about events in the future, the difficulty in postulating pragmatic truth is not confined to sentences about events which are yet to occur. For example, we may wish to assert whether someone is happy or not. However, with the possible exception of those who profess some form of psychic discernment, we do not know for sure what is in the mind of another. Thus, the emotions of another are (ultimately) as much unknown territory to us as events in future time.

Nevertheless, just as we do in speaking about the future, we formulate practical guesses about such matters and speak about them. We make observations that we assume might be somewhat related to another individual's emotions, correlate these observations with past experience, cross-check our conclusions sometimes with the opinions of others, and then come up with a judgment of the truth of the matter. In short, we sometimes perform as much mental calculation in the practical use of language as a weather computer does to create a report about tomorrow's weather. However, just

like this computer, in spite of all the analyses and deduction, we may very well just turn out to be flat wrong. This has led some to claim that truth-conditional theories of semantics imply that language users do not know their own language. Of course, such theories only imply that we do not fully know all of outside reality, space, time, and possibility that we use language to talk about. This is not such an amazing claim at all.

Pragmatic truth, as I describe it here, must be understood to vary from language user to language user. That is, opinions about what is true differ among people. In addition, pragmatic truth may vary over time, since each of us may change our opinions and beliefs about anything as time passes. Pragmatic truth is also dependent upon conversational context. The pragmatic truth values postulated for sentences need only be based on what would socially be considered adequate evidence for current conversational purposes. In some situations, such as in the text of an official report, only very compelling evidence would suffice to postulate a pragmatic truth value for a particular statement. In others, such as making guesses in a game of chance, just a strong feeling may be enough. There are thus very complicated issues in how we go about deciding whether we may make some assertion in a given conversational context and not violate Grice's conversational maxims.

Finally, as discussed in Chapter 1, pragmatic truth is a fully *trivalent*, rather than *bivalent*, logical system. Suppose a certain language user is concerned at a particular time with the truth of the sentence *Arthur C. Clarke is happy*. If the person comes to the practical judgment that Arthur C. Clarke is happy, then he or she postulates a pragmatic truth value of "1" (i.e. *apparently true*) for the sentence. Alternately, the person might decide that Arthur C. Clarke does not seem happy and postulate a pragmatic truth value of "0" (i.e. *apparently false*). Finally, the person may not have seen Arthur C. Clarke lately and has no way of guessing what his emotional state might be. While accepting logically that the semantic truth of the matter must be that he is either happy or not, the language user may not yet guess which. Thus, the person is forced under such an epistemic context to postulate the third pragmatic truth value of "\*" (i.e. *not yet assigned for truth value or still unknown*).

To summarize, I describe pragmatic truth as a trivalent system of logic employed by a particular language user at a particular time to assign a provisional judgment of truth to any given declarative sentence. This is done for the purpose of preventing a violation of Grice's maxim of quality should the language user decide to utter the sentence in conversation as a truthful utterance. In the next

sections, I describe the rules-of-thumb that language users apparently employ in postulating pragmatic truth. These are presented in the form of a series of assumptions. This method of exposition is faithful to the idea of pragmatic truth as a practical judgment that follows from the application of proven strategies. I cannot possibly hope to cover every issue completely here. However, I think this exploration is useful in that it goes some way to explaining why so many precisely formulated accounts of the semantics of the progressive nevertheless reduce confusion and why they also consistently fail to account for the data. Indeed, as I address each assumption below, I relate my comments back repeatedly to the use of the progressive aspect in English.

### 5.3 The Assumptions of Pragmatic Truth

#### 5.3.1 Observation

We speak about events and things in the universe, but obviously we do not have the entire universe inside each of our heads. It is therefore reasonable to assert that as language users we are compelled to make a practical assumption about our knowledge of the universe we inhabit. We must simply assume in general that our perceptions provide us enough information to make a confident judgment about what conditions in a small part of the universe happen to be. This is by no means a novel supposition. William of Ockham concluded the same in the fourteenth century. He writes that, in one sense of the word, *knowledge* means "... an evident cognition.... For instance, if no-one told me that the wall is white, I should still know that the wall is white, just by seeing whiteness on the wall" (1964, p. 6). Ockham presumes in this, of course, that his eyes reveal to him the true facts of the world.

In order to highlight the impact that perceptual considerations can have on the use of language, I present the idea in terms of the following pragmatic assumption.

#### OBSERVATION

A language user assumes that observation (derived through perception with the five senses, perhaps augmented by technological aids, and interpreted by the mind) may be used to provide a reliable, partial depiction of conditions as they exist within the individual's current sphere of conscious awareness and may also be used to provide indirect indications of how conditions might be beyond this current sphere, elsewhere in time and/or space.

By *technological aids*, I simply mean that the range of one's senses can be extended by such technology as the microscope, telescope, microphone, television, and others. The point of this assumption is that we only know about outside reality, to the extent that we *can* know about outside reality, though a filter of limited perceptions and mental interpretations. Furthermore, although observation may provide indicators of conditions as they exist elsewhere, observation may only be used to *verify* directly the conditions at the present time and within the range of our sensory perception.

The assumption notes that observation can provide indications of how conditions are outside one's current perceptual reach, but this is only accomplished in combination with additional assumptions discussed later in this chapter. For example, suppose one perceives smoke either through visual or olfactory senses. Such perceptions may be mistaken, since mist or fog may look like smoke and there are things that have a smoky smell which are not smoke. Whether or not the perception is accurate, it is possible to surmise from such a perception that there is smoke present. This is because we defer to the assumption cited above that perceptions are accurate. Reasoning further, one might then postulate that there is fire also in existence at the present time, even if none is perceived. However, in order to make this additional deduction, it is necessary to combine the observation of smoke with another kind of reasoning that predicts that where there is smoke, there is fire. I discuss assumptions of this kind later in the chapter.

At this point, we may restrict ourselves to considering the linguistic effects resulting from direct observation alone. For example, suppose that George says the sentence in (5) below to Martha and does not intend it to be a violation of Grice's maxim of quality.

(5) There is a lake 20 yards ahead of us.

How is it that George feels confident to make such a statement? Probably this is because George sees a lake 20 yards ahead and speaks on the assumption that his perceptions of reality correspond to what reality actually is. Typically, this is not an outlandish assumption to make. However, suppose that George and Martha are walking in a desert and the "lake" that George spots turns out only to be a mirage. After discovering this, George may state (6) to Martha.

(6) I was overjoyed when there was a lake 20 yards ahead of us, but unfortunately it was only a mirage.

The sentence in (6) is a semantic course correction. The clause *there was a lake 20 yards ahead of us* is false, yet uttered here in (6) as if factually true. However, the second clause is contradictory since it literally asserts that a lake was simultaneously a mirage. This paradoxical form is the hallmark of a semantic course correction.

The key is that George earlier postulated a pragmatic truth value of “1” for the sentence in (5). Note that the syntax of the non-literal utterance in (6) is reminiscent of the sentence in (7) that takes the form of indirect discourse.

- (7) I was overjoyed when I *said / thought* that there was a lake 20 yards ahead of us, but unfortunately it was only a mirage.

As I have illustrated previously in this essay, because of the syntactic and semantic similarities between (6) and (7), I use the term *error quotation* to identify the false clause *there was a lake 20 yards ahead of us* in (6). I consider (6) to be a form of non-literal utterance that plays on the fact that George earlier postulated a pragmatic truth value of “1” for the sentence in (5).

Now we may consider how the assumption of observation relates to the pragmatics of progressive sentences. Recall the theories of the progressive that argue that the truth conditions of the progressive involve a part-to-whole relationship of possible events. Several semantic accounts have asserted that a progressive sentence is true if and only if a *significant* part of an event of a required type has taken place, *even if the remainder never does*. This is a curious idea since it contends that something may be identified as a part of a whole without there being a whole. Indeed, as we saw in Chapter 4, the construction *part of* appears to demonstrate analogous semantic behavior.

However, we may think about this curious effect in another way. Consider the example in (8a-b), discussed previously in this essay.

- (8a) The wheel is rolling across the road.  
 (8b) The wheel was rolling across the road when it was knocked over by the falling rock.

Note that if a significant part of an event has elapsed, then this part no longer lies in the future at the time of evaluation. Thus, a significant portion of an event could already have been *perceived* by a human observer. When a significant part of an event has elapsed, a speaker has typically been able to gather *adequate evidence* to utter a sentence in the progressive without violating Grice’s maxim

of quality. Thus, if a speaker observes a wheel roll to the middle of a road and it has retained significant forward momentum, the speaker may be led to postulate a pragmatic value of “1” (i.e. *apparently true*) for (8a) at the time.

How is it that we are able to use observation to postulate that an event of one type rather than another is underway at a given time? This is an enormously complicated question to answer and one that is tied to the larger issue of how the human senses, mind, and intellect work. Although I explore such matters a little further in the sections below, this is certainly a far larger issue than the progressive aspect in English. The problem of discriminating events is similar to that of discriminating objects. If I say, “Please hand me that orange,” how is it that my senses and mind tell me that this object is an orange or even that there is an object there at all? These kinds of questions are studied and debated by philosophers, scientists, and the like.

I only maintain here that it is a fact that we indeed make such judgments based on observations. Whatever our precise methodology might be, we do have such a methodology, though it is not a foolproof one. If I am told that the “orange” is really a tangerine, I may complain, “I was going to eat that orange, until I discovered it was a tangerine.” Similarly, if we come to a practical judgment that “Mary is making John a millionaire” is true, but then she fails, we must then admit the error. We may state literally: “Well, no, she wasn’t after all. As we discovered, she was making him a pauper.” Alternately, we may appeal to non-literal expression with a semantic course correction: “Mary was making John a millionaire, but made him a pauper instead.”

The reader might object that it is crucial that we answer exactly how observations link up to conclusions about whatever is apparently going on. This is (or, at least, has been) the sort of issue that researchers have attempted to determine and incorporate into the truth conditions of progressive sentences. Indeed, I explore this problem in somewhat greater detail later in this chapter. However, I only wish to emphasize here strenuously that this really has nothing whatsoever to do with a truth-conditional analysis of progressive sentences. Admittedly, it is rather more closely related to the pragmatic use of progressive sentences, but it is similarly related to the pragmatic use of language in general. Thus, if I happen to observe that Arthur C. Clarke is smiling, I might conclude that he is happy and then subsequently assert that he is happy. I may be correct or mistaken, but my observations naturally have no bearing on the semantic truth value of my assertion. Indeed, the link between the observation and the conclusion I draw is not even directly a linguistic issue. Rather, this is the problem of how the human mind gathers and analyzes

information about conditions in the outside world. That is, it is the problem of human consciousness. While ultimately relevant, this goes far beyond the immediate issues of the semantics and pragmatics of the English progressive aspect or, for that matter, any other grammatical construction.

As we see, the satisfaction of the maxim of quality, based only on pragmatic truth, is no guarantee of the literal semantic truth of an utterance. Mistakes are bound to occur from time to time. Returning to the scenario under consideration, if the wheel is later knocked over by a falling rock, the utterance in (8a) is then discovered to have been a false utterance. The sentence in (8b) is then a semantic course correction which is a linguistic recovery from having made an earlier false assertion (or to acknowledge an earlier false conclusion) and then correct it. Nevertheless, as I have argued here, the relevance of observation is not limited to sentences in the progressive aspect but rather pertains to the practical use of language in general.

The basic pattern of behavior is now clear. Our semantic system of language is designed to permit us to express facts. We use observation to come to know these facts as best we can and typically make the pragmatic assumption that our observations are accurate when we speak. However, observations may sometimes be mistaken. As a result, assertions that we postulate to be literally true may later be discovered to be in error (i.e. false or anomalous). Then, when such mistakes are discovered, we may express the adjustment to our understanding in a number of ways, including a semantic course correction. This type of non-literal discourse phenomenon involves an error quotation (in some cases, a progressive sentence) and a correction.

The assumption of observation seems very deeply ingrained. Notice that we may sometimes apparently speak directly on the basis of our perceptions even when these perceptions conflict directly with our actual beliefs, as in (9).

(9) The magician sawed the woman in half.

In (9), the speaker *observed* a theatrical magician do a trick that made it *appear* that the woman was sawed in half. A stage magician is able to manipulate perceptions to present an observer with a false reality. However, even while understanding that (9) is not true under its literal interpretation with reference to the facts as they actually occurred, a speaker may simply state (9) as if it were literally true. This is an interesting phenomenon in and of itself, but I do not go into great detail about it here. I merely wish to emphasize that our observations of reality are able to generate

linguistic behavior as well as the actual facts of reality or even our genuine beliefs. The sentence in (9) is in the simple past tense, not the progressive. However, it shares a characteristic with progressive sentences which exhibit the imperfective paradox. The sentence in (9) describes a situation where the speaker was mistaken (or allowed himself or herself to be mistaken) about the actual facts of this past-time event. Later, it is possible to assert (9), but to be perfectly clear the speaker might freely add the words *...but, of course, it was just a trick.*

### 5.3.2 Recollection

Going hand in hand with observation, we must also note that language users make a practical assumption about memory, which I indicate below:

#### RECOLLECTION

A language user assumes that recollection (the consultation of personal memories in the mind) may be used to provide a reliable, partial depiction of conditions as they existed within the individual's prior spheres of conscious awareness and may also be used to provide indirect indications of how conditions might be beyond these spheres, elsewhere in time and/or space.

Although memories are often the only way for us to make judgments about events in our own personal past, they can also often fail us. Witnesses under oath to tell the truth at a trial can often produce entirely conflicting descriptions of the same event. This does not mean that any of the witnesses are knowingly stating falsehoods. Memories just do not necessarily provide us with an accurate portrayal of the past. As I note, observation and recollection also both play a role in the indirect indication of conditions outside our current and prior spheres of awareness. This involves the interaction of these assumptions with further pragmatic assumptions that will be explained in greater detail later in this chapter.

For now, we may consider an example demonstrating how direct recollection alone may prompt a semantic course correction. Suppose a group of coworkers want to have a luncheon but they cannot decide where to hold it. Ken remembers having had a good pizza for lunch at a particular restaurant a few weeks back and offers the suggestion in (10).

(10) There is a pizzeria at the corner of 6th and Main.

This sounds like a good suggestion to all involved, so they start off for the corner of 6th and Main. Everyone leaves the office, except for the receptionist who stays behind to answer the phone.

Back at the office, the receptionist begins to wonder what could be keeping everyone so long. Finally, the group returns and Ken explains what happened by stating (11).

(11) We went to the pizzeria at the corner of 6th and Main, but I forgot that it is actually at the corner of 7th and State.

Despite the wording of the first clause, the natural interpretation of the overall sentence is that the group did not go to a pizzeria at the corner of 6th and Main. Indeed, there is apparently no restaurant to which the expression *the pizzeria at the corner of 6th and Main* refers, other than Ken's *mistaken* reference to the pizzeria at the corner of 7th and State. Donnellan (1966) discusses this as the *referential* use of definite descriptions as opposed to the *attributive* use.

Furthermore, the second clause is contradictory. Even if we were to attempt to appeal to conditions in some possible world, we would find no possible world where there is a pizzeria simultaneously in two locations. The entire sentence in (11) would thus be uninterpretable as a literal utterance. However, taken under a non-literal interpretation as a semantic course correction, the sentence is still meaningful.

Since the progressive is a future-oriented construction, memory does not often play a role in the pragmatic use of the progressive aspect, other than short-term recollection of observations made of the elapsed portion of the event in question. However, exceptional scenarios may be devised. For example, suppose Tracy decides to fill her backyard pool on the first day of summer. She turns on the garden hose and lets the water pour into the empty pool. She says the sentence in (12) to her neighbor.

(12) I am filling the pool.

Tracy goes inside for awhile to let the pool fill, but when she eventually comes out, the pool is still completely empty. Then she realizes what the problem is and says (13) to her neighbor.

(13) I was filling the pool, but I forgot that the drain is still broken from last summer.

I contend that it is certainly not literally true that Tracy was filling a pool with a broken drain. Indeed, this would be impossible. Yet, the first clause in (13) still seems to make the assertion *I was filling the pool*. Of course, this is merely an error quotation within the context of a semantic course correction.

### 5.3.3 Reporting

The American humorist Will Rogers was fond of saying, "All I know is just what I read in the papers." With regard to events outside one's personal spheres of observation and recollection, one must often rely on the first-hand or hearsay testimony of newspapers, other media sources, or other language users. Of course, linguistic reports are also perceived through the filter of observation and recollection so there is also room for error and misunderstanding in the same way as with any other perception or memory of external reality.

However, even when language is accurately transmitted, there is no guarantee that what the words state is the literal truth. Indeed, it is only a societal convention that allows linguistic evidence to be at all worthwhile as an indicator of conditions in the universe. Naturally, I refer to our adherence to Grice's maxim of quality. The pragmatic assumption that follows from the maxim of quality may be summarized as follows:

#### REPORTING

A language user assumes that the assertions of others may be used to provide a reliable, partial depiction of conditions as they exist beyond the individual's current and prior spheres of conscious awareness.

In other words, we take other people's reported assertions about other places and times under serious consideration when attempting to determine pragmatic truth. As with the assumptions of observation and recollection, we rely on this assumption heavily.

An interesting example of this is demonstrated by people who, after giving assurances that they in no way believe in astrology or fortune telling, then proceed to recount in detail what is going to happen in their own personal lives based on their latest horoscope or a tarot card reading. The motivation for this sort of behavior might be partly due to this assumption of reporting. Linguistic assertions about the unknown are so valuable to us that even when we judge such reports to be generated on the basis of irrelevant data and of utterly no informational merit, we are still

compelled to pay careful attention and spread the news to others. We take note of almost any such assertion that comes our way, right down to those that come out of cookies at a Chinese restaurant.

Of course, information derived through language can certainly lead us astray. Thus, gossip notoriously distorts the facts. Indeed, even what appears to be a first-hand report can be misleading. Waves of mass hysteria swept the public on the evening of Sunday, October 30, 1938, when they heard a radio broadcast that, in essence, seemed to make the claim in (14).

(14) Martians invade the Earth!

Of course, this was not true. The hysterical announcer's words were merely part of a radio play. Orsen Welles directed this realistic version of the famous science fiction novel *War of the Worlds* by H. G. Wells and many in the public were terrorized by what they heard. Thus, if Martians do not exist, the expression *Martians* under a referential semantics would only have extensions in possible worlds where fictions such as those dreamed up by H. G. Wells are realized.

Nevertheless, it would still be possible to describe the event later with the sentence in (15).

(15) The public was terrified when Martians invaded the Earth on October 30, 1938,  
but the invasion was really just a radio play.

Again, (15) is only acceptable because it is understood as a semantic course correction. Of course, it is possible to get essentially the same message across by rephrasing (15) with *when it was reported that Martians invaded the Earth* or *when it was believed that Martians invaded the Earth*, but (15) is also an acceptable utterance just as it is, though clearly intended under a non-literal interpretation.

Relying on reported information can also produce the imperfective paradox in the progressive. For example, suppose Karen is told by her boss to go to a business meeting across town that afternoon. On her way out the door, Karen says (16) to her coworkers.

(16) I am going to a business meeting.

She observes odd reactions in several of her coworkers, but thinks nothing of it. Since she is going to a meeting, she stops for a bite to eat along the way. When she arrives at the address and goes

inside, she is startled when all her coworkers jump out and shout “Happy Birthday!” The directive to attend a meeting was only a ruse to get her to the surprise party.

During the party, someone asks Karen why she is not eating any food and Karen explains by saying (17).

(17) I was going to a business meeting, so I stopped for a bite to eat on the way, but little did I know that I was actually going to this party instead.

Karen earlier believed that she was going to a business meeting only because her boss told her that she was. The first clause in this sentence is an error quotation which again voices this erroneous belief. However, Karen emphasizes in the concluding clause what was *actually* happening. To clarify, she also adds the words *little did I know* which make explicit reference to her own epistemic context at an earlier time.

In the semantic literature on the progressive, I note that many example sentences exhibiting the imperfective paradox are phrased with such similar expressions that make explicit mention of the epistemic context. For example, Landman (1992), in discussing the plane-hijacking scenario, notes that it is possible to say, “I was flying to Boston. Well, in fact, I wasn’t, I was flying to Bismarck, North Dakota, but I didn’t know it at the time.” (pp. 30-31). Similarly, with reference to the Atlantic-crossing scenario, Landman indicates that it is possible to state, “Well, I would never have believed it at the time, but in fact she was crossing the Atlantic Ocean” (p. 15). Qualifications such as *I didn’t know it at the time* and *I would never have believed it at the time* are clues that the imperfective paradox is a phenomenon grounded in the epistemic context of language use rather than the objective conditions of the literal truth of progressive sentences.

#### 5.3.4 Insulation

The previous three assumptions involve methods of information gathering that language users employ to know about the outside world. However, we must also discuss how speakers are able to make judgments about conditions existing apart from what we learn via direct observation, personal recollection, and information gained from the linguistic reports of others. One strategy is apparently the *insulation* of individuals, events, and states from “outside” influences. In the absence of detailed information about an individual, event, or state, a language user makes the practical assumption that no “outside” forces have disrupted or otherwise interfered with it.

