INTERPRETING THE SPANISH *IMPERFECTO*:

ISSUES OF ASPECT, MODALITY, TENSE, AND SEQUENCE OF TENSE

DISSERTATION

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ABSTRACT

The present dissertation follows from the growing confluence of traditional perspectives regarding Spanish tense and aspect with formal research in tense, aspect, and modality in general. This dissertation provides an overview of proposals made relative to the Spanish imperfecto in particular, but draws on parallel studies involving French and English. The areas of aspect, modality, tense, and sequence of tense are treated.

Chapter 2 deals with the neo-Reichenbachian notions of reference and event times, and provides a preliminary formalization of these notions in an interval semantics. Several empirical tests are provided to isolate the necessary and sufficient properties of the relation between the reference time (or time of evaluation of the imperfecto) and the event time (which is ultimately left implicit) to be modeled in a truth conditional semantic framework.

Chapter 3 presents the model ontology and formal language to be used in this analysis and provides a base case definition of the imperfecto. The model assumes that both times and events are primitive, and entities of each type are represented in the formal language. Chapter 4 seeks to formalize the modal and other aspectual relations responsible for the various readings of the imperfecto in conjunction with its base definition given in Chapter 3.
Chapter 5 compares the *imperfecto* and the periphrastic progressive, with both *pretérito* and *imperfecto* auxiliaries. And Chapter 6 deals with the interpretation of tense morphology and the interaction between matrix and embedded tensed forms in both complement and relative clauses. In this chapter, a modified sequence of tense rule is also proposed, which accounts for the sequence of tense phenomenon directly within a morphological module of the grammar, rather than in the syntax or semantics proper.
Dedicated to my wife Laurie

and our three children Sariah, Benjamin, and Miriam

😊
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CHAPTER 1

INTRODUCTION

The focus of this dissertation covers the full range of meanings which can be inferred from the imperfecto. This includes the traditional discussion of imperfective aspect and past tense, as well as other concerns that have become increasingly prominent in the formal semantics literature in the last decade and a half. As a complementary topic to imperfective aspect, I will discuss in detail the role of various types of modality and their effect on aspectuality, and complementing the topic of tense I will discuss the formal details of sequence of tense.

The notion of aspect has traditionally been described as the perspective the speaker takes relative to an event. Imperfectivity can be understood as an “internal view” of an event vs. the “external view” we associate with perfectivity (cf. Comrie 1976 and Smith 1991). In turn, this internal/external perspective affects the way events may be related to one another in a narrative. The juxtaposition of an external view of one event with the internal view of another allows us to imagine the first event taking place properly within the temporal confines of the other, while the external view of two events
allows us to imagine them taking place consecutively. These are respectively illustrated in (1) and (2).

1. Manuel se despertó. Estaba lloviendo.
   
   *Manuel woke up. It was raining.*

   
   *Manuel woke up. He dressed quickly.*

To capture this distinction formally, linguists have extended Reichenbach’s 1947 treatment of tense. Reichenbach saw tense not simply as relating the time an event takes place to the time such a proposition is uttered, but as a three way relation between the speech time (S), the event time (E), and an additional reference time (R). Reichenbach originally conceived of these each as points in time, though in more modern theories, these sorts of relations have generally been understood to hold between intervals. Reichenbach’s reference time was originally proposed to account for the temporal relations implied by perfect tenses, where an event is understood to take place prior to some other point of reference, which in turn may be independently related to the speech time. The reference time was also employed to capture the complex meaning of the conditional, which is understood as a future relative to the past. With some notational revision (Hornstein 1990, *inter alia*), this gives us the present perfect (R = S, E < R), the pluperfect (R < S, E < R), the future perfect (S < R, E < R) and the conditional (R < S and R < E).
For the simple tenses, however, the reference time was originally taken to be somewhat redundant in that it was simply equated with the event time.\textsuperscript{1} The simple past, for example, could be described as $R < S$ and $R = E$. With the advent of tense logic based on intervals instead of moments of time, and the consequent possibility of defining inclusion relations between intervals, an added degree of nuance was added to the old Reichenbachian view. Now the reference time, understood now to be an interval, could be understood to be included within the event time (likewise an interval) or vice versa (cf. Hinrichs 1986, Klein 1994, García Fernández 1999, 2000).