Of course, Vlach (1981), Landman (1992), and others have argued that this kind of insulation of events or states is a feature inherent to the semantics of the progressive aspect. Vlach maintains that in the truth conditions of progressive sentences, it is “not the entire natural course of events that must continue uninterrupted, but some sort of restriction to the state and actions of the subject of the sentence” (p. 285). Landman stipulates that for the event *e* in question, the notion of “reasonable chance” for the continuation of *e* is made “on the basis of what is internal to *e*” (p. 25). However, I argue in this section that insulation from “outside” forces is a general principle of the pragmatics of language use. As I demonstrate, an “outside” force amounts to nothing more than a factor *unknown to the speaker* or, at least, *left out of immediate consideration by the speaker*.

The way insulation works can be illustrated with a simple example. Suppose Martha parks her car at the far end of a parking lot and leaves. An hour or so later, someone asks Martha where her car is parked and she responds as in (18).

(18) My car is at the far end of the parking lot.

Eventually, Martha decides to return to her car. However, when she reaches the spot where she parked, her car is gone. She immediately reports this to the police. Martha describes in narrative fashion how she discovered that her car was missing and states (19).

(19) I walked across the parking lot toward my car, but when I got to the spot, it was gone.

Let us assume that Martha’s car was actually stolen one-half hour before she arrived back at the parking lot. In that case, the first clause in (19) is either literally false or only accidentally true (if the car thieves just happened to move the car to a location on a direct line-of-sight with the direction that Martha walked).

Thus, Martha almost certainly did not walk *toward* her car. As Martha herself must now realize, her car was no longer in its previous location when she walked across the parking lot. However, even if the clause were accidentally true, uttering it under its literal interpretation in (19) would constitute a violation of Grice’s maxim of quality, since Martha has no evidence that she walked toward her car. Of course, such considerations are not important when we realize that (19) is nothing more than a semantic course correction and thus is not to be taken as literally true. This sentence reports on Martha’s earlier mistaken understanding of reality and then makes a correction.

Yet, how can we explain Martha's earlier epistemic context? At the time she stated (18), she was not able to observe where her car was at that moment. Likewise, she received no telephone call or other linguistic report telling her where her car was. It is true that she recalls where she parked her car earlier, but Martha's sentence is in the present tense. Evidently, in uttering (18), Martha was speaking under the assumption that her car had not been stolen by thieves, towed away, or otherwise moved by forces unknown from its original location. I call this sort of reasoning *insulation*. It is nothing more than a pragmatic assumption. As it happened, Martha's car was indeed stolen without her knowledge. Just because Martha was unaware of the theft and assumed that nothing had happened to her car, does not alter the fact that actual thieves really did steal it. Thus, when Martha asserted (18), this sentence was false.

Insulation is a very important practical assumption in language use. Without it, Martha would only have been able to state (20) when asked about the current location of her car (even in the more expected case that her car was not stolen).

(20) I have absolutely no way of knowing where my car is now.

Although (20) is strictly true, it is a rather underinformative sentence. The sentence in (18), on the other hand, does not strike us as a violation of Grice's maxim of quality even though Martha was in possession of no direct evidence whatsoever as to where her car might be. Indeed, it was entirely possible for (18) to bear the semantic truth value of false when Martha uttered it, as indeed it did in the scenario described here.

Why would language users make a pragmatic assumption that individuals, events, and states are protected from all unknown, external influences? In my view, they simply have no choice in the matter. The term *insulation* might imply the conscious exclusion of certain factors from consideration, yet this is not what is occurring here. In fact, this assumption is merely a natural consequence of reasoning from a finite knowledge base. Human beings are not in possession of all the facts, but only some tiny subset thereof. As a practical measure, language users make the necessary assumption that "what you don't know, can't hurt you." Of course, different language users may be in possession of different amounts of knowledge, so it is possible for different speakers to insulate events and states in various ways. Thus, the thieves in the scenario would make different statements about the location of Martha's car than Martha would.

Insulation may also be understood as striking a balance between the requirements of Grice's maxims of quality and quantity. I reproduce both maxims below.

#### THE MAXIM OF QUALITY

1. Do not say what you believe to be false.
2. Do not say that for which you lack adequate evidence.

#### THE MAXIM OF QUANTITY

1. Make your contribution to the conversation as informative as necessary.
2. Do not make your contribution to the conversation more informative than necessary.

If satisfaction of the maxim of quality were paramount over all other considerations of language use, then a speaker would never make any assertion for which there was not certain or near certain direct verification. Unfortunately, this would severely curtail the usefulness of language. Not being absolutely certain of all facts involved is far more often the case than not. Language users would thus be forced to state merely "I don't know" in many conversational contexts. For instance, there would be no way to talk about events in the future without violating such a strict maxim of quality, since the future is unknown to us.

By assuming insulation, we lower our standards for satisfaction of the maxim of quality, but raise them for satisfaction of the maxim of quantity. Thus, if Martha parked her car in the parking lot some time ago and is asked where her car is now, Martha may not respond with the literally true sentence in (20), since this would constitute a violation of the maxim of quantity. Instead, she *must* assume insulation and respond as in (18), even if this turns out later to be a false utterance.

Although insulation bends adherence to the maxim of quality in one way, it respects this maxim in another. If an individual, event, or state is unobserved, then a language user has no evidence to assert that some unknown external force has exerted some influence. Therefore, it would be a violation of the maxim of quality to assert that there has been such a particular influence. Although insulation is only an assumption, it is the only assumption we may make, since we have no evidence to formulate any other sort of assumption. In this way, Martha can assume that nothing has happened to her car, but she cannot simply assume that thieves have stolen it. Of course, a language user likewise has no knowledge that unobserved disruptions have *failed* to occur, however it is at least a helpful and practical strategy to assume that they have not. The practical

balance often struck between these two maxims has been noted before, such as by Lasersohn (1999, p. 525), with reference to *pragmatic slack* allowed in ordinary conversation. Lasersohn writes that “violations of Grice’s maxim of quality ... can be explained as clashes with the second maxim of quantity.” The practical resolution of such clashes is the pragmatic assumption I call *insulation*.

With this in mind, I now express insulation in terms of a pragmatic assumption. The use of the term *cast* in this assumption is explained below.

#### INSULATION

A language user assumes that the *cast* of an unobserved state or event remains insulated. This is an assumption that neither an unknown individual may be introduced into the cast nor a known individual eliminated from the cast.

In presenting this assumption, I introduce events and states into the pragmatic account. These are somewhat mysterious ontological entities, yet they capture well the kind of issues that arise when discussing the semantics and pragmatics of verbal aspect.

I employ the term *cast* here in a similar way as used by Link (1987, p. 251) in his discussion of event semantics. For Link, the cast is simply the set of all individuals participating in an event, in particular those that would bear a thematic role if mentioned in a sentence about the event. He formally defines the cast of an event  $e$  as follows:

#### LINK’S DEFINITION OF THE CAST OF AN EVENT

$$\text{Cast}(e) := \{ \rho(e) \mid \rho \in r(e) \} \text{ for } e \in E^0;$$

$$\text{Cast}(e) := \cup \{ \text{Cast}(e') \mid e' \in E^0 \text{ \& } e' \leq e \}$$

In this definition,  $\rho(e)$  picks out an individual in the event who bears a given thematic role  $\rho$  (e.g. AGENT, THEME, etc.). Link lets  $r(e)$  be the set of all thematic roles that are defined for the event in question,  $e \in E$ . However, Link’s definition of the cast of an event may be too restrictive. There may indeed be cast members in an event that are understood to be involved, yet which would not necessarily be mentioned. For example, in an event of jumping over a fence, the gravitational pull of the Earth is certainly relevant, although it would probably not be mentioned explicitly in a sentence describing the event. However, I do not attempt to revise the definition here.

However, since an event is something smaller than the entire universe, for any given event, some individuals are in the cast of that event while others are not. That is, there are factors which are simply excluded. Similarly, we can understand that a state has a cast. When an event or state is unobserved, a language user pragmatically assumes that the cast of the event or state is insulated from individuals outside of its cast over time. For example, Martha's car being parked in the parking lot was a state. The cast of the state was Martha's car and the parking lot. Individuals outside the cast consisted of such things as car thieves and tow trucks. We may explain Martha's epistemic context by noting that she simply assumed that no unknown external elements (i.e. some car thief) would intrude on the cast of this state. Thus, although we are sometimes reminded to "expect the unexpected," we are almost never able to do this.

We may now turn once again to the progressive. Recall that the semantic account of Parsons (1989, 1990) and many other later accounts have been event-based. As mentioned above, many semantic proposals include some version of insulation. This kind of stipulation is meant to deal with sentences like Abusch's example discussed above and repeated here again as (21).

(21) The wheel was rolling across the road when it was knocked over by the falling rock.

The idea is that the actual falling rock and all additional potential falling rocks must be counterfactually removed so that the wheel might counterfactually roll all the way across the road in some possible world or potential continuation of the event. However, as explained in Chapter 3, such a strategy for the truth conditions ultimately fails.

I may now propose an alternate interpretation of this example based on pragmatic considerations. Suppose a language user postulates via observation that (22) is a literally true sentence.

(22) The wheel is rolling across the road.

However, as if out of nowhere, suppose one or more falling rocks descend upon the road and knock over the rolling wheel. Although falling rocks may certainly be a possible complication almost anywhere and at any time, they are rarely an *expected* occurrence. We may therefore plausibly assume that the observer would be surprised by this turn of events. Indeed, it runs counter to the assumption that the rolling-wheel event would remain insulated from all unexpected influences. In giving voice to a prediction of the future, the speaker risks making an error. As it

turns out, the speaker was indeed wrong about the course of future events. Yet, a genuine psychic (if such an individual exists) could have supernaturally looked into the future and witnessed the wheel's upcoming encounter with the falling rock. When the observer stated (22), the psychic could have chimed in with (23).

(23) Oh no, it isn't! Just wait and see.

A psychic is certainly in a much more advantageous epistemic context to talk confidently about events concluding in future time than those who lack the power of precognition.

After making an incorrect prediction, the observer may wish to express the earlier error and correct it. One way to do this would be to state the correction to (22), given in (24).

(24) The wheel was actually not rolling across the road, but I had no way to know this at the time.

Far more commonly, however, a language user employs a semantic course correction, as in (25) below.

(25) The wheel was rolling across the road, when it was knocked over by the falling rock.

The idea of a semantic course correction as a pragmatic tool explains the use of the progressive clause in (25). The speaker assumes that the rolling-wheel event would be insulated, but when this assumption is not realized in the actual course of future events, the semantic course correction in (25) is then employed as a remedy.

Lastly, the assumption guards against the unwarranted removal of *known* individuals from an event or state. Consider the sentence in (26) below.

(26) Brian is parachuting onto the pavement.

This sentence might be uttered by someone who is aware by observation that Brian's parachute is now open and slowing his decent. However, if the influence of the known parachute could *somehow* be forgotten (a ridiculous notion) then it might be reasonable to assume that Brian would plummet to the ground and get injured. This is what happens to people who go skydiving without a

parachute. Of course, the assumption of insulation does not allow us to ignore known individuals in the cast any more than it allows us to take into account unknown individuals external to the cast.

Certainly, it would be possible to go into greater detail about the assumption of insulation. However, for present purposes, I think the main point has been made sufficiently. Insulation is a practical assumption used to talk about conditions outside of a language user's direct knowledge. However, when the assumption fails, it is possible to employ a semantic course correction. In the next two sections, I discuss two assumptions that may be seen as closely associated with the assumption of insulation: *inertia* and *regularity*.

### 5.3.5 Inertia

Sir Isaac Newton's First Law of Motion reads, "Every body continues in its state of rest, or of uniform motion in a right line, unless it is compelled to change that state by forces impressed upon it" (from *Philosophiae Naturalis Principia Mathematica, Laws of Motion I*, 1687, as translated by Andrew Motte, 1729). Suppose we accept this not only as the literal expression of a physical principle, but also figuratively as a common sense assumption that when left alone, events follow their *natural course*. As discussed in Chapter 3, Dowty (1979, p. 149) defines the progressive aspect in terms of "inertia worlds" which follow the "natural course of events." However, as I argue in this section, inertia (a term I retain from Dowty) is not an intrinsic property of the semantics of the progressive, but is rather merely an assumption relevant only to the determination of pragmatic truth.

It seems to me that language users often simply assume that events (and states) will proceed forward in a *normal* way (what this means, I elaborate below). In considering events, we may essentially restrict ourselves only to events that are not under the direction of a sentient agent. This would not eliminate all events involving humans as members of the cast, but only those where some member of the cast acts as its agent, or guiding force. (If mentioned explicitly in a progressive sentence, an expression denoting the agent of the event would bear the thematic role AGENT.) As argued in the previous section, a language user simply assumes insulation of an event. That is, forces external to the event of which the language user is unaware are assumed not impress any changes from the outside. As a result, if the event contains no agent directing the event's course from the inside, then a principle of inertia would predict the inertial continuation of the event in question.

Consider once again the rolling-wheel scenario. This event involves no sentient agent directing the motion of the wheel. Since the observer simply ignores the possibility of falling rocks or other unexpected interruptions, the event is assumed to be insulated. If the observer also accepts the idea of inertia, then the wheel's motion would be predicted to continue on inertially. The observer would therefore suppose that the wheel will indeed cross the road. However, in the scenario presented in the last chapter, this turns out to be a mistaken assumption. Nonetheless, it was a *practical* assumption to make and would be a generally reliable strategy in predicting the future course of events.

The assumption of insulation thus leads directly to a further assumption of inertia. Conversely, an assumption of inertia in events without an agent presupposes the assumption of insulation. I state the assumption of inertia here below.

#### INERTIA

Since a language user assumes that when a state or event is not observed it remains insulated from unknown, external influences, a language user further assumes that such a state or event progresses in a normal fashion.

Just as I believe that the pragmatic assumption of insulation is what is ultimately behind Vlach's counterfactual analysis of the progressive, I likewise conclude that the pragmatic assumption of inertia is largely what led Dowty to propose his inertia world analysis. Although I have left the terms *inertia* and *normal* as mere intuitive notions here, their meanings will become somewhat clearer in the upcoming discussion, especially in relation to the idea of *regularity* presented in the next section.

Again, I emphasize that in discussing this assumption I do not have in mind an absolute law such as that proposed by Newton. Rather, just as with the other assumptions listed in this chapter, what I call *inertia* is simply a practical rule-of-thumb which may be interpreted differently by different language users. I argue in Chapter 3 that proposals for the semantics of the progressive which incorporate normality or inertia reduce ultimately to what the user of the progressive sentence or what some generic, anonymous language user thinks is the "natural course of events." This is an improper idea to work into a truth-conditional account of the semantics of the progressive. However, it is exactly the sort of idea we need to explain the pragmatic use of progressive sentences by actual language users.

Inertia is part of the human reasoning process that allows us to function while in possession of far less than total knowledge about the universe. As Rescher (1998) notes, “Much of our life is predicated on the supposition of ‘business as usual’ — assuming that things will go ‘normally’ for the near-term future, with a somewhat flexible ‘near.’ There is something we certainly do not *know*, but we cannot manage our lives in the familiar way without assuming or presuming it” (p. 3). How we implement this assumption in practice is a complicated topic to address, yet I do not think it very controversial that we indeed make such an assumption. I only wish to emphasize that this kind of reasoning results in observable linguistic behavior.

Of course, an assumption of inertia is not a foolproof method for guessing the future. For example, if an event has an agent, inertia may no longer be assumed, since the event may then be redirected from the *inside* according to the agent’s will. Secondly, the unexpected may always happen and defeat our presumptions of insulation and inertia. Finally, there are also instances of agentless events where assuming inertia provides no assistance in the postulation of pragmatic truth. For instance, recall the roulette-wheel scenario discussed previously in this essay. Even if we assume inertia, we are unable to predict while the ball is still in motion as to which of the sentences in (27a-b) is true.

(27a) The ball is rolling to an even number.

(27b) The ball is rolling to an odd number.

As was argued, the most reasonable way to understand the truth conditions for such sentences is that (27a) is simply true if the ball eventually rolls to an even number and (27b) is true if it rolls to an odd. This explanation avoids serious logical difficulties that arise under other analyses.

The roulette-wheel scenario demonstrates well how the truth conditions of the progressive need not be considered vague. Let us adopt the hypothesis that the semantic truth values of (27a) and (27b) depend on the satisfaction of the clear, unambiguous conditions cited above. The only difficulty is then a pragmatic one. Since the satisfaction of these conditions depends on the outcome of an event culminating in future time and since none of the pragmatic assumptions can help a language user in determining the pragmatic truth value of these sentences, it is generally not possible to assert either (27a) or (27b) without violating Grice’s maxim of quality. It is the pragmatic use of such progressive sentences that is problematic and not their truth-conditional semantics. As I noted in Chapter 2, in scenarios which depend only on the contingent, probabilistic future alone, the beliefs

of the speaker can be completely *factored out* as a consideration and the simple truth-conditional behavior of the progressive is revealed.

Recall from Chapter 3 the discussion of complex modal accounts of the progressive. The analysis advanced by Portner (1998) asserts that the truth conditions of progressive sentences such as (27a-b) depend upon whether such sentences are uttered by a Newtonian physicist or a gambler. In my opinion, Portner is led to this claim because he reduces semantic truth and pragmatic truth to one single notion. A Newtonian physicist might be able to use sophisticated measuring instruments to determine the destination point of a ball in a spinning roulette wheel. A gambler might only be able to guess. However, this has everything to do with how we use sentences in the progressive and nothing whatsoever to do with its truth-conditional semantics.

In probabilistic scenarios, such as this roulette-wheel example, the importance of the various criteria widely thought to play some role in the truth conditions of the progressive simply evaporate. We are left with truth conditions whereby a sentence in the progressive is literally true if and only if the nonprogressive counterpart of this sentence is eventually true. That is, we may return to an analysis similar to that originally proposed by Bennett and Partee (1972, 1978). In Chapter 6, I incorporate this simple idea into a straightforward, compositional, and logically defensible truth-conditional proposal for the semantics of the progressive aspect.

### 5.3.6 Regularity

One of the more important pragmatic assumptions made by language users is the reliance on *regularity* in nature and society. Indeed, insulation and inertia may probably be seen as special cases of this more general notion. I encapsulate the idea of regularity in the following pragmatic assumption.

#### REGULARITY

A language user assumes that if particular conditions have led to a certain result in the past, then similar conditions will lead to this same result again. Furthermore, a language user assumes that a regular repetition of events or conditions are insulated from disruption by any unknown, external influences, so such regular patterns will persist over time.

We may illustrate this assumption with an example. Suppose a language user states (28).

(28) The sun will rise tomorrow.

The language user says this on the basis of countless previous sunrises that have occurred day after day throughout the ages. However, as the philosopher Charles Sanders Peirce (c. 1899) once remarked, "People say 'Such a thing is as certain as that the sun will rise tomorrow!' I like that phrase for its great moderation because it is infinitely far from certain that the sun will rise tomorrow." Indeed, if the right sort of chance astronomical catastrophe took place, the rotation of the Earth might stop and then the sun would indeed not rise tomorrow. Of course, in stating (28), a language user has quite a favorable chance of the sentence being proved true when the following day arrives.

Regularity of behavior is such an important aid to knowing and talking about the universe, that we actually regiment our own lives in order to create more patterns of regular behavior. As Rescher (1998) observes, "Human life is replete with measures taken to make the world more predictable: much of what we do — individually and socially — is aimed at reducing the role of unpredictability in our lives. All major structures of human socialization — law, custom, habit, routine, tradition — seek to guide our actions into channels that will make the business of life more conveniently manageable through predictability" (p. 5).

We may also consider how the regularities of society aid a language user in determining the pragmatic truth value of a potential utterance. Suppose that Sharon asks Julia where Ellen is at the moment and Julia responds with the sentence in (29).

(29) Ellen is teaching her class.

Julia assumes that Ellen has conformed her own behavior to the teaching schedule determined for her. However, if Ellen happens to be sick that day and has stayed home from teaching her class, Julia's assumption would be incorrect. The assumption of regularity is certainly useful, but not foolproof. Sharon might then later state (30).

(30) Since Ellen was teaching her class, I walked over to her classroom, but it turned out that Ellen was home sick today.

The sentence in (30) only makes sense as a semantic course correction, and not as a literal utterance.

Another consequence of this assumption is that a language user does not expect miracles to happen. We foresee no violations of the laws of physics, chemistry, or other sciences. Of course, we only are able to write such laws because the universe seems rational in the sense that we have been able to notice regular behavior and principles which we may use to predict specific outcomes. The hallmark of a good scientific theory is that it is testable and that the results are repeatable.

For example, since we are well acquainted with the effects of the force of gravity, if a hammer is dropped, we do not even consider that it might fall upwards. Yet, scientific theories are not to be regarded as dogmatic facts. There could be and no doubt are deeper details, as yet undiscovered, which are not explained under our most cherished scientific laws. Thus, if the hammer in question were made out of the still-theoretical *exotic matter* recently postulated by physicists, it would indeed fall upwards. Scientists believe that exotic matter, if it actually exists, would have antigravitic properties. Even with continued advancement in science, we cannot be so arrogant as to conclude that we have already arrived at a precise understanding of how the universe works without retaining at least a few lingering doubts.

We trust that our society and our individual lives follow certain regular patterns. Even more, we believe that the physical universe behaves regularly. However, each of us understands these patterns only incompletely and much of what we believe may very well be incorrect. One reason for this is that we know the outside universe only on the basis of practical assumptions and these can fail us.

Consider once again the assumptions of observation and recollection which we use to build our understanding of patterns of regularity. Based on these observations, for most of human history, people judged (31) to be a semantically true sentence.

(31) The sun revolves around the earth.

The commitment to (31) as a literal truth by so many people for so long was at least in part based on our human perceptions of reality. The earth seems obviously to be firmly stationary. If the earth itself moves, it would seem reasonable that we would perceive this movement, such as in the form of a constant breeze in one direction. Also, one need only look upwards to observe that the sun rises in the east and sets in the west. It seems impossible to doubt the evidence of one's own eyes. Indeed, the apparent truth of (31) was held so strongly by society for so long, that anyone who merely expressed doubt about the truth of this sentence would have been in danger of receiving

severe punishment, perhaps even death. Nevertheless, today most people with any scientific knowledge would treat (31) as a decidedly false statement. This strongly held belief of the past has now been swept aside by evidence to the contrary and only survives in such linguistic fossils as *sunrise* and *sunset*. However, another interesting consequence is a sentence such as (32).

(32) In the days of the Ancient Greeks, the sun revolved around the earth.

Such an utterance is obviously meant only to capture the epistemic mindset at the time, and not to express a literal astronomical truth that existed in the past. This demonstrates that we can and do utter sentences that shift the epistemic context to another time and to the minds of other individuals.

As with the assumption of inertia, regularity is reminiscent of the idea of the “natural course of events” in Dowty’s inertia world approach to the progressive. This may have also influenced Asher’s analysis involving a default to the generic situation. However, in the pragmatic use of a progressive sentence, the actual regularities of the universe are not at issue. Rather, what matters is each individual’s notion of regularity. Indeed, language users can see patterns where none exist and speak on this basis. For example, a gambler might utter (33).

(33) I am on a winning streak.

As any expert in statistics will assert, success in a game of chance several times in immediate succession may in no way be used as an indicator of success in further games of chance. However, the impulse to reason based regularity is so strong, it can lead to utterances such as (33).

### 5.3.7 Logic

An additional assumption for the postulation of pragmatic truth has to do with maintaining overall logical coherence.

#### LOGIC

A language user assumes that the universe is logical and therefore strives to maintain an epistemic context which is consistent with this logic. If one assertion contradicts an existing belief in the language user’s current epistemic context, either the new assertion must be dismissed as false so as to retain the original, the original must be dismissed as false in order to accept the new, or both assertions must be assigned pragmatic truth values of *still unknown* (“\*”).

Language users strive to maintain logical consistency in their knowledge base. In the previous section, I noted the long-standing and widely-held notion that the sun revolved around the earth. Even in light of mounting evidence to the contrary, people were willing to make elaborate and implausible adjustments to their understanding of the universe in order to retain a geocentric theory. However, for most people today, the evidence that the planets revolve in a heliocentric system is too compelling to dispute.

Note that the above assumption allows for a third option in deciding how to postulate the pragmatic truth values of two assertions which contradict one another. Instead of postulating the value of *apparently true* ("1") to one sentence and *apparently false* ("0") to the other, it is possible to leave both with the third pragmatic truth value *still unknown* ("\*"). This third option is absolutely necessary in such a practical system of truth. Not only is the human mind generally unable to know for certain the genuine semantic truth value of a sentence, it is also possible for our system of pragmatic truth to fail us.

An example of this can be found with the roulette-wheel scenario and the sentences in (27a-b) discussed earlier. Consider (34a-b) below.

(34a) The ball is rolling to an even number or the ball is rolling to an odd number.

(34b) The ball is rolling to an even number and the ball is rolling to an odd number.

We accept that logically (34a) is a tautology and must be semantically true, whereas (34b) is a contradiction and must be semantically false. However, our pragmatic assumptions are unable to give us a practical indication as to whether either (27a) or (27b) is the semantically true sentence. Therefore, we are forced to postulate a pragmatic truth value of "\*" for both (27a-b). This means that we are disinclined to utter either (27a) or (27b) while the ball is still in motion, since this would most often be a violation of Grice's maxim of quality. Uttering either statement amounts to stating that for which one lacks adequate evidence.

Of course, it is possible to utter such sentences for the purpose of making a guess. This is simply a way to go on record linguistically in favor one or another contingency, such as when betting in a game of chance. As such, the level of adequate evidence required for making a guess is very minimal. In such a situation, it is possible to postulate a pragmatic truth value of "1" purely on the basis of a feeling or a hunch and utter this sentence without violating the maxim of quality.

### 5.3.8 Planning

In this chapter, I have yet to address how language users deal pragmatically with events under the direction of a sentient agent. Instead, I have focused on states and agentless events. Thus, I discussed the scenario in which Martha parks her car somewhere and simply assumes that it remains there, despite no direct evidence to this effect. On the basis of a number of pragmatic assumptions, Martha asserts (18) *My car is at the far end of the parking lot* and this is not considered a violation of Grice's maxim of quality. Indeed, it would amount to a violation of the maxim of quantity if she did *not* presume this sentence to be true under the circumstances.

However, let us now alter this scenario. Suppose Martha had not left her car, but rather her friend, Pam, at the far end of the parking lot. Martha obviously could not rely merely on the kind of assumptions cited above (e.g. that Pam has presumably not been taken away by abductors, that Pam will presumably remain where Martha left her, and so forth) to postulate that (35) is a pragmatically true sentence.

(35) Pam is at the far end of the parking lot.

Unless Pam is a somewhat eccentric individual who routinely stands around in parking lots (i.e. a known *regularity* in her behavior), Martha may not presume that Pam is still in the spot where she left her. This is because Pam is a sentient human being capable of independent action.

If Martha is asked at some later point in time where Pam is now, to what might Martha appeal to postulate a plausibly true answer to this question? Most likely, she would simply defer to Pam's *plans*. Martha would most likely be aware of these plans through direct reporting from Pam herself. To explain how plans figure in the determination of pragmatic truth, I present the following pragmatic assumption.

#### PLANNING

A language user assumes that the plans of an individual at a given time may be taken as an important indicator of how an event will later develop if this individual acts as the agent of the event. This is assumed, however, under the provision that the individual's plan may be realized as an event without requiring the negation of the assumption of insulation.

On the topic of planning, Øhrstrøm and Hasle (1995) make an interesting observation. "The past," they write, "... is irrevocable, necessary and unchangeable. Planning is an attempt to assign to the future the same characteristics as those of the past, even though on grounds of principle this may only succeed to a certain extent" (p. 182). Planning is thus a useful and practical guide for the determination of pragmatic truth, though not an infallible one.

Let us now return to our scenario. At their parting, suppose Pam stated (36) or a similar assertion.

(36) I plan to go to the library and stay there for two hours.

If Martha is later asked where Pam is, relying exclusively on the planning assumption, Martha might plausibly just parrot back (36) as her answer, as shown in (37).

(37) Pam is at the library.

Of course, this utterance is based entirely on the assumption of planning cited here. Unobserved by Martha, Pam could have changed her mind or some other complication might have arisen to prevent the realization of her earlier plan, as it was expressed to Martha.

If Pam changes her mind and goes to the swimming pool instead, Martha might be surprised to discover that Pam was elsewhere than where she had assumed she was. A semantic course correction would then be a linguistic option, as in (38).

(38) I was surprised when Pam came back from the library with wet hair until she explained that she had gone swimming instead of studying.

In (38), it is clearly false that Pam came back from the library. She was never there in the first place. However, Martha made a mistaken assumptions based on the plans that Pam had expressed to her. Therefore, Martha later addresses these errors with the semantic course corrections in (38).

However, contrast the plans expressed in (36) above with those expressed in (39a-c). In evaluating each of these plans, Martha would assume insulation (as previously discussed in this chapter).

(39a) I plan to cross the park.

(39b) I plan to cross the mine field.

(39c) I plan to cross the Atlantic Ocean.

Martha might consider (39a) to be a very reasonable plan for Pam to realize under insulated conditions. On the other hand, while Martha thinks that it would not be impossible for Pam to make her way across the mine field, we may suppose that she regards (39b) as an extremely foolhardy and dangerous plan that would more probably end in disaster than in success. In other words, although there is a safe path through the mine field, it would be the most amazing stroke of luck if Pam succeeded. Finally, let us suppose that (39c) strikes Martha as an entirely irrational aim and is convinced that it would certainly fail. Of course, Pam might succeed if she were given help, but the assumption of insulation does not permit this.

We may now consider in turn what Martha might say after Pam actually embarks on these plans. Consider (40a-c) below.

- (40a) Pam is crossing the park now and she will certainly cross it soon.
- (40b) Pam is crossing the mine field now, but I do not know if she will actually cross it.
- (40c) Pam is certainly not crossing the Atlantic Ocean and is surely about to drown.

In (40a), Martha postulates that the sentence *Pam will cross the park* is pragmatically true. It thus follows that *Pam is crossing the park now* is also postulated by Martha to be pragmatically true. By contrast, in (40c), Martha postulates that the sentence *Pam will cross the Atlantic Ocean* is pragmatically false. It then follows that *Pam is not crossing the Atlantic Ocean* is true and Martha concludes from this that Pam is sure to drown. However, the most interesting sentence is (40b) above.

At the time she utters (40b), Martha cannot be sure whether *Pam will cross the mine field* is true or *Pam will not cross the mine field* is true. Although it is not likely that Pam will cross, there is also some chance that she will succeed. Of course, Logic dictates that both cannot be true, yet Martha is not in a position to assert one or the other definitively without violating Grice's maxim of quality (i.e. a prohibition against making unsupported claims). The circumstances of uttering (40b) thus parallels neither (40a) nor (40c). In this case, Martha postulates a pragmatic truth value of "\*" for *Pam will cross the mine field* and its negation. Even if Martha thinks it highly unlikely that Pam will succeed, she would at least acknowledge that is also not certain that Pam will fail.

With this in mind, we may now turn our attention to the progressive sentence. Suppose that in her current epistemic context Martha were to state (41).

(41) Pam is crossing the mine field.

This assertion seems to parallel the utterance of the progressive sentence in (40a). That is, in stating (41) without any further clarification, we would conclude that Martha postulates the sentence *Pam will cross the mine field* to be pragmatically true. Yet, this is not the case. Alternately, suppose Martha were to state (42).

(42) Pam is not crossing the mine field.

The assertion in (42) seems to parallel the utterance of the progressive sentence in (40c) above. That is, in stating (42) without any further clarification, we would conclude that Martha postulates the sentence *Pam will not cross the mine field* to be pragmatically true. However, this is also not the case.

It seems plausible to me that (40b) is actually a *preemptive* semantic course correction. Let us see how this might work. First of all, Martha asserts the progressive sentence *Pam is crossing the mine field*. This is, more or less, giving Pam the benefit of the doubt, so to speak. However, as I have just explained above, this would be tantamount to an assertion as in (43) if stated without any further clarification.

(43) Pam has now already crossed a portion of the mine field and will now cross the remaining portion of the mine field.

However, Martha then adds *...but I do not know if she will actually cross it*. The result is a course correction in the semantics which amounts to the following assertion: although it is pragmatically true that *Pam has now already crossed a portion of the mine field*, the pragmatic truth value of *Pam will now cross the remaining portion of the mine field* remains unknown (i.e. not a justifiable assertion under the maxim of quality) at the time of utterance. The preemptive semantic course correction is phrased with the affirmative sentence *Pam is crossing the mine field*, but then the meaning of this sentence is fine-tuned somewhat. That is, some of what is literally asserted by this progressive sentence is taken back.

Lastly, we may note that semantic course corrections are possible in any of the three scenarios if Martha's pragmatic expectations of the future are not realized due to some unpredictable turn of events. Consider (44a-c) below.

- (44a) Pam was crossing the park, but was knocked over by a falling rock.
- (44b) Pam was crossing the mine field, but was knocked over by a falling rock.
- (44c) Pam was certainly not crossing the Atlantic Ocean and was about to drown, but then she miraculously got some help from King Neptune and crossed the ocean.

As the examples discussed in this section illustrate, the assumption of planning is constrained with its interaction with the assumption of insulation. Pam might be equally committed in her plans to cross the park, the mine field, or the Atlantic Ocean. However, Martha's reactions to Pam's plans differ to the extent that these might be realized as insulated events. Thus, although Pam almost certainly will cross the park unaided and at least has a chance of crossing the mine field with nothing more than luck, Pam would not be able to cross the Atlantic without aid. Of course, such judgments have everything to do with Martha attempting to determine the pragmatic truth of the particular sentences and nothing whatsoever to do with their literal semantic truth.

#### 5.4 Summary: The Pragmatics of the Progressive

As discussed in this chapter, we may characterize pragmatic truth roughly in terms of a number of general assumptions adopted by language users: *observation*, *recollection*, *reporting*, *insulation*, *inertia*, *regularity*, *logic*, and *planning*. Certainly, it would be possible to improve or adjust this set of assumptions laid out here. Nevertheless, I think that for the current aims, the description suffices. The practical truth of Grice's maxim of quality, which I have attempted to characterize more completely here, is what language users follow in actual conversation rather than the ultimate correspondence truth of semantics.

I think it justified to use the term *truth* even with reference to the faulty, inferior, subjective, and variable *pragmatic truth* I outline in this essay. The idea that pragmatic truth is indeed a kind of truth has actually been around for a long time indeed. For example, I may again quote the medieval philosopher William of Ockham who writes that in one sense, *knowledge* is "...certain cognition of something that is true. In this sense, some truths are known only on trust; for instance, when we say we know that Rome is a big city, although we have not seen Rome" (1964, p. 5). Thus, "something that is true" in this case is something that we "trust" is true, though it could possibly be false.

The use of the semantic system of language is a practical skill much like the skill of prediction. Indeed, it is identical with prediction when talking about events in the future. However, there are also pragmatic problems involved with talking about events in the present and the past as well. In the close to this chapter, I present what I see as a summary of the typical pragmatics involved in using sentences in the progressive. Of course, this can only represent an approximation of the reasoning process involved, since this can vary greatly from person to person.

If the account I present reads much like an informal summary of the truth-conditional proposals of Dowty (1977, 1979), Vlach (1981), Landman (1992), and others, this is to be expected. I consider these accounts actually to be more about the pragmatics of the progressive, rather than its truth-conditional semantics.

#### GENERAL PRAGMATICS OF THE PRESENT PROGRESSIVE

Assuming that observations, recollections, and/or linguistic reports have been accurate, the speaker may come to the practical conclusion that an event is now in progress. (This judgment could, of course, be mistaken.) Due to the unknowability of future time, the speaker is unable to get reliable information about the conclusion of the presumed event as this still lies in the future. Therefore, the speaker must defer to further practical assumptions in order to employ a progressive sentence. Similar, yet contrasting, pragmatic measure are used depending upon whether an event has no agent, as given in 1., or is proceeding under the direction of an agent, as given in 2. below. These measures are on the order of practical rules of thumb and only provide indirect indicators of the semantic truth of a progressive sentence.

1. If the event is judged not to be under the direction of an agent, the speaker assumes that the remainder of the event will be insulated and therefore will proceed inertially according to what that speaker takes to be known regularities. If the speaker reasons that under these conditions there would result an event which does not conflict with logic, does not violate insulation, and may be categorized by the speaker into a single event type, then the speaker may postulate a pragmatic truth value of "1" for a progressive sentence asserting that the present moment falls during an actual event of this single event type.
2. If the event is judged to be under the direction of an agent (but not an unwitting agent), the speaker assumes that the remainder of the event will be directed by the

agent toward the realization of the known or assumed plans of this agent. If the speaker reasons that under these conditions there would result an event which does not conflict with logic, does not violate insulation, and may be categorized by the speaker into the single event type that would realize the agent's plans, then the speaker may postulate a pragmatic truth value of "1" for a progressive sentence asserting that the present moment falls during an actual event of this single event type.

On the other hand, using similar reasoning from indirect indicators, the speaker concludes that an event of this type is not underway, the speaker may postulate a pragmatic truth value of "0" for the sentence. Otherwise, in the absence of information either way, the speaker must retain a pragmatic truth value of "\*" for the progressive sentence.

This pragmatic account is indeed similar to a truth-conditional semantic account I advanced in Wulf (1997). I am now convinced, however, that the considerations I list here are only relevant to the use of sentences in the progressive, and have nothing whatsoever to do with the truth-conditional semantics of the construction. That is, these considerations have no more to do with the literal, semantic truth value of a progressive sentence, than the fact that Arthur C. Clarke is smiling and other similar considerations have to do with the literal, semantic truth value of the sentence *Arthur C. Clarke is happy*.

This pragmatic account also sheds light on the reasons why previous truth-conditional accounts have incorporated such an amazing variety of factors. In order to decide about a universe so large and unknowable, language users must defer to this diverse array of indirect indicators. Similarly, note that proposals have claimed that the truth values of progressive sentences shift over time or vary with alterations in the informational context in which the sentence is made. However, these are the properties of pragmatic truth and not of semantic truth. Finally, it is also now clear why Naumann and Piñón (1997) and others might erroneously have supposed that the truth values of progressive sentences are in some way related to the beliefs of the speaker. Indeed, the postulation of pragmatic truth values has much to do with the speaker's beliefs, as explained in Grice's maxim of quality.

In this chapter, I have outlined some of the more obvious pragmatic assumptions that seem to factor into the practical human ability to postulate a pragmatic truth value for any declarative

sentence. Doubtless other assumptions and guidelines might be listed. My aim here was not to provide a complete system. This is simply too complex a matter to describe briefly. Beyond such a listing general principles, it would be impractical here to attempt to explain in full detail the exact line of reasoning that might lead a particular speaker to postulate at a given time that some individual is happy, that it will rain tomorrow, or that a swimming pool is filling with water. Indeed, this involves a vast array of perceptual, remembered, and reasoned data that, if listed, would resemble the gigantic databases of information proposed in such semantic accounts of the progressive as Hinrichs (1983), Glasbey (1996), Portner (1998), and others.

Recall the weather-computer analogy from the beginning of the chapter. The programming of a meteorological computer is certainly a very complex matter. It must analyze thousands of bits of sensory data and correlate them. It must also properly weight the data in its historical database in such a way as to establish the correct trends and then compare this with current conditions. Thousands of arcane procedures and calculations must be done all to make an educated guess about what tomorrow's weather might plausibly be like. The program that such a machine follows is a tribute to the advanced skills of human meteorologists and computer scientists who are able to direct a computer to carry out the laborious tasks involved in making a well-reasoned, educated guess about the unknown. Such professionals are much better at this skill than those who merely check to see if a groundhog sees its shadow on February 2. However, in the end, the literal, semantic truth value of tomorrow's weather report still depends on what the weather actually turns out to be tomorrow, and not on any peripheral calculations made beforehand.

Parsons (1989) notes that the semantic behavior of the progressive "is paradoxical, of course, only if one has persuasive reasons to believe the analysis that leads to it. Most researchers have concluded that the analysis merely needs to be corrected. But this has not proved to be an easy task" (p. 214). I suggest in this essay that it is paradoxical only if one has persuasive reasons to believe that the apparent entailment failure responsible for this behavior definitely involves the literal readings of the sentences involved. Although my approach to the problem differs from that of Parsons, I would agree with him when he writes, "Because of the difficulties with the imperfective paradox that have troubled previous accounts of the progressive, it seems appropriate to consider some completely different approach to the problem" (1989, pp. 215-16). In the last chapter of this essay, I present my truth-conditional account of the progressive aspect and then discuss some interesting further implications of my analysis.

## Chapter 6

### A Semantic and Pragmatic Account of the Progressive in English

#### 6.1 Overview

Throughout this essay, I have built a case that previous semantic analyses of the progressive have erred by attempting to address non-truth-conditional phenomena within a truth-conditional framework. Long-standing difficulties in the formulation of an adequate semantic treatment need not be attributed to problems inherent in truth-conditional theory. There is no call for designing an unusual or complex analysis for the progressive. Difficulties should indeed only be expected if we apply a truth-conditional semantics to purely pragmatic areas. In my view, the puzzles and paradoxes introduced in Chapters 1 and 2 may certainly be dealt with effectively and properly under a combined semantic and pragmatic analysis of the progressive.