This has facilitated distinguishing between perfective and imperfective past forms in the Romance languages, such that the simple (perfective) past can be associated with the temporal configuration $R < S$ and $E \subseteq R$, while the imperfective past can be associated with the temporal configuration $R < S$ and $R \subseteq E$.\textsuperscript{2} This sort of analysis has become predominant in more recent but traditional grammars of Spanish.

However, from the perspective of a model theoretic or truth conditional semantic approaches, which has not had as profound an impact on Spanish linguistics in general, this simple treatment is not sufficient. The problems arise partly due to a greater concern

\textsuperscript{1} Dowty 1982, for example, proposes a dual index tense system in which the two indices $i$ and $j$ refer to what we might consider analogous to Reichenbach’s event time and speech time respectively. Only in the case of perfects is an additional temporal index required, making the analysis again parallel to Reichenbach’s analysis of perfects.

\textsuperscript{2} While Hinrichs 1986 provides an explicit denotation for these symbols, in the more traditional neo-Reichenbachian literature, such as Klein 1994 and García Fernández 2000, this sort of notation is employed despite the fact that it is not associated with any explicit or formalized meaning. I will discuss how the intuitions expressed by these authors may be worked into a more explicit formal definition of aspect within an interval semantics in § 2.2. and within a model assuming both intervals and events in § 3.3.2.
for determining all logical entailments, and partly from the notions of compositionality
and truth valuation itself, assuming an interval semantics.

In such a framework, the event time may be defined as some interval $E$ such that
the proposition which describes that event must be true relative to $E$. In this case, let such
a proposition be (3), which describes an event which takes place over a period of time
from 3:00 PM Monday to 5:00 PM Tuesday. At the earlier time, María picks up $Don
Quixote$ and starts to read, while at this latter time she finishes the book.

3. María lee $Don Quijote$.

$María$ reads $Don$ Quixote.

Now if we pick an arbitrary time $R$ during this interval $E$, such as 2:00 AM
Tuesday, we can describe this event as being in progress at $R$. In other words, we can
assert that 2:00 is a time within that interval $E$ by using the $imperfecto$. This time is the
reference time.

4. María leía $Don Quijote$ a las 2 de la mañana.

$María$ was reading $Don$ Quixote at 2:00 in the morning.

We can now sketch the following temporal relations in (5). By virtue of imperfectivity,
the reference time is properly included in the total time it take for the event to take place.

5. 

\[ \begin{array}{c}
\text{E} \\
R = 2:00
\end{array} \]

Logically we can analyze this sentence as in (6).

6. PAST [IMP [María lee $Don Quijote$]]
If we make some minimal assumptions about the formalism, this sentence might have the following truth conditions. I will use the variables \( \phi \) and \( \psi \) to represent the entire nuclear scope of any operator, such as PAST or IMP. PAST(\( \phi \)) is true at \( S \) (speech time) iff there is a time \( R \) (reference time) which is before \( S \) and \( \phi \) is true at \( R \). On the other hand, IMP(\( \psi \)) is true at \( R \) iff \( R \) is included within some interval \( E \) (event time) and \( \psi \) is true at \( E \).

This strict temporal approach to the Romance imperfect makes erroneous entailments from its progressive interpretation. If \( R \) is a subinterval of \( E \), and \( E \) represents the total amount of time a particular event occupies, then if nothing more is said, it must be the case that there is some actual event that has the duration \( E \). However, this entailment does not always hold, as seen in (7).

7. María se durmió mientras leía Don Quijote.

*María fell asleep while she was reading Don Quixote.*

If \( R \) is a subinterval of the total time it took María to read *Don Quixote*, but she didn’t finish reading it, then \( E \) must be undefined since there is no such event of reading *Don Quixote* (all the way through). So either (7) entails that she ultimately read the whole book, or if she didn’t finish then (7) is false as well.