As surveyed in Chapter 3, semantic scholarship has for decades attempted to formulate an special selection function or some other formal device which might capture the imperfective paradox and related phenomena under a truth-conditional framework. However, the evidence presented in Chapter 4 strongly suggests that the phenomena under investigation are in no way inherent to what the progressive aspect literally means. Rather, the imperfective paradox and related behavior in progressive and nonprogressive sentences alike result ultimately from the practical use of language in satisfaction with Grice's conversational maxims. In my view, long debates over the proper truth value to assign to a progressive sentence have actually been disagreements over pragmatic truth, something not at issue in truth-conditional semantics. The mistaken impression that purely pragmatic considerations might have some relevance to truth-conditional behavior is largely due to the fact that progressive sentences may also appear in semantic course corrections, one species of non-literal expression in language. The salient pragmatic details have already been outlined to an extent in Chapter 5.

In this final chapter, I present a combined semantic and pragmatic account of the progressive aspect in English and provide examples of how this account works. In the course of addressing a number of remaining difficulties, I develop my truth-conditional analysis of the progressive. I then

conclude the essay with a commentary on compositionality and intensionality that follows from this discussion of a combined semantic-pragmatic account of the progressive.

## 6.2 Developing the Truth-Conditional Account

### 6.2.1 Provisional Truth Conditions for the Progressive

Having presented the necessary background argumentation, I am now in a position to develop and defend a truth-conditional analysis of the progressive. To begin with, I adopt the (slightly rewritten) truth conditions advanced by Bennett and Partee (1972, 1978) as a provisional analysis. I repeat these truth conditions again below.

#### BENNETT AND PARTEE'S ANALYSIS

For any tenseless, aspectless sentence  $\phi$ ,  $[[ \text{PROG } \phi ]]$  is true at  $I_0$  if and only if  $I_0$  is an interval and  $I_0$  is a subinterval (but not a final subinterval) of a larger interval  $I'$  and  $[[ \phi ]]$  is true at  $I'$ .

There is much to recommend Bennett and Partee's classic treatment. First of all, these truth conditions faithfully express the fundamental notion proposed by Sweet (1898) and Jespersen (1932) that the progressive sets up a temporal frame. This notion has great intuitive appeal and, in addition to Bennett and Partee's account, it is the inspiration for those of Montague (1970), Scott (1970), Taylor (1977), Kearns (1991), and, at least in part, for the majority of semantic proposals in the literature. Under the truth conditions cited here, a progressive sentence is literally true at any time during the time that the nonprogressive counterpart of this sentence is literally true. Of course, as is well known, the imperfective paradox seems to negate this analysis. Nevertheless, as I demonstrate in this chapter, when combined with a robust pragmatics, this simple account is viable enough to address the paradox and related puzzles discussed in this essay.

Secondly, a return to this kind of approach corresponds well with the intuitions of Bennett (1977, 1981), Declerck (1979a, b), Parsons (1989, 1990), ter Meulen (1985, 1987), Kearns (1991) and others that the progressive does not require a possible-worlds treatment. As I have discussed, modal and possible-worlds analyses of the progressive run into trouble.

Lastly, Bennett and Partee's truth conditions affirm the important entailment from (1a) to (1b) below.

- (1a) John built a house.
- (1b) John was building a house (earlier).

It seems to me that addressing this kind of intuition is at least as important as accounting for the purported entailment failure of the imperfective paradox. Later in this chapter, I modify Bennett and Partee's original account to deal with additional issues of truth-conditional behavior, such as an interesting glitch in the sort of entailment relationship shown in (1a-b) above. In addition, it is necessary to alter this analysis for technical reasons of improved compositionality and greater correspondence with syntactic theory. However, for immediate purposes, Bennett and Partee's classic formulation can suffice.

### 6.2.2 Treatment of the Imperfective Paradox

The essential feasibility of a simple truth-conditional proposal such as Bennett and Partee's may be illustrated with examples. In applying this analysis, I use a model  $M = \langle A, T, < \rangle$ . Here,  $A$  is a set of individuals,  $T$  is a set of moments of time, and  $<$  is the ordering relation on moments of time. From the set of moments and the ordering relation, we may construct a set  $I$  of intervals of time (c.f. Bennett and Partee (1972, 1978) and Dowty (1979) for details). For purposes of exposition, we may dispense with possible worlds.

Consider the present progressive sentence in (2a) and its past tense counterpart in (2b).

- (2a) John is building a house.
- (2b) John was building a house.

According to Bennett and Partee's truth conditions, the present progressive sentence in (2a) would only be literally true if evaluated at some time during the interval at which *John build a house* is true. Of course, the famous objection to this analysis is that there are apparently progressive sentences that are unequivocally true *regardless* of how things turn out eventually.

For example, someone might claim that if John has the proper tools, financial backing, plans to build a house, is hammering nails, sawing wood, and doing whatever else is normally done in a house-building project, then (2a) might be a literally true sentence no matter what happens later

(e.g. John never finishes the project). Similarly, one might argue that (2b) could be true even when a house was never built. This seems to be a reasonable objection to raise, but I do not think it is a valid one. The impression that these sentences may still be true even if a house is never built comes from the pragmatics of language use. The problem here is equating the notion of *literal truth* with *that which we say when we are not telling a lie*. However much it might appeal to common sense, this is not in general an accurate equivalence.

First of all, as I have frequently noted in this essay, it is possible to utter a false sentence mistakenly without this constituting a lie, provided the speaker is attempting to adhere to Grice's maxim of quality. In conversation, mistakes can be brushed aside, but deceit is more serious. In fact, if one deceitfully utters a sentence that one believes to be false but this sentence later by chance turns out to have been true, the utterance would still most likely be considered an instance of lying. Again, that which language users rely on to separate lies from those utterances judged for all practical purposes to be true (i.e. pragmatic truth) must be kept distinct from that which is literally true or false in an objective or ultimate sense (i.e. semantic truth). The possibility of being mistaken is what I think largely accounts for the utterance of (2a) when John later fails to complete the work. If John is hammering nails, sawing wood, claims he is building a house, and so forth, an observer might reasonably surmise that a complete house will be in existence at some future time and utter (2a). The speaker thus arrives at a pragmatic appraisal of conditions in unseen future time in order to use a sentence in the present progressive. Of course, if the work is unexpectedly interrupted, an actual house may never result and the observer (as well as John) would simply have been mistaken that such a house would eventually exist.

Secondly, false and anomalous sentences may figure in semantic course corrections, a kind of non-literal usage. When a sentence is intended to be understood non-literally, a speaker is absolved from a requirement that the literal interpretation of the sentence adhere to Grice's pragmatic maxims. Of course, if this non-literal interpretation is accurate, the sentence may be considered "true" (after a fashion). We thus have another way in language that a literally false sentence can avoid being understood as a lie. Semantic course corrections are "true" only in the sense that what they express overall is not false. Naturally, the error quotation within a semantic course correction can be either false or anomalous and the utterance as a whole would be absurd if taken literally. Since I consider (2b) just one more example of a semantic course correction, if John never finished the work, then it is not literally true that John was building a house. The interpretation of (2b) which exhibits the imperfective paradox is simply the use of this sentence as an error quotation

within a semantic course correction. That is, one may still utter (2b), even if the construction is abandoned provided that we clarify (verbally or through context) *...but he never finished it*.

Third, as we have seen, an additional use of a semantic course correction is to fine tune linguistic expression. For example, it may be simply a matter of convenience first to express something literally false (e.g. *Martha's turtleneck sweater is completely orange*) and then follow this up with a qualification which takes back some of the literal truth of what this clause has just asserted (e.g. *...but it has two white stripes on the sleeves*). If John begins to saw wood and hammer nails, but then abandons the work, there may not be any convenient way to express in a single, literally true sentence what has just happened (e.g. *John built a foundation with one wall on the west side and made a stack of bricks near it.*). For the purpose of clear and efficient expression, a semantic course correction may often be the best option available. A literally false sentence is stated (e.g. *John was building a house*), but this is modified in some fashion in the surrounding discourse. The correction (e.g. *...but he never finished it*) lets the hearer know that what happened was something rather like an event where John builds a house, but this event was missing the *expected* concluding phase. It is therefore understood that no house was produced.

Finally, a present progressive sentence such as (2a) may be used in a *preemptive semantic course correction*. This alerts the hearer up front that what was just said may not necessarily be true in even a reliable pragmatic sense. Consider the contrast between (3a) and (3b).

(3a) John is building a house and will finish it.

(3b) John is building a house, but he certainly won't finish it.

The sentence in (3a) is merely joining up two ordinary assertions that are presumed true. However, as discussed in Chapter 4, (3b) is a preemptive semantic course correction. The evidence presented in Chapter 4 would tend to support this analysis rather than the idea that (3b) represents merely the elimination of a conversational implicature.

Besides interesting supportive evidence such as intonation contours and the selection of conjunctions in discourse, there are more serious logical issues which strongly motivate the analysis I present in this essay. Suppose we claim that if John is hammering nails, sawing wood, and so forth, then it may be literally true that he is building a house no matter what happens later. We soon discover that this position is difficult to defend on logical grounds. If the truth conditions for the progressive have nothing whatsoever to do with what happens with John's project in the

future, then it should not matter if at some later point in time, John changes his mind and eventually ends up building a church instead of the residential house that was originally planned. However, as we saw in the pie-making scenario discussed previously, this leads to real difficulties.

If John actually completes a church, it is possible to utter both (4a) or (4b), with reference to the same building event.

(4a) John was building a house, but he changed his mind and it turned out to be a church instead.

(4b) John wasn't building a house, but he didn't know it at the time.

The progressive clauses in (4a) and (4b) directly contradict one another. According to the dictates of logic, both cannot be literally true simultaneously. In my view, however, only the progressive clause in (4b) is literally true in this circumstance. I consider the sentence in (4a) to be a semantic course correction. Indeed, the progressive clause in (4a) is not only literally false, the entire sentence may be considered paradoxical, since the second clause seems to assert that the planned residential house was somehow also a church.

One might then attempt to complicate the account in order to preserve the original common-sense intuition. For example, we might try claiming that John is building a house in this scenario, whether or not he builds one, provided that John does not change his plans later. Although I do not wish to revisit the issues here at length, suffice it to say that we now find ourselves back in the tangle of paradoxes outlined in Chapter 3. For example, we may not in general appeal to the plans of the agent in this way, since there are sentences that make reference to no sentient agent. Suppose a ball is rolling toward the edge of a table but Mary stops the ball before it reaches the edge. Then, we may utter either (5a) or (5b).

(5a) The ball was rolling off the edge of the table, but Mary stopped it.

(5b) The ball wasn't rolling off the edge of the table, since Mary was there to prevent this.

For reasons explained earlier in this essay, appeals to the natural course of events, insulation of the event, and other factors have never been shown to work reliably in building a truth-conditional analysis of the progressive. However, more importantly, such a strategy would in no way explain the linguistic evidence and logical requirements reviewed in this section. It would be a mistake for

truth-conditional semantics to devolve a rigorous and objective notion of literal, semantic truth into an intuitive, yet inaccurate, blending of semantic truth and pragmatic truth. This has the effect of blurring or erasing the useful distinction between semantics and pragmatics as well as between literal and non-literal usage.

### 6.2.3 Treatment of Other Puzzles

Just as this semantic and pragmatic analysis can provide a principled explanation of the *problem of interruptions*, so too can it resolve the *problem of non-interruptions*. Previous truth-conditional analyses allow for a progressive sentence to be literally true sometimes when the nonprogressive counterpart of this sentence never is. It is then difficult to know how to draw the line properly in order to predict that sentences exhibiting the problem of interruptions may come out true, but those exhibiting the problem of non-interruptions should come out false.

Bennett and Partee's truth conditions give us the clearest possible way to draw this line. Consider an example discussed earlier in this essay, repeated here as (6).

(6) Mark was jumping over the Empire State Building.

According to my analysis, if Mark did not eventually succeed in jumping over the Empire State Building, then the progressive clause in (6) is literally false. However, if by some miraculous means Mark does indeed jump over this building, then the progressive clause in (6) would be literally true with reference to a time during his jump. We might then affirm (7) as a true and literal sentence.

(7) Mark was jumping over the Empire State Building and succeeded!

The problem of interruptions arises only because previous truth-conditional analyses try to account for the pragmatics, rather than the truth-conditional semantics, of such sentences.

Since we would most likely judge an ordinary human being incapable of succeeding in making such a jump, even if Mark has unrealistic plans of success, we would not likely claim that Mark is jumping over the Empire State Building as he leaps into the air. Later, assuming Mark fails, there would be no reason to utter a semantic course correction of the form given in (8).

(8) Mark was jumping over the Empire State Building, but failed.

Since earlier we would not have judged that *Mark is jumping over the Empire State Building* was true when he was making his attempt, we would not utter (8) later.

A simple explanation may also be provided for the *problem of contradictions*. Consider the earlier scenario of a Boston-bound plane hijacked to Bismarck midway through the flight. As Landman (1992, pp. 30-31) notes, evaluating the truth values of (9a) and (9b) below is a confusing matter, especially with reference to the time before the hijacking occurs. Nevertheless, (9c) is quite definitely a contradiction.

- (9a) I was flying to Boston (but the plane was later hijacked).
- (9b) I was flying to Bismarck (but I didn't know it at the time).
- (9c) I was flying to Boston and, at the same time, I was flying to Bismarck.

Under my analysis, if the plane never reaches Boston, then it was never literally true that the plane was flying to Boston. The progressive clause in (9a) is thus literally false. However, it is possible to utter this false progressive clause later as the error quotation of a semantic course correction, as made explicit with the parenthetical clarification in (9a). Since the plane actually flew to Bismarck, (9b) was literally true throughout the flight. However, early in the flight, no one knew that the plane would eventually land there. Even the hijackers could not know for certain whether their criminal plan would succeed. However, these are only epistemic issues that influence the use of (9a) and (9b) and have no influence whatsoever on the semantic truth of these sentences.

The clearest indicator that this analysis is the most sensible one is our intuition about the sentence in (9c). This sentence is an obvious contradiction. It can never be true that a plane is flying to two final destinations simultaneously. In this scenario, it was only literally true that the plane was flying to Bismarck and it was literally false that the plane was flying to Boston. Thus, following the guidelines of classical logic, we predict that (9c) would be a false sentence and this indeed conforms with our intuitions.

Semantic course corrections can also explain other unusual effects related to the problem of contradictions. Recall the earlier example repeated here in (10a-b).

- (10a) The bear was pulling the hiker down as he was climbing the tree.
- (10b) The hiker was climbing a tree, and at the same time a bear was preventing him from climbing it.

It simply cannot be true that the hiker was literally climbing up a tree while the bear was literally pulling him down. Note, however, that Bennett and Partee's analysis is able to explain in a straightforward fashion why (10b) strikes us as a literal contradiction. That is, the time of evaluation cannot both be a subinterval of an interval during which the bear pulls the hiker down as well as a subinterval of an interval during which the hiker climbs the tree. Thus, (10b) is correctly predicted to be a contradictory sentence. It is then only necessary to explain an utterance such as (10a).

An account of (10a) may be given step-by-step. First of all, if an observer witnesses the person moving upwards on the tree, it might be reasonable to postulate (11) as a pragmatically true sentence at that time.

(11) The hiker is climbing the tree.

However, if a bear happens along and begins to impede the hiker's progress, it may not be clear to the observer how this event will end. It might therefore be reasonable to discuss this circumstance in terms of a preemptive semantic course correction, as in (12a) or (12b).

(12a) The hiker is climbing the tree, but the bear may pull him down.

(12b) The hiker is climbing the tree, but the bear is pulling him down.

In (12b), the first progressive clause is corrected preemptively with another progressive clause. Of course, this second progressive clause may also be corrected preemptively, as shown in (13).

(13) The hiker is climbing the tree, but the bear is pulling him down, although the hiker may yet get away.

The sentence in (10a) takes us in the narrative to a time when it was unknown how the event would turn out in the future. However, we understand that both progressive clauses in this sentence are not literally true.

In (10a), the first progressive sentence serves as a semantic course correction of the second, but which of the two progressive clauses is ultimately determined to be literally true must be made clear in further discourse, as in (14a) or (14b).

- (14a) The bear was pulling the hiker down as he was climbing the tree. And when the bear pulled him down, he injured the hiker badly.
- (14b) The bear was pulling the hiker down as he was climbing the tree. But the hiker managed to get away and reached safety at the top.

The second sentence in (14a), introduced by *and*, does not negate (nor even adjust) the literal assertion made by the clause *the bear was pulling the hiker down*. It merely continues on with the narrative. By contrast, the second sentence in (14b), introduced by *but*, creates a semantic course correction. It indicates that the clause *the bear was pulling the hiker down* is literally false, since the bear did not eventually pull the hiker down.

As described in Chapter 2, the *problem of the contingent future*, otherwise known as the *multiple-choice paradox*, leads to serious logical difficulties for many semantic proposals of the progressive. Recall the roulette-wheel scenario. Because there is no practical way for a human being to know where a roulette ball will eventually settle on the revolving wheel, there is no rational way for an observer to come to any pragmatic judgment of the truth values of the simple future-tense sentences shown here in (15a-b) beyond an outright guess (and, of course, for the negations of these sentences).

- (15a) The ball will roll to an even number.
- (15b) The ball will roll to an odd number.

Under Bennett and Partee's truth conditions for progressive sentences, the truth values of (16a-b) below are not unrelated to those of (15a-b) above. Indeed, the literal truth of (16a) entails (15a) and similarly (16b) entails (15b).

- (16a) The ball is rolling to an even number.
- (16b) The ball is rolling to an odd number.

Suppose we accept Bennett and Partee's analysis. Due to the fact that human beings are not precognitive, just as with (15a-b) above, a speaker would similarly not be in a good position to state either (16a) or (16b) with any confidence.

Nevertheless, language users understand that either (15a) and (16a) are true or otherwise (15b) and (16b) are true. This is in accord with our intuitions that (17a) and (17b) are both contradictions.

- (17a) The ball will roll to an even number and the ball will roll to an odd number.  
 (17b) The ball is rolling to an even number and the ball is rolling to an odd number.

For similar logical reasons, both (18a) and (18b) are both tautologies.

- (18a) The ball will roll to an even number or the ball will roll to an odd number.  
 (18b) The ball is rolling to an even number or the ball is rolling to an odd number.

All these truth values are correctly and straightforwardly predicted by the standard truth conditions for the future-tense and by Bennett and Partee's simple account of the progressive aspect.

The past-tense counterparts of (16a) and (16b) would not typically be used in semantic course corrections since in scenarios involving the contingent future, a human observer would not earlier have been able to reach any postulation of the pragmatic truth values of these sentences. Thus, both (19a) and (19b) would rarely be used.

- (19a) The ball was rolling to an even number, but it didn't.  
 (19b) The ball was rolling to an odd number, but it didn't.

The only way one might utter either of these semantic course corrections is if the speaker through observation somehow gains the incorrect expectation that the ball is indeed landing on a particular number (perhaps because near the end of the spin it briefly comes to rest on a certain number before being bounced to another). The important point is that the imperfective paradox does not appear until a language user makes an error that may then be corrected. This is because the imperfective paradox is but one manifestation of a semantic course correction.

On the other hand, speaking about the earlier time when the ball was still in motion, a speaker might routinely state (20a) if the ball settled on an even number or (20b) if it instead landed on an odd.

- (20a) The ball was rolling to an even number, but I didn't know it at the time.  
 (20b) The ball was rolling to an odd number, but I didn't know it at the time.

Examples involving the contingent future thus provide strong logical support for the truth-conditional and pragmatic analysis I advance in this essay.

In Chapter 2, we also noted the *problem of indistinguishable circumstances*. Consider the classic example repeated here again as (21).

(21) John is drawing a circle.

Under previous semantic analyses of the progressive, it is indeed difficult to explain how sometimes when John draws a short arc, we may say that he is drawing a circle, but that he is not drawing a figure eight, an ellipse, or some other similar shape. An arc may eventually become any of these shapes, or simply remain an arc. How then, may we know what is actually going on?

This question may be answered in two ways. As far as Bennett and Partee's truth-conditional analysis of the progressive is concerned, John is only literally drawing a circle if he eventually draws a circle. Similarly, he is only literally drawing a figure eight if he eventually draws a figure eight, and so forth. This is an extremely straightforward answer to this question. On the other hand, in pragmatic terms, we might respond to this differently. While John is still drawing, it is a practical impossibility for an observer to look into the future and learn with certainty what the final result will be. A language user is thus not in an ideal position to know exactly what is going on. However, based on the kind of practical guidelines for the determination of pragmatic truth outlined in Chapter 5, an observer might postulate that the current moment falls somewhere in the midst of the total time during which John draws a circle (or some other shape). For example, since the event in question is one where John is the agent, John's plans might be considered the most reliable indicator of what is happening, regardless of what eventually happens in the actual future.