One might argue (with Parsons 1990) that this is not a problem because \( E \) might be the length of a partial event of reading *Don Quixote*, but then the notion of a partial event still needs to be defined. Furthermore, a strict definition of temporal inclusion of \( R \) within \( E \) is not sufficient to account for the various other readings attributable to the imperfect, such as its future, habitual, and historic or perfective interpretations.
Without going into any more detail with this problem here, I hasten to add that traditional and formal analyses of the Romance imperfect which address only the issue of temporal inclusion, fail to define or justify the other readings of the imperfect. For example, what do the future, habitual, and historic interpretations of the imperfect have in common with the more commonly treated stative and progressive interpretations? Only in the case of the stative, progressive, and habitual readings could we logically argue that the reference time is included within the event time. In the case of its future interpretation, the event normally follows the reference time, while in the historic or perfective interpretation the event seems to be included with the reference time and not vice versa.

These issues and their various corollaries will be discussed in detail in Chapters 2 and 3. In Chapter 2, I specifically deal with the inclusion relation between the reference time and event time, as defined in a truth conditional interval semantics, as well as with other means for defining imperfectivity. At the end of Chapter 2, I offer an initial formal definition of the imperfecto, while in Chapter 3, I extend this basic meaning to its various interpretations and resolve a number of apparent paradoxes that have not been sufficiently dealt with previously.

In Chapters 2 and 3, I also argue that an interval semantics, as illustrated above, is not sufficient to capture all the meanings of the imperfecto and instead adopt the assumption that verbs are predications on events, which themselves occupy a certain amount of time, and I treat times as part of the object level grammar, rather as an index of evaluation.
Chapter 4 is a logical extension from the previous discussion and focuses primarily on the contrast between the imperfecto with its various readings and the periphrastic progressive. For this reason I provide a lengthy discussion of formal analyses of the progressive in general in Chapter 3 so that I may also draw on the details of this discussion in Chapter 4. The Spanish periphrastic progressive has received only ad hoc treatments in traditional grammars (cf. Butt and Benjamin 1990) which focus only on its range of meaning, or its diachronic evolution (cf. Torres Cacoullos 1999), but without any systematic comparison with the imperfecto. This is also a topic which Cipria and Roberts 2000 broach in their analysis of the pretérito and imperfecto, but ultimately sidestep before making any particular claims about it. Hence I felt that such a discussion in this dissertation would be of particular value, not only to give unity to its own range of meaning, but to also motivate its contrasts with the imperfecto.

The final chapter takes up yet another traditional concept, namely that of sequence of tense, but attempts to give some formal substance to the phenomenon. In the philological tradition, the consecutio temporum (i.e., sequence of tenses) was originally conceived to explain the correspondence between a matrix tense and an embedded subjunctive verb. In such grammars, there is a general division made between verb forms in the primary or present series and those of the secondary or past series. The consecutio temporum then requires that a past subjunctive form be used with a past matrix.

In the modern era it has been recognized that this generalization may be extended to a broader set of data including indicative forms as well. This correspondence between matrix and embedded tenses is very unsurprising from our Indo-European perspective
where we take it as natural that a past (imperfective) form embedded within a past matrix clause can and most naturally makes reference to the same past time as its matrix. This is particularly so if the embedded clause is a sentential complement rather than a relative clause.

This “natural” intuition in Western European languages contrasts with some non-Indo-European languages, such as Japanese which treat tenses only in terms of simultaneity or precedence (known as relative tenses since they are calculated relative to their matrix tense), and not relative to the time of utterance (i.e., as absolute tenses, which are independently calculated relative to a single fixed time), as in Reichenbach’s system. Speakers of Spanish and English and other related languages find it intuitive to use past forms embedded in past contexts, even when they make reference to the same time as their matrix and even when they make reference to the future, as in (8).

8. Juan me dijo esta noche que mañana a las 8 le diría a su hermano que estaba listo.

Juan told me tonight that tomorrow at 8:00 he would tell his brother that he was ready.

Juan’s being ready is not only not prior to the time of his telling his brother, it is in the future relative to the time the sentence is uttered. It is difficult to see logically why a past tense form would be used in such a circumstance were it not for some sort of sequence of tense rule.