One of the most interesting phenomena to explain under this semantic and pragmatic analysis is what I call in this essay the *problem of impossibilities*. Recall our example sentence from Chapter 2 which is here repeated as (22).

(22) John is building a perpetual motion machine.

The general consensus in the literature is that a sentence such as (22) should come out false since it is not even a physical possibility for the sentence *John built a perpetual motion machine* to be true in the actual world. As a result, John would also not succeed in building a perpetual motion machine in any possible world that bears a close resemblance to the actual one. If the laws of physics are not unexpectedly distorted, Bennett and Partee's truth conditions would also predict that (22) would be false. Yet, if this sentence is absolutely false under any analysis of the progressive, it

is not clear why a language user might arguably still state (22) under certain circumstances. For example, if John is an eccentric inventor who is attempting to build a perpetual motion machine and is currently assembling parts, a person might use (22) to describe this activity. The essential point here is that no account of the progressive, including my own, disputes that (22) would be a false sentence in this scenario. Yet, no proposal that I have seen in the literature suggests how such a definitively false sentence might still be an acceptable utterance.

The key is the way language users typically go about postulating pragmatic truth. Under my analysis, an utterance of (22) might be paraphrased as in (23).

(23) John is in the midst of the construction of a perpetual motion machine.

We may compare the progressive sentence in (22) with the earlier example in (21), which amounts to an assertion that John is in the midst of drawing of a circle. Just as with the circle-drawing example, while John is still assembling parts, it is a practical impossibility for an observer to look into the future and learn with certainty what the final result will be. The event in question is one where John is the agent, so John's plans would again be consulted as the most reliable indicator of what is happening. If John is building something and it is known that what John plans to build is a perpetual motion machine, a language user might very well state (22) as a pragmatically true sentence based solely on the evidence of John's plans.

The objection might be raised at this point that the analysis does not square with the earlier scenario where Mark is attempting to jump over the Empire State Building. Although the truth conditions correctly predict that both progressive sentences in these scenarios are literally false, I have argued that the sentence *Mark is jumping over the Empire State Building* might be postulated as pragmatically false whereas *John is building a perpetual motion machine* might be postulated as pragmatically true, though the plans of both of these agents are apparently impossible to realize. My response to this objection would be again to reiterate that semantic truth and pragmatic truth are two independent concepts.

If someone sets out to build a perpetual motion machine, the individual apparently believes that there is some way around the second law of thermodynamics. Although no way to defeat entropy has yet been discovered, it is not possible in science to claim that no such loophole might exist. As it is so often expressed in science, "You can't prove a negative." Thus, although a perpetual motion machine may indeed be a physical impossibility and we also have strong evidence to believe that it

is, we will probably never know this for sure. Thus, if someone has a new plan to build such a machine, we may be inclined just to give the person the benefit of the scientific doubt. Later, when the person fails, we may always resort to a semantic course correction to clarify.

Indeed, the same analysis would apply to the building-jumping scenario if we have other expectations or even allow ourselves some doubt as to what the outcome might be. Suppose we alter the scenario slightly. As is well known, Superman is famous for jumping tall buildings in a single bound. However, under the damaging effects of kryptonite, Superman may have even less strength than an average human being. If a weakened Superman attempts to jump over a building, but gets no higher than Mark in his failed attempt, we might state the semantic course correction in (24).

(24) Superman was jumping over the Empire State Building, but the effects of the kryptonite prevented him.

The failed attempts made by Mark and by Superman may look very similar objectively. The only crucial difference is the expectations a speaker might have about what the outcome of the event will be. If there is also some reason to think that Mark might have succeeded in his plan, (8) could also later be stated as a semantic course correction. The literal truth of progressive sentences has everything to do with how things actually turn out. The use of progressive sentences, on the other hand, has everything to do with expectations, doubt, and indirect indications of the course that an event might take.

## 6.3 Remaining Issues for a Temporal-Frame Analysis

### 6.3.1 The Problem of the Framed Time

Sweet and Jespersen's temporal-frame theory has formed the core of numerous semantic analyses of the progressive. However, it is important to recognize that arguments against the temporal-frame idea itself have been raised over the years. The first of these, which I call the *problem of the framed time*, has been noted occasionally in the literature. Indeed, Jespersen (1932) himself recognized apparent counterexamples to his theory. The problem also leads Scheffer (1975) to conclude that despite much to recommend the idea, "Jespersen's 'time-frame-theory' ... does not cover all the facts either" (p. 23).

To illustrate, we may turn to an example cited by Leech (1971, p. 18) that involves watching a soccer game (in Leech's original: *football match*). First, consider some progressive sentences which clearly demonstrate the temporal-frame phenomena, as shown in (25a-b) below.

- (25a) They were watching a soccer game on Saturday afternoon at 2:30 P.M.  
 (25b) They were watching a soccer game on Saturday afternoon when the telephone rang.

Under a temporal-frame analysis, the tense of the progressive clause picks out a *framed time*. In (25a), 2:30 P.M. is the framed time, whereas in (25b), it is whenever the telephone rang. For the sentences above to be true, the framed time (i.e. 2:30 P.M. or the time of the telephone call) must fall within the *temporal frame* specified by the nonprogressive counterpart of the sentence, in this case, the *framing time* at which *they watched a soccer game*. That is, at the framed times mentioned, they were in the midst of the larger framing time of watching the soccer game.

However, Leech notes that the temporal frame seems to dissolve if there is no framed time explicitly indicated, as in (26) below.

- (26) They were watching a soccer game on Saturday afternoon.

In (26), as Leech explains, "There is no point round which the 'watching' forms a frame: we would be more inclined to say, in fact, that the afternoon forms a 'temporal frame' round the 'watching', since we know that normally [soccer games] begin and end within the duration of an afternoon" (1971, p. 18). In Leech's view, the temporal-frame theory of the progressive collapses since, unlike the sentences in (25a-b), there is apparently no framed time in (26) at all and, hence, no temporal frame.

Leech's objection is actually not very difficult to address. The sentence in (26) simply makes a somewhat less specific claim than those in (25a-b). We might paraphrase (26) roughly as (27) below.

- (27) They were in the midst of a soccer-game-watching event at (or for) some unspecified interval of time.

As this paraphrase in (27) illustrates, (26) is a sentence in which the time indicated by the sentence's tense is only vaguely constrained by the temporal adverbial *on Saturday afternoon*. In

other words, the adverbial expression *on Saturday afternoon* indicates merely that the progressive clause was true for some time or times within the total span of that afternoon. In other words, the temporal adverbial in (26) has scope over the tense of the sentence. Indeed, this is always the case for temporal adverbials. The sentence in (26) asserts that the progressive clause was true either at a vaguely specified frame time or for a range of framed times on Saturday afternoon.

The time referenced by the tense may not be apparent from considering a particular progressive sentence in isolation, but it generally becomes clear when we consider the larger discourse. For example, we may place (26) in a dialogue, as in (28) below.

(28) Kevin: Why did no one answer when I telephoned?

Rita: Oh, they were watching a soccer game on Saturday afternoon.

Rita may not be aware of the exact time that Kevin called. However, she asserts in her answer that the time of Kevin's attempted phone call fell at some point during the total interval that they watched the game. In other words, Kevin's call occurred at a time when *they are watching a soccer game* was true. This progressive sentence would indeed have been true for any subinterval of the entire length of time that they watched the game.

Furthermore, suppose someone utters (26) and then proceeds along in an extended narration. The speaker might state any of (29a-c) below or countless other sentences.

(29a) ...and the furnace broke...

(29b) ...and Mary arrived...

(29c) ...and they sang a loud fight song...

If we continue on with the discourse, we immediately understand that these follow-on sentences describe events which occurred at some subinterval of the total time during which they watched the soccer game. As we see, the temporal frame set up by the progressive is now apparent. The framed time is actually always inherent to the meaning of the tense of the progressive sentence, although this time is not always stated explicitly. Yet, as we see in (29a-c), the temporal frame may be used at the discourse level to generate a temporal *background* against which other events may be placed.

Additionally, Leech argues, "Another case where there is no 'frame' is that where two Progressive Past verbs are put next to one another" (p. 18). The example he provides is repeated here in (30).

- (30) While she was working hard in the kitchen, her husband was sitting down in front of the television set.

We understand from (30) only that the activities of these two individuals were at some time or other simultaneous, yet it is not necessary that one of these events frames the other in time. However, the appearance of a temporal frame becomes clear if we continue this narrative in almost any way. For example, as in (31a-c) below.

- (31a) She added pepper to the soup.  
 (31b) The doorbell rang.  
 (31c) He started to laugh loudly.

Such natural continuations to the narrative indicate that the two progressive clauses indeed set up two temporal frames (i.e. the framing time she worked in the kitchen and the framing time he sat in front of the television set) which at least partially overlap and which may then serve as a temporal backdrop for further discourse. That is, any of the events described in (31a-c) would be understood to fall at a time when she was working in the kitchen and he was sitting in front of the television set.

Incidentally, Mittwoch (1988) rejects the idea that such time adverbials might have scope over the progressive. She gives the examples repeated here in (32a-b).

- (32a) It was raining for two hours.  
 (32b) John was working for two hours.

Mittwoch argues that if durational expressions like *for two hours* have scope over the progressive, then such progressive sentences “would be underinformative, if not positively misleading; they would single out precise subintervals from intervals of indeterminate length for no conceivable reason. It is hard to imagine that any language should countenance a sentence with the truth conditions [ of a temporal-frame account ] within the scope of a durational” (p. 227).

However, as I have described in this section, there might be many reasons that become apparent if we look to the larger discourse. Thus, a sentence such as (32a) simply asserts that over this two-hour interval, *It is raining* was a true sentence. This could be a useful thing to communicate in language. For example, consider (33) below.

(33) I tried to leave the house several times, but it was raining for two hours nonstop.

The sentence in (33) asserts that every attempt by the speaker to leave the house was a subinterval of the total duration of the rainstorm. Although adverbial expressions may sometimes complicate the details, the temporal-frame account is not undermined by their influence.

### 6.3.2 The Problem of Achievement Predicates

Another challenge to a temporal-frame theory of the progressive is the *problem of achievement predicates*, as noted by Vlach (1981, p. 279), Ogihara (1989, p. 5, 1998, pp. 91-92), and others. As Ogihara comments, “As far as I can see, all previous proposals including Landman’s suffer from this problem though this fact has not attracted much attention in the literature” (1998, p. 91). Observe (34a-d) below.

- (34a) Jaroslav is winning the marathon.
- (34b) The train is now arriving in the station.
- (34c) The hikers are now reaching the summit.
- (34d) Charlemagne is dying.

The predicates in these sentences have traditionally been held to pick out events that are essentially durationless. For instance, one wins a marathon at the moment the finish line is crossed in front of the competition. Similarly, a person dies at a specific moment of death, although this may occur either unexpectedly or after a prolonged mortal illness. Such predicates would be analyzed as *achievements* under the system proposed by Vendler (1967). In his classification, the defining characteristic of achievements is that they signify momentary events. Under a temporal-frame analysis of the progressive, we might then suppose that achievement predicates could not appear in progressive sentences. After all, it would be impossible to have a framed time and a framing time with only a single moment involved. Nothing can be in progress at a moment of time. Yet, (34a-d) are evidence that achievement predicates may indeed appear in progressive sentences. Such sentences are thus potential counterexamples to the temporal-frame analysis.

One solution to this problem is proposed by Ogihara (1998, pp. 92-93). He advances the following definition of a *tenseless achievement sentence*, as originally suggested to him by Mats Rooth (p.c.). (For the formal account, consult Ogihara, 1998, p. 92.)

### OGIHARA'S DEFINITION OF A TENSELESS ACHIEVEMENT SENTENCE

A tenseless achievement sentence is defined as a sentence  $\phi$  such that for any eventuality  $e$  that belongs to  $[[\phi]]$ , the following holds: (i) there is an instantaneous event  $e'$  that is a subevent of  $e$  such that  $e' \in [[\phi]]_{\text{inst}}$ , where  $e$  and  $e'$  can be the same eventuality; (ii) any subeventuality  $e'$  of  $e$  belongs to  $[[\phi]]$  iff  $e$  and  $e'$  share the same end point.

We may illustrate this definition with the tenseless achievement sentence which corresponds to (34a) above,  $\phi = \textit{Jaroslav win the marathon}$ . Ogihara assumes that any tenseless sentence denotes a set of eventualities (i.e. events, in this example). Stated informally, if there is an instantaneous event  $e'$  where Jaroslav wins the marathon, then there may be other events which overlap  $e'$  and which are also events where Jaroslav wins the marathon, provided these events share the same endpoint with  $e'$ . Suppose Jaroslav runs a marathon, pulls ahead of the other runners at 4:30 P.M., and remains ahead until crossing the finish line at 5:00 P.M. Under Ogihara's definition, *Jaroslav wins the marathon* would denote a set of events containing the instantaneous event of Jaroslav winning at 5:00 P.M., a durational event of Jaroslav being ahead from 4:30 P.M. up to and including the winning moment at 5:00 P.M., as well as all subevents of this durational event that crucially share the endpoint of 5:00 P.M. Note, however, that this set would not include, for example, an event of Jaroslav's running which spans 4:40 P.M. to 4:50 P.M., since this event does not share its endpoint with the instantaneous event of Jaroslav winning at 5:00 P.M.

Under this reinterpretation of the semantics of achievements, we may argue straightforwardly that at 4:45 P.M. *Jaroslav is winning the marathon*. This time falls during the time when Jaroslav pulls ahead in the race but before the winning moment. According to this account, an event of this duration would also be in the set of events denoted by the tenseless achievement sentence *Jaroslav win the marathon*. In support of such an analysis, Ogihara argues, "This allows us to accommodate two seemingly contradictory observations about achievements, that they appear to describe instantaneous events in the simple past ... and that they seem to describe protracted events in the progressive..." (1998, p. 92).

Although the traditional view has been that achievements only denote momentary events, Ogihara's modification of this idea does not contradict the fundamental intuitions about progressive achievements most commonly found in the literature. For example, Vlach (1981, p. 279) writes: "Suppose Mary starts the race at 3:10 and finishes, winning, at 3:16. Then there will be a third

instant  $t$  between 3:10 and 3:16 such that Mary pulls ahead at  $t$  and stays ahead until 3:16. As a matter of actual usage *Mary is winning* is true at every instant between  $t$  and 3:16, but *Mary win* is true only at the instant 3:16." Note that Vlach here grounds his analysis on "actual usage" and closely equates the meaning of *winning* with *being in front*. Kearns (1991, p. 275) also speculates that it might be possible to argue that the meaning of winning in a race is simply equivalent to leading the field.

Of course, the imperfective paradox may appear in progressive achievement sentences and complicate matters. For example, Lascarides (1991) notes that if a competitor in a race is ahead, then falls behind, and then pulls ahead again to win, we might say that first the person was winning, then the person was not winning, but then finally the person was winning again and, indeed, won the race eventually. In addition, we may say that a certain individual was winning, but then fell behind and lost. In this essay, I argue that such behavior is simply one manifestation of semantic course corrections. Nevertheless, progressive achievements present us with an entirely separate problem. The issue at hand is to explain how apparently durationless achievements may appear in the progressive at all. Ogiwara's definition of a tenseless achievement sentence is certainly one way to address this question.

However, this same scenario of a runner winning a race leads Lascarides (1991) to wonder whether there really are "...any criteria that one may apply directly to the current state of affairs, to discover whether that state of affairs makes a progressive sentence true (p. 402)." For example, she considers whether we may point to any objective criteria to justify that some individual is indeed winning a race, but concludes that "...such criteria would be difficult to describe. The states of affairs which make [ such a sentence ] true could amount to almost anything (p. 402)." For example, the progressive sentence apparently "...may be true when [ the runner ] is ahead, or when he is second but the athlete in first place has just twisted his ankle" (p. 402). If the progressive achievement sentence in (34a) indeed denotes a set of events which contains more than the momentary event of Jaroslav winning the race, then we must ensure that it would at least be theoretically possible to determine objectively which other events would be included.

In the marathon scenario, it is not at all clear at what point in the race we may truthfully say that Jaroslav is winning the race which he wins. Possibly he is winning when he pulls ahead of the pack, but perhaps he is also winning when he stays back in order to conserve strength for later. If Jaroslav follows a winning strategy in a race from the outset and wins ultimately, is it correct to

claim that he was only winning during that interval where he led the field? If we move away from claiming that achievements are strictly durationless events, we immediately encounter such difficult issues. Yet, the question remains as to how achievements might still be compatible with the progressive.

It seems to me that there is another plausible response to the dilemma. Recall comments in Chapter 1 that a progressive sentence may be ambiguous between the durative and futurate readings. It seems likely to me that (34a-d) are actually not in the *durative progressive* reading at all. Rather, I suspect that they are sentences in the *futurate progressive*. If this is correct, we need not expect (34a-d) to conform to the truth-conditional, temporal-frame account outlined in this essay for the durative progressive reading.

Let us now see if this account is plausible. Note that the meanings of (34a-d) may be approximately captured with an expression that unambiguously denotes future time, such as *be about to* + infinitive or *be going to* + infinitive, as shown in (35a-d).

- (35a) Jaroslav is going to win the marathon.
- (35b) The train is now about to arrive in the station.
- (35c) The hikers are now about to reach the summit.
- (35d) Charlemagne is going to die.

The sentences in (34a) and (35a) both indicate that Jaroslav's win is still in the future. In both (34b) and (35b), we understand that the train has not yet arrived, but that the arrival is imminent. Analogous comments may be made for the remaining pairs of sentences. Parenthetically, as we saw in Chapter 4, sentences in these forms also lend themselves well to semantic course corrections, as illustrated in (36).

- (36) Jaroslav was going to win the marathon, but he tripped and fell.

In addition, consider the example in (37).

- (37) First we were going to Disneyland, then we weren't, but now we are going there again.

The sentence in (37) may be used to describe unexpected changes of on-again-off-again vacation plans. Observe that that speaker need not actually be in the course of traveling at the time of

utterance. Rather, the trip under discussion may simply be planned for the future. That is, the clauses in (37) may all be taken to be in the futurate progressive. Note the use of the temporal adverbial *now* in the final clause. This is perfectly natural usage, although the vacation may still be months away.

In my opinion, the most plausible understanding of (34a-d) is that they are in the futurate progressive, rather than in the durative progressive. As noted in Chapter 1, the term *futate progressive* is somewhat misleading since the construction is progressive in form but not in function. The futurate progressive sentences in (34a-d) are likewise progressive in form only. The event that the predicate describes is not yet in progress (nor could it be, since it is durationless), but is only anticipated in the future.

Thus, consider (34d) *Charlemagne is dying*. If we assume that (34d) is in the durative progressive, this sentence contradicts the temporal-frame account. However, in my view, that Charlemagne's mortal illness may be in progress is not what is inherently referenced by (34d). Rather, this illness is just an indirect indicator that Charlemagne will soon die. This view is consistent with how the futurate progressive has been understood to behave. Dowty (1979, p. 158) notes that this construction differs from other ways of talking about the future in English in that what is stated must already be "planned or predetermined by facts or events." (However, I differ with Dowty in that I take such properties to be relevant only to the pragmatic truth of futurate progressive sentences, rather than to the truth-conditional semantics of the construction itself.) In any case, the futurate progressive sentence in (34d) is used to express not only that Charlemagne will die, but also that the writing is already on the wall, so to speak.

I would agree with Dowty (1979, p. 158) that the futurate progressive differs from the durative progressive in the same way that the simple present in its seldom-used reportive sense differs from the so-called tenseless future. This contrast can be seen in (38a-d) below.

- (38a) John leaves. (reportive simple present tense)
- (38b) John leaves tomorrow. (tenseless future)
- (38c) John is leaving. (present tense durative progressive)
- (38d) John is leaving tomorrow. (present tense futurate progressive)

That is, we may hypothesize that the futurate progressive results from the interaction of the durative progressive with the same aspectual effect that produces the tenseless future in English. Although

the futurate progressive and its relationship to the durative progressive and the tenseless future are interesting, I do not wish to take a long digression at this point. In any case, the semantics and pragmatics of futurate progressive sentences should be understood as not of immediate relevance to the semantic and pragmatic study of the durative progressive pursued here.

Before concluding this section, we may discuss a number of sentences which have presented similar confusion in the semantic literature. Consider (39a-c) below.

- (39a) Robert was tapping a pencil.
- (39b) Bert was nodding approvingly.
- (39c) Nancy was stomping her foot.

Some have assumed that when the progressive aspect appears with predicates denoting punctual events, the progressive somehow takes on an iterative, rather than a durative, interpretation. However, in my opinion, this is a mischaracterization. Consider the simple past-tense version of (39a), given here in (40a). This can be contrasted with a similar sentence in (40b).

- (40a) Robert tapped a pencil until Lucie told him to stop.
- (40b) Robert danced the polka until the teacher told him to stop.

Note that in (40a), the predicate *tap a pencil* can receive an iterative interpretation even when not in the progressive aspect. A non-punctual predicate, such as *dance the polka*, does not receive an iterative interpretation, as we see in (40b). It is also possible to bring out iterative readings of *nod approvingly*, *stomp one's foot*, and other punctual predicates in nonprogressive sentences. Clearly, the predicates already have an iterative reading before being placed in the progressive.

Thus, just as with the futurate progressive, the iterative readings may be seen to result from the interaction of the durative progressive with another aspectual operator. The sentences in (39a-c) should therefore be analyzed as sentences in the *durative progressive generic* (or perhaps *iterative*) rather than the *durative progressive non-generic*. In (39a-c), the repetition is *semelfactive* (i.e. it took place entirely on one occasion). Edgren (1985, p. 77) and others make a distinction in repeated activities between a *serial* (i.e. *generic* or *habitual*) interpretation and an *iterative* (i.e. *semelfactive*) reading.

Incidentally, there may be a piece of independent evidence that the durative progressive aspect has scope over the generic and that a futurate operator has scope over both. Sag (1973) presents the following hierarchy:

FUTURATE	>	DURATIVE	>	HABITUAL
PROGRESSIVE		PROGRESSIVE		PROGRESSIVE

Based on his linguistic research of verbal predicates compatible with each of these readings, Sag describes the hierarchy as follows: "...if a verb occurs in a certain progressive, then it will necessarily be the case that it also occurs in all progressives to the right of it..." (p. 87). As he explains, "I know of no verbs ... which occur only in the FUTURATE, only in the [ DURATIVE ], only in the FUTURATE and the HABITUAL, or only in the FUTURATE and the [ DURATIVE ]" (p. 86). Sag's hierarchy would tend to confirm our intuitions about the scope relations among these aspectual operators.

What I have said here about futurate and generic readings is only cursory. There are many complications and details (particularly with regard to iteratives, generics, and the like). To cover them in complete detail would constitute too great a detour from the aims of this essay. Suffice it to say that in my view certain objections to the temporal-frame analysis stem ultimately from a confusion between the durative progressive and the futurate progressive and others result from the placement of generic predicates into the durative or futurate progressive. The futurate and generic progressive sentences may plausibly be understood as resulting from aspectual operators in combination with the durative progressive. I do not attempt to work out these issues in this essay just as I do not address the perfective aspect and its interaction with the progressive. Be that as it may, we now have a plausible explanation of how the temporal-frame analysis of the durative progressive may still be preserved.

### 6.3.3 The Problem of the Framing Interval

Ogihara (1989) illustrates what I call the *problem of the framing interval* with several examples. Consider first the pair of sentences in (41a-b) (This example was originally discussed by Declerck (1979a) and later by Mittwoch (1988, pp. 226-27) but with reference to a slightly different issue.)

- (41a) Trish drank a glass of wine (from 7:55 P.M. to 8:05 P.M.).
- (41b) Trish was drinking a glass of wine (at 8:00 P.M.).

Suppose (41a) is a true sentence. Under Bennett and Partee's account, (41b) would be true at 8:00 P.M., since this time falls during the total interval (from 7:55 P.M. to 8:05 P.M.) at which the nonprogressive counterpart of this sentence, given in (41a), is true. Because of such examples, a temporal-frame semantics has seemed to be an effective strategy in dealing with the progressive. Yet, Ogihara (1989, p. 5) indicates that we run into a problem if this example is altered somewhat.

Suppose that after finishing the first glass of wine at 8:05 P.M., Trish drank another around 9:00 P.M., a third around 10:30 P.M., and also drank a cup of herbal tea around 11:00 P.M., finishing it at 11:15 P.M. In this case, (42a) below would be a truthful sentence. However, our intuitions tell us that (42b) should be false in this situation.

(42a) Trish drank three glasses of wine and a cup of tea (over the course of the evening from 7:55 P.M. to 11:15 P.M.).

(42b) Trish was drinking three glasses of wine and a cup of tea (at 8:00 P.M.).

Unfortunately, Bennett and Partee's original, interval-based account would evaluate (42b) as a true sentence in this case. This is because 8:00 P.M. falls during the total interval (from 7:55 P.M. to 11:15 P.M.) at which the nonprogressive counterpart of this sentence, given in (42a), is true.

Other examples illustrate the same difficulty. Consider (43a-b) (from Ogihara, 1990, p. 5).

(43a) Barb was reading a book at 10:00 P.M. on May 5th.

(43b) Barb was reading 500 books at 10:00 P.M. on May 5th.

Suppose Barb is an avid reader who read five hundred books last year and who was indeed reading one of these at 10:00 P.M. on May 5th. Then, a temporal-frame analysis would predict that (43b) is true. However, this certainly does not seem correct to us. Consider also (44a-b) (from Ogihara, p.c.).

(44a) Joy was spending two dollars at 5:15 P.M. today.

(44b) Joy was spending one million dollars at 5:15 P.M. today.

Suppose Joy bought a latte for two dollars at 5:15 P.M. today. If it so happens that over her entire lifetime Joy spent one million dollars, then under a strict interpretation of Bennett and Partee's account, (44b) would be true. This is because the time interval at which Joy bought the latte is a

subinterval of the total time interval (i.e. Joy's lifetime) during which she spends one million dollars. However, this does not correspond to our intuitions.

According to Ogihara, the reason that we would want (42b), (43b), and (44b) to come out false has something to do with the fact that what the predicates in these sentence reference "cannot be regarded as constituting one coherent event" (p. 5). He cites an example suggested to him by Hans Kamp (p.c.) which demonstrates that there are "some criteria (probably influenced by our world-knowledge) which determine whether an amalgamation of some atomic events counts as a collective event" (p. 6). A version of this example is given here in (45) below.

(45) Professor Correale was grading 50 medieval literature exams yesterday.

Suppose Professor Correale teaches a course on medieval literature with 50 students and he gave an exam. If he was scoring this large pile of tests in order to return them on the following day, we may certainly consider (45) to be a true sentence in this instance. I agree with Ogihara's view of the problem.

It seems to me that an event-based reinterpretation of Bennett and Partee's account can provide a plausible explanation, at least in part. Let us see how this might be accomplished by considering the example sentences in (46a-b).

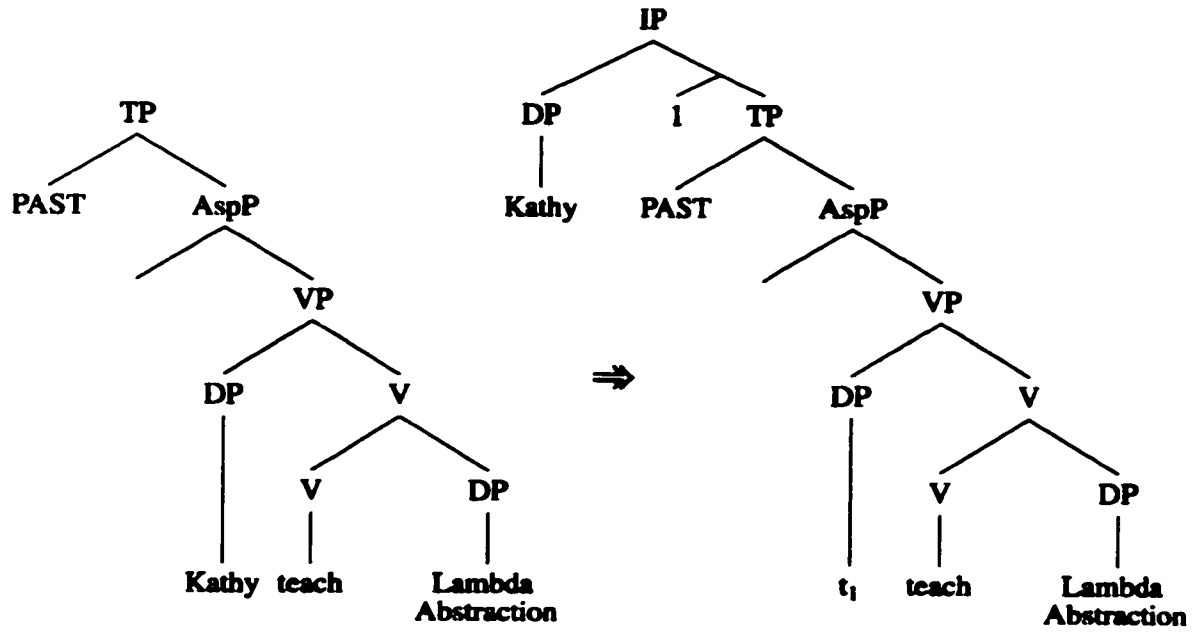
(46a) Kathy taught Lambda Abstraction.

(46b) Kathy was teaching Lambda Abstraction.

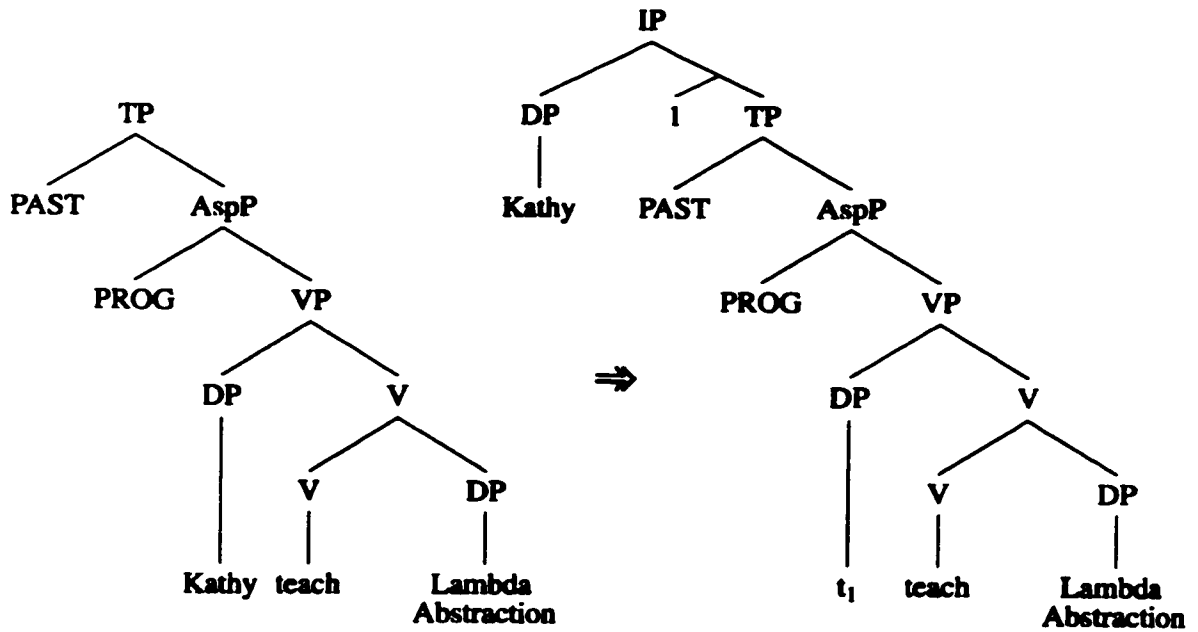
We may first consider the syntactic analysis of these sentences. This might be done in a number of ways. For the purposes of illustration, but I use a generative syntactic analysis similar to that discussed in Heim and Kratzer (1997).

In this treatment, I assume the VP-internal subject hypothesis. In other words, the subject of the sentence is actually part of the verb phrase at SS. The verb phrase thus has the characteristics of a sentence rather than a predicate. Then, at LF, the subject moves across the tense and aspect morphemes, leaving behind a trace, written as  $t_i$ . The placement of the index of the subject noun-phrase as a syntactic unit which serves as input to the semantic interpretation is described by Heim and Kratzer (1997, pp. 185-86). The relevant syntactic trees at SS and LF of (46a-b) are given in (47a-b), respectively.

(47a)



(47b)



For simplicity, I simply treat the noun phrases in (46a-b) as proper nouns denoting individuals, as shown in (48).

- (48) [[ Kathy ]] =>  $k'$   
 [[ Lambda Abstraction ]] =>  $la'$

Adopting an event-based semantics with lambda calculus, I propose the translation for *teach* given in (49a). The translation of *t*, *teach Lambda Abstraction* may then be translated as in (49b).

- (49a) [[ teach ]] =>  $\lambda x \lambda y \lambda e$  [ Teach' (x)(y)(e) ]  
 (49b) [[ t, teach Lambda Abstraction ]] =>  $\lambda e$  [ Teach' ( $la'$ ) (x<sub>t</sub>) (e) ]

In order to derive the translation of (46a), the formula in (49b) must combine with a past-tense sentential operator PAST and the translation of *Kathy*. In order to produce the translation of (46b), we must combine (49b) first with a progressive sentential operator PROG, then with the tense operator PAST, and finally with the translation of *Kathy*.

Let us proceed first with the translation of (46a). In order to accomplish this, we must have a translation of the operator PAST. Here below I define the three operators for tense: past, present, and future tenses, respectively:

#### TENSE OPERATORS

- [[ PAST ]] =>  $\lambda P_i \lambda i$  [  $\exists i'$  [  $i' < i$  &  $P_i(i')$  ] ]  
 [[ PRESENT ]] =>  $\lambda P_i \lambda i$  [  $\exists i'$  [  $i' = i$  &  $P_i(i')$  ] ]  
 [[ FUTURE ]] =>  $\lambda P_i \lambda i$  [  $\exists i'$  [  $i' > i$  &  $P_i(i')$  ] ]

As I have formulated these tense operators, they will not combine directly with the translation of *t*, *teach Lambda Abstraction*, since this translation involves lambda abstraction over an event argument whereas these tense operators have no such event argument.

In order to make these operators compatible, I convert the event argument into a interval argument, as shown below.

#### EVENT-INTERVAL CONVERSION

- [[ event/interval ]] =>  $\lambda P_e \lambda i$  [  $\exists e$  [  $i = \tau(e)$  &  $P_e(e)$  ] ]

In this translation,  $\tau(e)$  represents the temporal trace (duration) of the event  $e$ . This conversion would apply freely before the application of tense operators to any expression lambda-abstracted for an event argument. Considering only this simple example, there may seem no point in having an event argument in the predicate if this argument is then merely converted into a time argument. However, the utility of this analysis will become more apparent as we translate sentences in the progressive.

For now, however, let us consider the translation of  $t_1$  *teach* Lambda Abstraction once the conversion operation applies. The derivation is shown in (50).

$$\begin{aligned}
 (50) \quad & [[ t_1 \text{ teach Lambda Abstraction } ]] \text{ (Converted) } \Rightarrow \\
 & \lambda P_e \lambda i [\exists e [ i = \tau(e) \ \& \ P_e(e) ] ] (\lambda e [ \text{Teach}'(la')(x_1)(e) ] ) \\
 & \lambda i [\exists e [ i = \tau(e) \ \& \ \lambda e [ \text{Teach}'(la')(x_1)(e) ] (e) ] ] \\
 & \lambda i [\exists e [ i = \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ]
 \end{aligned}$$

The resulting expression in (50) is now compatible with the tense operators defined above. Thus, we may combine (50) with the past tense operator to produce the translation given in (51).

$$\begin{aligned}
 (51) \quad & [[ t_1 \text{ taught Lambda Abstraction } ]] \Rightarrow \\
 & \lambda P_i \lambda i [\exists i' [ i' < i \ \& \ P_i(i') ] ] (\lambda i [\exists e [ i = \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ] ) \\
 & \lambda i [\exists i' [ i' < i \ \& \ \lambda i [\exists e [ i = \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ] (i') ] ] \\
 & \lambda i [\exists i' [ i' < i \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ] ]
 \end{aligned}$$

Under the kind of generative analysis advocated by Heim and Kratzer (1997), the effect of translating the index is to add a lambda expression, as shown in (52).

$$\begin{aligned}
 (52) \quad & [[ 1 t_1 \text{ taught Lambda Abstraction } ]] \Rightarrow \\
 & \lambda x_1 \lambda i [\exists i' [ i' < i \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ] ]
 \end{aligned}$$

Then, we may combine the expression in (51) with the translation of the subject of the sentence to produce the translation of the full sentence, as shown in (53).

$$\begin{aligned}
 (53) \quad & [[ \text{Kathy taught Lambda Abstraction} ] ] \Rightarrow \\
 & \lambda i [\exists i' [ i' < i \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Teach}'(la')(k')(e) ] ] ]
 \end{aligned}$$

In order to interpret this translation, we use the following truth definition:

## TRUTH DEFINITION

[[ S ]] (  $i_0$  ) is true where  $i_0$  designates the time of utterance.

Applying this truth definition, we obtain the final translation, as given in (54).

$$(54) \text{ [[ Kathy taught Lambda Abstraction ] ]} \Rightarrow \\ \exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Teach}'(la')(k')(e) ] ]$$

The formula in (54) asserts the following: “There exists a time interval  $i'$ ; the interval  $i'$  lies entirely in past time (before the time of utterance  $i_0$ ); there exists an event  $e$ ; the duration (temporal trace  $\tau$ ) of  $e$  is the past-time interval  $i'$ ; the event  $e$  is an event of Kathy teaching Lambda Abstraction.” As we see, (54) is indeed an accurate predicate-calculus rendition of the simple past-tense sentence in (46a).

Let us now see how we may compositionally derive the past progressive sentence in (46b). By combining Bennett and Partee's analysis of the progressive with an event-based semantics, I give the progressive the following form:

## AN EVENT-BASED PROGRESSIVE OPERATOR

$$\text{[[ PROG ]]} \Rightarrow \lambda P_e \lambda i [ \exists e [ i \subseteq \tau(e) \ \& \ P_e(e) ] ]$$

In this definition, the expression  $i \subseteq \tau(e)$  means that the interval  $i$  is a subinterval of the temporal trace of the event  $e$ .

We may combine this progressive operator with (49b)  $\text{[[ } t_1 \text{ teach Lambda Abstraction ]]} \Rightarrow \lambda e [ \text{Teach}'(la')(x_1)(e) ]$ , in order to produce the translation in (55).

$$(55) \text{ [[ } t_1 \text{ be teaching Lambda Abstraction ]]} \Rightarrow \\ \lambda P_e \lambda i [ \exists e [ i \subseteq \tau(e) \ \& \ P_e(e) ] ] (\lambda e [ \text{Teach}'(la')(x_1)(e) ] ) \\ \lambda i [ \exists e [ i \subseteq \tau(e) \ \& \ \lambda e [ \text{Teach}'(la')(x_1)(e) ] (e) ] ] \\ \lambda i [ \exists e [ i \subseteq \tau(e) \ \& \ \text{Teach}'(la')(x_1)(e) ] ]$$

Unlike the translation of the non-progressive sentence, we need not perform a conversion from the event to an interval argument, since this expression already has the event argument existentially quantified. If we apply the past-tense operator, account for the index, introduce the subject, and follow the truth definition, we produce the final translation shown in (56).

(56) [[ Kathy was teaching Lambda Abstraction ]] =>  
 $\exists i' [ i' < i_0 \ \& \ \exists e [ i' \subseteq \tau(e) \ \& \ \text{Teach}'(ka)(k')(e) ] ] ]$

The formula in (56) asserts the following: “There exists a time interval  $i'$ ; the interval  $i'$  lies entirely in past time (before the time of utterance  $i_0$ ); there exists an event  $e$ ; the past-time interval  $i'$  is a subinterval of the duration (temporal trace  $\tau$ ) of  $e$ ; the event  $e$  is an event of Kathy teaching Lambda Abstraction.” The formula in (56) is indeed an accurate rendition of the past progressive sentence in (46b).

For example, the translation is able to capture our intuitions about an assertion of (46b) in a discourse such as (57) below.

(57) Kathy was teaching Lambda Abstraction five minutes ago and she is still teaching Lambda Abstraction.

Note crucially that the translation of *Kathy was teaching Lambda Abstraction* in (56) does not mandate that the entire duration of the event lies in the past but only some subinterval of the event’s duration. Thus, whereas the evaluation time in the non-progressive translation in (54) is the temporal trace of the event in question, the evaluation time in (56) is a subinterval of the event’s duration. We have thus recast Bennett and Partee’s analysis with an event-based ontology that works in a compositional fashion.

Now we may see how this strategy can help us address the problem of the framing interval. First of all, note that in general, a sentence cannot always be associated with a single event. This fact can be demonstrated with the example in (58).

(58) Pavarotti performed *Rigoletto* and *Carmen*.

Suppose Pavarotti performed *Rigoletto* in December, 1972 and *Carmen* in April, 1985. In this case, (58) would be a true sentence. However, (58) would then quite clearly involve the existence of two separate events (the two distinct performances), rather than just one event. Thus, under these circumstances, it would be inaccurate to translate the tenseless, aspectless sentence *Pavarotti perform Rigoletto and Carmen* as in (59).

(59) [[ Pavarotti perform *Rigoletto* and *Il Trovatore* ]] ≠>  
 $* \exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Perform}'(r')(it')(p')(e) ] ] ]$

This translation incorrectly characterizes the operas *Rigoletto* and *Carmen* as two arguments in one and the same performance event.