This Western Indo-European peculiarity has received various treatments in the formal semantic literature since the 1970’s, assuming various syntactic assumptions. My
contribution in this area is two fold. First, I hope to clarify how these various treatments compare with one another in their application to Spanish for both complement and relative clauses, and second to propose a hypothesis within a more highly modular grammar. That is, my proposal attempts to clearly separate syntactic, semantic, and morphological processes, showing how sequence of tense touches each of these areas, but without any of these interfering with the others.

Finally, because the formal mechanics tense and aspect are in many ways not wholly distinct between Spanish, other Romance languages, and English, this dissertation is applicable to a broad linguistic audience, though perhaps more importantly it represents one further step in the process of establishing a formal grammar of Spanish.
In this chapter I will be concerned with the logical characterization of the imperfecto. I will discuss analyses both in the formalized and traditional literature, and show that despite the fact that most of the necessary intuitions are already well know, there are still some adjustments that need to be made. I will touch on the following problem areas: first, (section 2.1.) the relation between reference and event times in a prototypical imperfecto usage; second, (section 2.2.) the compatibility of durative adverbs with the habitual imperfecto and its implications on the conclusions of section 2.1.; third, (section 2.3.) I will discuss some apparently perfective interpretations of the imperfecto, and finally, (section 2.4.) I will wrap up any loose ends and attempt to formalize the various observations made throughout this chapter.

2.1. Reference Times

The relation between the event and reference times is a defining characteristic for aspect. As discussed in Chapter 1, imperfectivity is generally characterized as the reference time included within the event time. This is the way it has been characterized in Neo-Reichenbachian approaches, including Klein 1994 and García Fernández 2000. And
within non-formal grammars, there is an intuitive assumption that in its basic
interpretation, the *imperfecto* makes reference to “*una acción pasada que se presenta en
curso, sin incluir principio o fin*…”³ (Reyes 1990, emphasis mine).

This is also parallel to the way it has been characterized in Kamp style event
semantics, including Kamp and Reyle 1993, Hinrichs 1986, Partee 1984, and de Swart
1998, 2000.⁴ These intuitions may be summarized within a neo-Reichenbachian notation
as the reference time of a verb being included within the time occupied by the total event.

1. imperfective: [R ⊆ E]

The effect of this approach to imperfectivity is that it leaves open the logical
possibility that the total duration of an eventuality be broader than the narrative reference
time, and consequently that other events might be properly included within the total time
covered by an imperfective event. This intuition is also consonant with the standard
formal characterization of atelicity found in Cipria and Roberts 1996, 2000, Krifka 1989,
1992, Dowty 1986, 1979, though these formalisms does not assume this sort of
terminology or representation. However, I think that the relevant intuitions that underlie
these analyses may be summarized for present purposes in these terms without unduly
misrepresenting said analyses.

³ “A past action that is presented en process, **without including the beginning or end**…” translation and
emphasis mine.

⁴ See each of the respective authors for their model theoretic definitions. However, regardless of the
framework, the inclusion relation assumed here may be reduced to a relation between a pair of intervals,
each of which is composed of a set of contiguous moments of times, such that the temporal inclusion
relation is technically defined as the subset relation. I will discuss this relation in greater detail in § 3.3.1.
For the sake of an example, if we assume an interval semantics, the atelicity hypothesis would assert that a proposition which expresses an atelic event can be evaluated as true relative to any subinterval of the total maximal time for which the proposition may be evaluated as true. In parallel fashion, assuming instead a model where an atomic proposition constitutes a predication on an event, every subevent of an atelic event will be of the same type as the total event.