Instead, we must understand (58) as expressing essentially the same meaning as the compound sentence in (60a) below. If we accept (60a) as a plausible restatement of (58), we again understand that there are two separate events involved here. The formal translation of (60a) is given in (60b) below:

(60a) Pavarotti performed *Rigoletto* and Pavarotti performed *Carmen*.

(60b) [[ Pavarotti performed *Rigoletto* and Pavarotti performed *Carmen* ]] =>

$$\exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Perform}'(r')(p')(e) ] ] \ \&$$

$$\exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Perform}'(it')(p')(e) ] ] ]$$

The formula in (60b) is not only an accurate translation of (60a), but also of (58) *Pavarotti performed Rigoletto and Carmen*. However, it is difficult to imagine how we might arrive at (60b) as a translation of (58) in some compositional fashion. We are now dealing with multiple events and plurals of any kind are a notoriously complicated problem. The interested reader may, for example, consult Link (1983), Schwarzschild (1996), or a number of other references for an extended discussion of the complexities involved and ideas about how to treat them.

In any case, this is an issue related to the complexity of translating tenseless, aspectless sentences into predicate calculus. These are semantic problems apart from the development of a truth-conditional treatment of the progressive aspect per se. The only point I wish to make is that, no matter what system or notation one might adopt, the translation of (58) necessarily involves two event arguments and, for that matter, two time arguments as well. Other predicates could certainly involve three or more events. In whatever way the solution might be formulated, the tense operators would thus need to be designed to deal with multiple time intervals.

Now, consider again the operator developed for the progressive aspect. This operator is not (in its current formulation) designed to work in a combinatorial fashion with expressions involving more than one event. Yet, this is perhaps a *good* thing. This operator is designed to ensure merely that a particular interval of time is internal to the duration of a single, specific event. If there are two or more distinct events involved, the progressive operator is not able to combine successfully. In other words, the resulting combination would be ill-formed.

I contend that it is just this kind of incompatibility which accounts for the oddity of the progressive sentences in the scenarios discussed in this section. The progressive aspect's inherent meaning asserts that the time of evaluation falls somewhere in the midst of a single event. Thus, if there is no such event, the progressive sentence is simply false. It is clear, however, that the strangeness in these examples stems from a conflict with the entailment from (61a) to (61b).

- (61a) Pavarotti was performing *Rigoletto* and *Carmen*.
- (61b) There was a single event in which Pavarotti performed *Rigoletto* and *Carmen*.

Under the semantic account in this essay, (61 a) entails (61 b). However, the context or known facts contradicts this entailment. That is, Pavarotti's performances of *Rigoletto* and *Carmen* in fact constitute two events, rather than just one.

Therefore, if Pavarotti performed *Rigoletto* on December 5, 1972 and *Carmen* on April 26, 1985, we can now understand why we may utter (62 a) or (62b) truthfully under the circumstances outlined here, but not (62c) nor (62d).

- (62a) Pavarotti was performing *Rigoletto* on December 5, 1972.
- (62b) Pavarotti was performing *Carmen* on April 26, 1985.
- (62c) Pavarotti was performing *Rigoletto* and *Carmen* on December 5, 1972.
- (62d) Pavarotti was performing *Rigoletto* and *Carmen* on April 26, 1985.

We might only understand (62c) or (62d) to be true under different circumstances. For example, if Pavarotti had given a double performance on December 5, 1972 consisting of these two operas, (62c) could then plausibly be true. If this double performance were instead on April 26, 1985, then (62d) could be true. If we treat this sentence as describing one event that consisted of two operas, the formal translation should perhaps then be expressed as in (63).

$$(63) \quad [[ \text{Pavarotti perform } \textit{Rigoletto} \text{ and } \textit{Il Trovatore} ] ] \Rightarrow \\ \exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Perform}'(r' + it')(p')(e) ] ] ]$$

In (63), I use the expression  $r' + c'$  as the translation of "*Rigoletto* and *Carmen*," which is here used as a proper name designating a single performance of these two operas. Thus, there was a single event consisting of Pavarotti's performance of two operas.

Of course, one might then ask why it is that an opera performance in 1972 and an opera performance in 1985 do not together constitute a single event. Certainly, this is an interesting question. Yet, this is also an enormous philosophical issue. Just as with the need to improve our understanding of the semantics of plurals, I take this topic to go far beyond the present concern of the semantics and pragmatics of the progressive. As explained in Chapter 1, in order to function at all, truth-conditional, model-theoretic semantics assumes the existence of such ontological entities as objects, events, times, and so forth. These entities are treated as countable and, thus, subject to quantification. How it is that something constitutes one object or two, one event or two, and the like, is not addressed directly in the system. However, to the extent that the individuality of such entities as objects or events is in doubt, this is not merely a problem for the semantics of progressive sentences, but indeed for the semantics of any sentence of language. Therefore, although the question is a valid one to raise, I simply ignore its deeper implications here in the same way as these are ignored implicitly in other semantic proposals set forth in a truth-conditional, model-theoretic framework.

We may now look back at our earlier examples. For (42b) to be true, the progressive operator would mandate that the evaluation time fall during a single event in which Trish drank three glasses of wine and a cup of tea. Similarly, as indicated by our reactions to (43b) and (44b), the sum of all events of book-reading or the spending of money by some individual over long spans of time apparently may not constitute a single, non-continuous super-event of book-reading or of spending money.

As has been demonstrated, sentences containing a verbal predicate such as *perform Rigoletto and Carmen*, *drink three glasses of wine and a cup of tea*, and others can depend upon conditions not just in one event, but in multiple events. In this way, it can be unclear when using a predicate such as *spend a million dollars* in the sentence *Joy spent a million dollars* whether Joy spent this money all within a single event, in two events, or in many multiple events. Lastly, with respect to (45), although a professor and fifty exams may all be participants in a single event of grading, the fifty exams may have been graded by Professor Correale across two, three, or more separate events of grading. In this case, under my proposal, the progressive aspect is predicted to be unavailable for the reasons of compositionality given here.

The revised version of the temporal-frame account does not rely merely on intervals, but rather makes explicit use of an event-based ontology. That is, the truth-conditional treatment requires that

the temporal frame corresponds not only to the time interval at which the nonprogressive counterpart of the sentence is true but also to the duration of *one particular eventuality* of a certain type. Admittedly, what I have said here amounts only to a partial answer to the problem of the framing interval. The rest of the answer, however, touches on the semantics of plurals and the individuality of events and states. These are two complex topics which, for practical reasons, must be addressed elsewhere.

#### 6.3.4 The Problem of Discontinuities (The Continuum Failure)

A further question faced by a temporal-frame account is what I call the *problem of discontinuities*. This issue has been discussed by Dowty (1977, pp. 50-51 and 1979, p. 139) and a number of others. Abusch (1985, p. 149) refers to it as *continuum failure*. The root of the problem is that events need not be continuous. As Rescher and Urquhart (1971) explain, an activity can be *majoritative*, which means "...it can go on at most times throughout the interval (but not invariably at all times.)" (p. 160). Thus, one may walk, sing, build a house, or iron clothes over an interval, yet interruptions (i.e. *discontinuities*) may take place within this period of time. Edgren (1985, p. 74) concludes that the basic function of the progressive is "to mark the action as *going on*," but qualifies this statement. "*Ongoing activity*," she notes, "does not necessarily mean *continuous activity*" (p. 74, footnote 19).

This raises an important issue for a temporal-frame analysis of the progressive. Consider the example in (64).

(64) Liba is gardening.

If Liba gardens from 2:00 P.M. until 5:00 P.M., our truth-conditional semantics for the progressive would predict that (64) would be true at any time that is a subinterval of the total duration of the gardening event (i.e. the three-hour period from 2:00 P.M. until 5:00 P.M.). However, suppose that from 3:00 P.M. until 3:15 P.M., Liba takes a break from the work. If Liba receives a phone call at 3:05 P.M., it seems to me that she may say either (65a) or (65b) plausibly.

(65a) I'm not gardening right now. I'm taking a break, so I can talk for a few minutes.

(65b) I'm gardening right now, so I can only talk for a few minutes.

Although Liba may state either sentence acceptably, I maintain both (65a) and (65b) cannot both be literally true in this scenario. It is therefore necessary to resolve the matter in some fashion.

Another interesting example of the same phenomenon is cited by Vlach (1981) and repeated here as (66).

(66) Someone is sitting here.

It is possible to point to an empty seat in a theater and ask, "Is someone sitting there?" and (66) would be an acceptable answer. Vlach explains this example in the following way: "The question being asked can only be whether anyone is sitting there for the evening; it is obvious that no one is sitting there at the moment. The speaker, so to speak, knows that the sentence [ in (66) ] is false at the moment of speaking, but does not know whether that sentence is true for the interval of that evening. The sentence can be true for the interval but not true at a moment contained in the interval" (p. 280). Abusch (1985, p. 149) offers a similar solution. However, this may not be the entire story.

In order to understand the source of the confusion, an analogy might be helpful. As has been discussed in this essay, the meaning of the progressive may often be paraphrased with the words *in the middle of*. That is, the progressive fixes the time of evaluation in the middle of an event. However, we may also think about the spatial meaning of *in the middle of* (not in the sense of *at the exact center*, but rather merely *somewhere in the middle*). Take a look at a map of Africa and find the nation of Lesotho. The political geography of this nation is interesting. Lesotho is surrounded entirely by South Africa. That is, the entire country of Lesotho lies *in the middle of* South Africa. With this in mind, if one is standing somewhere in Lesotho, is one in the middle of South Africa or not?

It seems to me that either (67a) or (67b) would be a plausible response in this situation.

- (67a) Standing right here, I'm not in the middle of South Africa. I'm in the middle of Lesotho.
- (67b) Standing right here, I'm in the middle of South Africa, together with the rest of the nation of Lesotho.

We may compare (67a-b) with (65a-b) above. In the Africa analogy, I have translated the problem from the temporal to the spatial realm. The larger entities in these scenarios are the event of

gardening and the nation of South Africa, respectively. The smaller entities are the event of taking a break from work and the nation of Lesotho, respectively. In (65a-b), the temporal location is specified as *right now*, whereas in (67a-b) the spatial location is specified as *right here*.

The difficulty in both scenarios is discontinuity. Due to the presence of Lesotho in its midst, the area of South Africa is discontinuous. Similarly, due to the presence of a work break in its midst, the duration of the gardening event is discontinuous. In language use, dealing with temporal and spatial geometries which permit discontinuities can be somewhat tricky. The total volume of a donut, for example, would not include the volume of the hole, yet we also consider a donut's hole as part of the donut even though it is, by its very nature, a gap or discontinuity.

Observe that this is not merely an issue of context. Thus, we may contrast (67a-b) with (68a-b).

(68a) I am in the middle of Lesotho.

(68b) I am in the middle of the southern region of Africa.

Lesotho is a part of the southern region of Africa. However, Lesotho is not a part of South Africa. This is therefore not an issue of being more specific or vague. Rather, there is a spatial discontinuity involved here. Similarly, consider (69a-b).

(69a) I am taking a break from work.

(69b) I am spending the day in the back yard.

Here again, it is not contradictory to think of a break as a subevent of the larger event of spending a day in the back yard. However, it is contradictory to claim the one is gardening and one is not gardening at the same time. There is thus a temporal discontinuity to address.

It seems to me that the notion of a semantic course correction may once again come to our aid. Consider (70) below.

(70) Liba gardened from 2:00 P.M. to 5:00 P.M.

In the scenario described above, our intuitions are that (70) is a true sentence. Nevertheless, I would argue that this sentence is not *literally* true. Contrast (70) with (71).

(71) Liba gardened from 2:00 P.M. to 5:00 P.M., except that she took a break from 3:00 P.M. until 3:15 P.M.

The sentence in (71) is a semantic course correction of a similar kind to the very first example from Chapter 1, repeated here as (72)

(72) Martha's turtleneck sweater is completely orange (except that it has two white stripes on the sleeves).

An utterance of (70) without any further correction would be much like stating (72) without the fine-tuning to its semantics provided by the parenthetical expression indicated.

How is it then that we may state (70) in isolation and still have the impression that this is a true sentence? This is probably due to what Lasersohn (1999) calls *pragmatic slack* in conversation. Lasersohn observes that actual language use allows for a fair amount of imprecision of expression. He cites an example where John is told that Mary arrived at three, though she actually arrived 15 seconds after three. John might then claim that what he was told was false. "But whether or not John is acting unreasonably in this situation," notes Lasersohn, "I think we have to concede that he is, strictly speaking, RIGHT: when I told him that Mary arrived at three, I said something that was literally false, not true. As people often do, I was just speaking a little loosely. My defense is not that I was telling the truth, but that what I said was 'close enough' to the truth for practical purposes" (1999, p. 522). Of course, in traditional truth-conditional semantics we simply idealize away from such pragmatic issues. Hence, there is no difficulty if (70) is *literally false* under these conditions in our truth-conditional framework, even if we sometimes are allowed enough slack under our pragmatic system to state (70) without further correction.

I conclude from this investigation that it is (65a), *I'm not gardening right now*, which is literally true in the scenario described in this section, rather than (65b), *I'm gardening right now*. The time of evaluation (i.e. the time of the phone call) does not fall as a subinterval of the duration of the event of gardening since the gardening event is discontinuous in time. One way to account for this, would be to alter our definition of the temporal trace function so that it would not necessarily return a single continuous interval equal to the maximum duration of the event. Rather, it would return a set of non-overlapping intervals representing only those stretches of time at which the possibly discontinuous event actually occurs temporally.

Then, in analyzing the progressive, instead of verifying that the interval *i* is a subinterval of the total duration of the event, the revised progressive would mandate only that *i* be one of the subintervals in the possibly discontinuous duration of the event. Under such a revision, our truth-conditional

analysis would predict that it is not literally true that Liba is gardening when she is taking a break from gardening. Thus, whereas (65a) is literally true, the sentence in (65b), asserting that Liba is gardening during her break, is literally false. The acceptability of (65b) is an instance of pragmatic slack. Just as it is possible in (70) to assert loosely that someone gardened for three hours while this is not literally true, so too it is possible to assert that one is gardening even if the moment of utterance actually falls during a brief interruption.

The literal truth of the examples presented in this section may be expressed by means of semantic course corrections, as in (73a-c) below. These are of a contradictory form, but when taken as a whole, they express the literal truth.

- (73a) I'm gardening, except that at the moment I'm actually taking a short break.
- (73b) Someone is sitting here, except that at the moment she is in the lobby buying popcorn.
- (73c) I'm in the middle of South Africa, except that this particular territory actually belongs to the nation of Lesotho.

Once again, it is important not to rely exclusively on our intuitions of what is truth when determining what is literally true. Logical consistency must also be a check on our intuitions. Sentences which are false or anomalous are able to appear within the context of semantic course corrections. Furthermore, as argued by Lasersohn (1999) and discussed here, sentences which are literally untrue, strictly speaking, may be uttered under an assumption of pragmatic slack. Since various possible alterations of the standard temporal trace function would doubtless have numerous theoretical consequences too complex to explore here, I refrain for now from making any formal proposal as I have outlined here.

### 6.3.5 The Problem of Predicates which Resist the Progressive

There is one final issue left to discuss: *the problem of predicates which resist the progressive*. This phenomenon is certainly bound up with the difference in usage between the simple tenses and the progressive forms. Of course, this is a massive topic for discussion which I cannot hope to address adequately within a short span of words here. As Granville-Hatcher (1951) notes, "Perhaps the most problematical feature of verbal usage in modern English is the alternation of simple and progressive forms" (p. 254). Nevertheless, some of what I have already outlined in this essay

relates to the smaller issue of why certain predicates are resistant to appearing in the progressive aspect and so I present this now.

It has frequently been observed in the literature that certain predicates may not take the progressive aspect. Consider (74a-c) below (Examples taken from Kearns, 1991, p. 12).

- (74a) \* John was knowing the answer.
- (74b) \* That cupboard is only containing cleaning equipment.
- (74c) \* Mary is being tall.

Since these are classified as state predicates, the general strategy adopted by most semantic researchers has been to attempt to find the reason why state predicates would fundamentally be incompatible with the progressive. For example, Taylor (1977) uses a particular definition of states and of the progressive to predict that sentences containing state predicates in the progressive are always evaluated as false (i.e. contradictory). However, I would agree with the critique made by Kearns (1991) who observes, "The result that a progressive state sentence ... is false runs counter to my intuition, which is that the sentence is inappropriate or ill-formed in some way, but not false" (p. 117). That is, (74a-c) strike us as ungrammatical, rather than contradictory.

Kearns also indicates that a major complication to any proposal is the fact that some state predicates indeed appear freely in the progressive, as in (75a-d) below (examples from Kearns, 1991, p. 122).

- (75a) Your slip is showing.
- (75b) Kohl is hoping for an early unification settlement.
- (75c) An old hunting horn was hanging on the wall.
- (75d) The stars were shining brightly.

Kearns concludes, "The data ... show that the ill-formedness of [ certain progressive state sentences ] cannot be ascribed to a property of states per se, but must be due to a distinction between types of states or between state predicates" (1991, p. 122). I would agree with this conclusion.

This phenomenon has received almost as much attention in the literature as the imperfective paradox but, like the paradox, has been difficult to explain. Carlson (1980, p. 187) proposes that the distinction between progressive and nonprogressive sentences is the same as the distinction between individual-level and stage-level predicates. In his proposal, only stage-level predicates may

appear in the progressive. Individual-level predicates in the progressive are prohibited by the combinatorial system. Others, such as Kearns (1991), have supported this basic approach and indeed I think it probably is one of the factors involved.

However, contrasts such as (76a-b) are particularly vexing and would probably not be captured plausibly under such a theory.

(76a) Roy rented Carnegie Hall from 1980 to 1985. In 1982, he rented Carnegie Hall / In 1982, he was renting Carnegie Hall.

(76b) Roy owned Carnegie Hall from 1980 to 1985. In 1982, he owned Carnegie Hall / \*In 1982, he was owning Carnegie Hall.

Whereas the predicate *rent Carnegie Hall* can appear freely either in the simple tense or the progressive aspect, the same cannot be said for *own Carnegie Hall*, even when the usage is attempted in parallel situations, as shown in (76a-b). The answer must be that the verbs *rent* and *own* have some inherent difference that influences their compatibility with the progressive aspect in such a way that *own* is ill-formed in the progressive, yet *rent* is acceptable. Let us consider what this difference might be.

The examples in (75a-d) notwithstanding, following Vendler (1967) and others, I henceforth refer to predicates which resist the progressive as *state predicates*. The overwhelming majority of predicates resistant to the progressive are state predicates and, conversely, the overwhelming majority of state predicates are resistant to the progressive. Therefore, it is not implausible to suppose that state predicates are incompatible with the progressive for some fundamental reason. The exceptions to this general rule, such as (75a-d) above, are interesting, yet I do not attempt an explanation here.

In my treatment, the progressive aspect is defined as an operator, which I repeat here once again for convenience. I also repeat the three tense operators as well.

[[ PROG ]] =>  $\lambda P_e \lambda i [\exists e [i \subseteq \tau(e) \& P_e(e)]]$

[[ PAST ]] =>  $\lambda P_i \lambda i [\exists i' [i' < i \& P_i(i')]]$

[[ PRESENT ]] =>  $\lambda P_i \lambda i [\exists i' [i' = i \& P_i(i')]]$

[[ FUTURE ]] =>  $\lambda P_i \lambda i [\exists i' [i' > i \& P_i(i')]]$

The function of the progressive operator is very basic. For a progressive sentence to be true, the time of evaluation for the sentence must be a subinterval of the (possibly discontinuous) duration of the event in question, the type of which is described in compositional terms. Given this formulation, there is really very little that might go wrong and cause the formal translation to be compositionally ill-formed. Of course, as we have already seen, this operator is not designed to combine with multiple event arguments. I used this to provide a partial explanation of the *problem of the framing interval*.

However, observe that whereas the tense operators are designed to combine an expression lambda abstracted for a time argument  $i$ , the progressive operator is designed to combine with an expression lambda abstracted for an event argument  $e$ . Thus, a possible way that the use of the progressive operator might be ill-formed is if there were some problem involving the event argument.

Consider first the translation of *rent*, as shown in (77a), which leads to the straightforward translations of *Roy rented Carnegie Hall* and *Roy was renting Carnegie Hall*, given in (77a-b). (The derivations would run parallel to the sentences *Kathy taught Lambda Abstraction* and *Kathy was teaching Lambda Abstraction* discussed previously).

(77a)  $[[ \text{rent} ]] \Rightarrow \lambda x \lambda y \lambda e [ \text{Rent}'(x)(y)(e) ]$

(77b)  $[[ \text{Roy rented Carnegie Hall} ]] \Rightarrow$   
 $\exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Rent}'(\text{ch})'(r')(e) ] ]$

(77c)  $[[ \text{Roy was renting Carnegie Hall} ]] \Rightarrow$   
 $\exists i' [ i' < i_0 \ \& \ \exists e [ i' \subseteq \tau(e) \ \& \ \text{Rent}'(\text{ch})'(r')(e) ] ]$

Perhaps the translation of the predicate *own* is different in some fundamental way from this translation of *rent* with respect to the event argument. Indeed, I think our dilemma can be solved most simply by removing the event argument entirely from the translation for *own*, as shown in (78).

(78)  $[[ \text{own} ]] \Rightarrow \lambda x \lambda y [ \text{Own}'(x)(y) ]$

With no event argument in the translation of *own*, any attempt to combine this predicate with the progressive would be ill-formed, just as we would hope. Thus, the progressive sentence in (76b) would be predicted to be a faulty expression.

By comparison, there is no difficulty in combining (78) with a tense operator in order to produce the translation of (76a), given in (79).

$$(79) \text{ [[ Roy owned Carnegie Hall ] ] } \Rightarrow \\ \exists i' [ i' < i_0 \ \& \ \exists e [ i' = \tau(e) \ \& \ \text{Own}'(\text{ch}') (i') ] ] ]$$

This strategy seems to discriminate well between the acceptability of the progressive with certain predicates. However, let us now see if this is generally confirmed by other research and by data from English. As it happens, support for this analysis can be found in Herweg (1991). Although an extensive discussion of his aspectual system would be prohibitive here, it is possible to outline the salient points in brief. The interested reader is encouraged to consult the original proposal for details.

Based on a wide variety of linguistic evidence, Herweg determines that "...events must be considered as abstract individuals from a logical point of view... By contrast, ... [f]rom the semantic properties of imperfective sentences, we can tell that states must not be treated as individuals from a logical point of view" (p. 970). Thus, Herweg proposes that event sentences are predicated on events (and therefore, automatically, on times), whereas state sentences are predicated only on times, but not on some logical individual called a *state*. Herweg's solution to the issue of state predicates avoiding the progressive is thus essentially identical to the one I have outlined here. He would analyze (80a) with the formula in (80b), whereas (80c) would be translated as (80d).

- (80a) Pete rides his bike to the seaside.  
 (80b)  $\lambda e [ \text{Peter-ride-his-bike-to-the-seaside} ](e)$   
 (80c) Bob is boring.  
 (80d)  $\lambda t [ \text{Bob-be-boring} ](t)$

The state sentence in (80c) would be incompatible with the progressive since its logical translation lacks an event argument, as shown in (80d).

Herweg proposes operators which transform state sentences into event sentences and vice versa. The former is realized as the operator PO. This operator is named for the *pofective*, a term coined by Galton (1984) to allude to the Russian delimitative prefix *po-*. For any given state expression  $\lambda t [ S ](t)$ ,  $\lambda e [ \text{PO}(S) ](e)$  is the corresponding *pofective event type*. The operator PO transforms a

state sentence like *John is silly* into an event sentence. The result is thus fully compatible with the progressive, as shown in (81a-b).

(81a) Bob is being boring.

(81b)  $\lambda \exists e [ \text{PO}[\text{Bob-be-boring}](e) \ \& \ \text{PROG}(e, t)]$

As discussed extensively in the semantic literature, an example such as (81a-b) contrasts with the typical *copular* or *linking* function of the verb *be*. This is the so-called “agentive *be*,” which appears with complements used to describe actual behavior rather than a characteristic property. That is, *be-boring* in (81a) is apparently an activity, rather than a state predicate. We might therefore expect an event argument to be involved: the event of Bob being boring. In Herweg’s analysis, the metamorphosis from state to event sentence is accomplished via the perfective operator. The operator in Herweg’s proposal which transforms an event sentence into its corresponding state sentence is none other than the progressive operator PROG. The same may be demonstrated with the system I have proposed in this essay.

As Herweg explains, “Semantically, the progressive maps an event type onto the state that holds when an event of this type is in the process of occurring...” (1991, p. 975). Herweg calls such a state the *progressive state* which is associated with the corresponding event type. The compositional, truth-conditional account of the progressive aspect outlined in this chapter is thus in general conformity with those proposals which have argued that the progressive acts as a *stativizer*. That is, such proposals view the function of the progressive as an operator which changes an activity (or accomplishment) predicate into a state predicate. In addition to the present essay, the view that the progressive is a stativizer, a view that Ogihara (1989, p. 6) describes as the *non-traditional approach*, has been promoted by Vlach (1981), Moens (1997), and Ogihara (1989).

## 6.4 Conclusion

In his famous proclamation from the introduction to “English as a Formal Language,” Richard Montague declared, “I reject the contention that an important theoretical difference exists between formal and natural languages” (1970b, reprinted in Montague 1974, p. 188). This was indeed a remarkable challenge to a long-standing assumption held by his colleagues in philosophy and logic. Scholars studying symbolic logic would undoubtedly have thought it absurd that methods developed for the study of a well-behaved predicate calculus might fruitfully be applied to English

or other human languages. After all, it was the unruliness of natural languages that had led mathematicians to create just such artificial languages. In contrast to predicate calculus, human languages are notoriously filled with such irritations as exceptions to grammatical rules, vagueness, and several species of ambiguity. Natural languages were generally considered by logicians to rest on a slippery foundation of illogicality. However, in spite of any early skepticism, Montague's application of logical methodology to natural language has actually enjoyed an era of great success and vigorous growth. Today it is a productive and central enterprise in the linguistic study of semantics.

Yet perhaps even Montague himself would now admit that his strongly-worded challenge, appropriate and accurate in the historical context in which it was made, is now beginning to show signs of age. The reason for this, ironically, is the very success of the framework itself. In 1970, Montague was able to deny with some plausibility that the theoretical differences between formal and natural languages were not terribly important. However, as the field progresses and the issues under consideration are dissected ever more finely, the differences which do exist become larger and more troublesome.

One difference highlighted in this essay has implications for the Principle of Compositionality in semantics. For every syntactic rule, semantics in the Montagovian tradition requires that there be a corresponding semantic rule to meld the interpretations of the syntactic parts into the interpretation of the whole expression. Montague's inspiration was obviously the treatment of the semantics of artificial languages, devised by logicians, such as predicate calculus, which are also formulated to adhere to compositionality. The idea traces back to Gottlob Frege, who expressed it in the following way: "It is astonishing what language can do. With a few syllables it can express an incalculable number of thoughts, so that even a thought grasped by a terrestrial being for the very first time can be put into a form of words which will be understood by someone to whom the thought is entirely new. This would be impossible, were we not able to distinguish parts in the thought corresponding to the parts of a sentence, so that the structure of the sentence serves as an image of the structure of the thought" (1923-26, reprinted and translated in Frege, 1977, p. 55). Frege's observation is nowadays most often rewritten in the following way: *The meaning of the whole is a function of the meaning of its parts and their mode of combination.*

Both linguists and logicians have long observed how language users are able to interpret a theoretically infinite number of sentences. They apparently do this by appealing to the unconscious

knowledge of the meanings of only a finite number of lexical elements and a finite set of syntactic rules. Compositionality therefore offers a reasonable explanation for this semantic ability. In fact, Montague accounts for productivity in the semantic interpretation of language in much the same way as Chomsky accounts for productivity in the syntactic generation of language. Of course, Montague only derives the truth-conditional component of meaning in this way and restricts his consideration to a sentence under its literal interpretation.

Indeed, there is nothing wrong with this basic methodology. The Principle of Compositionality is applicable to natural language if we carefully restrict ourselves to purely literal readings of sentences. The problem, as I see it, is in an overestimation of literal usage. Truth-conditional semantics rigorously adheres to compositionality and thus treats natural language just as one might approach predicate calculus. In doing this, it is possible to forget just how pervasive non-literal expression occurs in natural language, a phenomenon utterly lacking in an artificial language. As I have argued in this essay, one species of non-literal usage that has managed to elude academic scrutiny is what I call a semantic course correction.

Using predicate calculus as a guide, truth-conditional semantics would assume that a literally true discourse would consist of a series of sentences combined with logical connectives in such a way that the larger discourse would be literally true. However, as I have indicated, truthful discourse in a natural language need not be of this form. In actual practice, language users do not adhere to Grice's maxim of quality by producing a series of sentences bearing a semantic truth value of true. Indeed, this is beyond the abilities of an ordinary language user. Rather, because language is a practical method of communication employed by fallible human beings, adherence to the maxim only results in sentences with a pragmatic truth value of true, even when a person is speaking absolutely literally.

Non-literal expression is yet an additional complication. For example, since the pragmatic truth value of a sentence for a language user can change over time, revision and correction is sometimes required. This is also accomplished linguistically and sometimes involves non-literal usage in the form of a semantic course correction. Sentences which may literally be false or anomalous may yet be deliberately uttered for this special function of correction. In this way, the ultimate expression of pragmatic truth sometimes moves forward indirectly, in fits and starts. Language users may make mistakes, but then back up and recover from them.

Again consider the example sentence from Chapter 1, *I bought a copy of Wuthering Heights, but it was actually a book on stamp collecting*. We would indeed expect truth-conditional semantics to evaluate this sentence as paradoxical since it is actually paradoxical. Yet, on the other hand, one may actually utter such a sentence in the scenario outlined in this essay. Indeed, the semantic course correction may be a far more likely utterance in such a circumstance than the literally true sentence *I did not buy a copy of Wuthering Heights*. How is it that such expressions in language are acceptable?

One answer to this question would be the idea that Grice's maxim of quality could act as a *top-down* principle, rather than one which is *bottom-up*. To illustrate, suppose that as language users we simply assume that the maxim of quality is in effect and that it is top-down in that it mandates that an utterance *overall* be "truthful" or, at least, somehow express something accurate or relevant. Next, suppose we encounter a sentence of this type that is literally paradoxical when considered semantically from the bottom up. This sort of clash between a bottom-up semantic interpretation of truth and a top-down pragmatic mandate on truth could be a signal that the expression is intended to be understood in non-literal terms. If this is the case, it represents an important feature of natural language that would have no correlate in predicate calculus.

This could be a plausible explanation of how we know to reinterpret this sentence to mean something on the order of *I wrongly thought that I bought a copy of Wuthering Heights*. Such an interpretation is forced by the fact that the maxim of quality is assumed for the overall discourse but is not required for particular portions of the discourse. The error quotation clause in a semantic course correction thus does not amount to a literal assertion that the sentence bears a semantic truth value of *true*. Rather, it merely references the earlier pragmatic truth of *apparently true* for this sentence for the speaker at an earlier time. It is thus an accurate depiction of an error.

The idea of top-down compositionality is given consideration only on rare occasion in the literature. The most frequent expressions of this idea are to be found in those concerned with computational semantics. For example, Hoard (1998) has argued that in actual language use, the truth of the larger discourse actually takes precedence over the truth of the sentences that form its constituent parts. As he writes, "Natural language inferencing is not at all like that for mathematical logic. In propositional logic and predicate logic, a set of logical operators permit joining components into well-formed formulas, and inferencing proceeds from the (given) truth values of components to the (derived) truth values for whole statements. That is, in mathematical logic, inferencing proceeds

from the bottom up. In natural language it is the other way around. Inferences are made from the top down, from the presumed truth value of the whole to the derived truth value of both explicit components and of inferred semantic structures. The fundamental reason is that the function of language is to communicate” (p. 216).

Hoard approaches this question from the position of developing an adequate computational model of semantics and in this domain he is not alone in this view. In discussing approaches to computational semantics, Nerbonne (1996) concurs with Hoard. He writes, “Bottom-up [ semantic ] processing is only one of many possibilities, not distinctly superior either by virtue of its technical properties or by its fidelity to the psycholinguistic facts. In fact, pure bottom-up processing is clearly poor both in efficiency and as a psychological model .... It is easy to see why this should be, since bottom-up processing restricts the amount of information which is accessible when forming and prioritizing hypotheses. Top-down information can be useful” (p. 474). Considerations of non-literal usage, such as is demonstrated by semantic course corrections, may be but one example of why pure bottom-up semantic parsing is so ineffective as a strategy for computational semantics.

A clash between top-down pragmatics and bottom-up semantics is the best explanation I can think of as to why semantic course corrections may work the way they do. It seems to me that it would have to be some general principle of language operation such as this which is involved, since I have argued in this essay that semantic course corrections occur right across language and not just with specific language constructions. The idea of a semantic course correction thus plausibly explains the imperfective paradox and other puzzles related to the truth-conditional behavior of the English progressive, non-factual *before*, the semantics of *when* clauses and many other instances of interesting linguistic behavior.

Not only is the semantic course correction a reasonable explanation for various phenomena, it is also well supported by a variety of evidence. In addition, it is an appealing notion since it allows us to keep a truth-conditional analysis simple and in correspondence with our intuitions. For example, by appealing to semantic course corrections, the progressive aspect is again understandable as a purely temporal construction, corresponding neatly with the intuitions of native speakers. No new or ad hoc machinery is required for its semantics. The account is merely a combination of the truth conditions proposed by Bennett and Partee (1972, 1978), an event-based semantics, and Grice's maxims.

It seems to me that the idea of the semantic course correction may also have interesting implications for the analysis of certain intensional phenomena which somehow involve a mistaken judgment on the part of some language user. Without disputing the validity or utility of traditional accounts, semantic course corrections may prove helpful in approaching semantic and pragmatic phenomena in a new way. Thus, returning to our standard example, the important point to note is that the error quotation of a semantic course correction, as in the first clause in (82a) below, looks outwardly identical to a literal assertion of fact, as in (82b).

(82a) Beth bought a copy of *Wuthering Heights*, but it turned out to be a book on stamp collecting.

(82b) Beth bought a copy of *Wuthering Heights*.

With this in mind, now recall the example sentence from Chapter 1, repeated here as (83).

(83) Arthur C. Clarke seeks Sherlock Holmes.

The problem with interpreting this sentence extensionally is that there is no individual in the here and now to which the name *Sherlock Holmes* refers. This would not allow us to evaluate this as a true sentence. Indeed, without any referent for one of the two names, a purely extensional semantics would not be able to return any truth value at all. The sentence would thus be anomalous. However, as was discussed earlier, the intensional logic of Montague Semantics provides a solution.

According to a Montagovian analysis, the truth conditions of (83) must be grounded in a possible-world semantics. Thus, informally speaking, (83) would be literally true if in all possible worlds where extensions of both the names *Arthur C. Clarke* and *Sherlock Holmes* exist simultaneously and in which Arthur C. Clarke finds the person he seeks in the actual world, that person is Sherlock Holmes (i.e. the individual to whom the name *Sherlock Holmes* refers). This kind of explanation works well on technical grounds, but many find it unappealing. Perhaps this is because the account depends on the existence of possible worlds where an actual individual (e.g. Arthur C. Clarke) and a fictional character (e.g. Sherlock Holmes) exist on par with one another. Although we may stipulate the existence of such possible worlds, they may indeed strike us as impossible. The actual world is conceivable and so are purely fictional worlds that have some definition on the printed page or the movie screen, but it is difficult to know what to make of a world that mixes reality and fantasy in this way. Just as I expressed concern that Dowty's concept of inertia worlds leads us to

ask how we might determine what “the natural course of events” means, the concept of possible worlds leads us to the difficult question of how we decide what “possible” means.

Let us imagine under what conditions (83) would be considered to be a true sentence. Of course, (83) could be true if the name *Sherlock Holmes* is meant to refer to books featuring the character Sherlock Holmes or some other extensional entity in the actual world. However, this is not the kind of interpretation which is generally considered in discussing such examples in the semantic literature. Instead, a sentence such as (83) is judged to be true in the case that Arthur C. Clarke is either mistaken or uninformed of the facts. For example, Arthur C. Clarke might believe that some actual individual bearing the name *Sherlock Holmes* indeed exists or perhaps that Arthur C. Clarke is not sure whether such an individual exists or not, but attempts to find such an individual just in case such an individual does exist. Thus, to state the matter more fully, we might assert either (84a) or (84b), as the case may be.

(84a) Arthur C. Clarke seeks Sherlock Holmes, but Sherlock Holmes doesn't exist.

(84b) Arthur C. Clarke seeks Sherlock Holmes, but Sherlock Holmes may not exist.

Note that the sentence in (84a) looks to be a semantic course correction and (84b) is in the form of a preemptive semantic course correction.

For this reason, I think that it is at least possible to question the traditional thinking about such examples. There seems room for some doubt as to whether an assertion of (83) in this scenario is indeed perfectly literal and semantically true. Error quotations in English look outwardly identical to assertions of fact, yet are not interpreted in this way. If such an utterance of (83) is indeed an error quotation and not a literal assertion of fact, the sentence would then be about Arthur C. Clarke's pragmatic understanding of conditions in the world, rather than conditions as they actually are. That is, it is irrational to seek an individual who one believes does not exist, but it is not irrational to seek someone who one believes does exist or, at least, may exist.

The purpose of this essay is only to introduce the concept of a semantic course correction and demonstrate its utility in solving a number of interesting problems. Therefore, I now close and devote no more space to a discussion of semantic course corrections and their possible application to other questions of intensionality. Yet, I do want to leave the reader with the notion that semantic course corrections could possibly represent a supplementary methodology to deal with many puzzling issues in semantics and pragmatics.

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Undergraduate Adviser, Department of Linguistics, UW, 1995 – 1997. Assisted students with curriculum planning and with all manner of questions, problems, and concerns. Served as contact with the public to answer questions concerning linguistics. Enrolled students as majors and minors in linguistics programs. Numbers of majors in the Department rose from 48 in Autumn 1995 to 87 in Spring 1997 and minors in linguistics rose from 0 to 9 in the same period.

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“An Account of German Plural Formation Using an Analogical Computer Model,” August 12, 1996. The Eighth European Summer School in Logic, Language and Information (ESSLLI '96), sponsored by Charles University and the Czech Technical University, Prague, Czech Republic.

“An Analogical Approach to Plural Formation in German,” March 31, 1996. The Twelfth Annual Northwest Linguistics Conference (NWLC '96), University of Washington, Seattle, WA.

“The Illusion of Internal Chronology in Malory’s *Le Morte Darthur*,” November 7, 1992. The Twenty-third Annual Interdisciplinary Committee for the Advancement of Early Studies (CAES) Conference, Ball State University, Muncie, IN.

“Questions of Internal Chronology in Malory’s *Le Morte Darthur*,” October 12, 1992. English Department Colloquium, Wright State University, Dayton, OH.

**WORK PUBLISHED**

"Applying AML to the German Plural," in Royal Skousen (ed.) *Proceedings of the First Conference on the Analogical Modeling of Language*. (forthcoming). (proposed title for the proceedings: *Analogical Modeling: An Exemplar-Based Approach to Language*.)

"The Imperfective Paradox in the English Progressive and Other Semantic Course Corrections," PhD dissertation, University of Washington, 2000.

"An Account of German Plural Formation Using an Analogical Computer Model," in *Proceedings of the First ESSLLI Student Session at the Eighth European Summer School in Logic, Language and Information (ESSLLI '96)*, 1996, 92-96.

"An Analogical Approach to Plural Formation in German," in *University of Washington Working Papers in Linguistics Vol. 14 — Proceedings of the Twelfth Annual Northwest Linguistics Conference (NWLC '96)*, 1996, 239-54.

**MEMBERSHIP IN ACADEMIC ORGANIZATIONS**

The Linguistics Society of America, 1998 – present.

Die Gesellschaft für Semantik (German Society for Semantics), 1997 – present.

Linguistic Society at the University of Washington (LSUW), 1994 – 2000. Vice President and Treasurer, 1996 – 1997. Was responsible as Vice President for Linguistics Department Colloquium Series (32 talks in all). As Treasurer managed the budgetary accounts of the Society.

Phi Kappa Phi National Honor Society, Wright State University Chapter, 1993 – present.

Delta Phi Alpha National German Honor Society, University of Nebraska Chapter, 1989 – present.

**ADDITIONAL EDUCATION**

Eighth European Summer School in Logic, Language and Information (ESSLLI '96) at Charles University and the Czech Technical University, Prague, Czech Republic, 1996.

Summer School in Czech Language and Slavonic Studies at Palacky University, Olomouc, Czech Republic, 1995.

**Air Force Training, Goodfellow Technical Training Center, Goodfellow Air Force Base, TX, 1989. Trained as an Air Force briefing officer. Learned to deliver various kinds of briefings to aircrews and senior officers. Curriculum stressed effective public-speaking skills.**

**Coursework, University of Nebraska, Omaha, NE, 1982 – 1988. Classes in mathematics, computers, and German.**

#### **SCHOLARSHIPS**

**Four-Year Undergraduate AFROTC Scholarship, 1984 – 1988, Northwestern University. After graduation, served for five years as an Air Force officer. Attained the rank of Captain and was awarded the Meritorious Service Ribbon (1993).**

#### **FOREIGN LANGUAGE KNOWLEDGE**

**Czech (fluent), German (fluent), Hindi, Russian, and French (some knowledge).**