These parallelisms are represented in (2) and contrasts with (3), where the (sub)intervals for which a proposition is true are compared with the (sub)events of which \( P \) is predicated, where \( P \) respectively denotes being sick and building a house\(^5\). Thus we see that if an atelic event \( e \) of type \( P \) takes place over an interval \( i \) (i.e., the proposition is true relative to \( i \)), then every subevent \( e' \) of \( e \) (corresponding to every subinterval \( i' \) of \( i \)) is of the same type as \( e \) itself. For telic events \( e \), this subpart property does not hold, i.e., not all subevents \( e' \) (taking place at subintervals \( i' \)) are of the same type as \( e \).

\[
\begin{align*}
2. & \quad \left[ \begin{array}{ccc}
& i' & i'' & i''' \\
\cdots & [ P(e') ] & [ P(e'') ] & [ P(e''') ] & \cdots \\
P(e) & \end{array} \right] \\
& \left\{ \begin{array}{c}
\text{\( P(e) \)} \\
i
\end{array} \right\}
\end{align*}
\]

\( P \) represents the atelic predicate _feel_sick_'.

\(^5\) I am assuming that events are modeled as a lattice, following Krifka 1992, 1989, Link 1987 (cf. Link 1983), and Bach 1986. In such a model every event may be mapped to the time which it occupies, which is known as its temporal trace or temporal extension. For those not familiar with these hypotheses, it is sufficient to imagine that an event is simply a state of affairs in the world that takes up a certain amount of time, and which may be witnessed at different points or for varying lengths of time. Intuitively what is witnessed in each case is merely a subevent of the total event that could potentially be witnessed. An atelic event will look about the same no matter when or for how long it is observed, while a telic event requires that the whole event (or at least the end of it) be observed.
3.

\[ \text{P(e)} \]

\[ \vdash \neg P(e') \] \[ \neg P(e'') \] \[ \neg P(e''') \] \[ \ldots \]

\[ i' \quad i'' \quad i''' \]

\[ P \]

\[ i \]

\[ \text{P represents the telic predicate } \text{build}_a_{-_a\text{house}}'. \]

It is because of atelicity, or what we might call the uniform subpart property\(^6\), that the imperfective reference time may be properly embedded within the total event time, since the same truth valuation will be arrived at regardless of how much of the event is considered. This observation underlies why Cipria and Roberts 1996, 2000 choose to characterize the semantics of the *imperfecto* not in terms of a relation between a reference time and an event time per se, but simply in terms of atelicity, or the uniform subpart property.

Whether imperfectivity is characterized as the evaluation time included within the event time, or in terms of atelicity, the net effect is really the same: imperfectivity is formalized to imply that any part of the total event or event time may be correlated with the current narrative reference time.\(^7\) I wish to reiterate that this formalization also implies that the reference time may be equated with the total event time, for which I will refer to this status quo analysis of imperfectivity as the **non-proper subpart hypothesis**.

The non-proper subpart hypothesis found in the formal literature stands in opposition to

---

\(^6\) I have used the term *subpart* to generalize over subevents, subintervals, and subsituations, borrowed from variously formalized analyses, inasmuch as there is a general correspondence between these.

\(^7\) The relation between the proper inclusion of the reference time and the subinterval property is described in detail in Dowty 1986, pp. 48-50.
what I will call the **properly internal reference time hypothesis** found in Reyes’ 1990 description of the basic meaning of the *imperfecto* cited above.

According to this implicit hypothesis, it is assumed that an imperfective perspective on an event (orientation of the reference time) is properly internal, excluding both beginning and ending. This hypothesis could also be referred to as a *proper* subpart hypothesis as well. In the next two sections I will evaluate the accuracy of each of these views.

**2.1.1. The Properly Internal Reference Time Hypothesis**

When relating a past narrative, the use of the *imperfecto* is frequently understood to imply that some state or circumstance begins before another event and continues on beyond it. While this is frequently the case, I will show that it is not quite accurate, even in what we might think of as prototypical cases. Consider example (4) as the introduction to a narrative.


   *It was a beautiful day. It was sunny but it wasn’t too hot.*

   It is quite natural in this context to assume that once the action begins, it will still be a beautiful day and it will still be sunny and still not be too hot. These circumstances will quite felicitously continue beyond the initial point of reference. This observation no doubt underlies the traditional assertion that the *imperfecto* describes an event without reference to its beginning or ending. However, if we encode this as a semantic stipulation, as in (5), this hypothesis runs into trouble in cases where there is the
possibility or requirement that a state or circumstance expressed in the *imperfecto* is understood to end at the same moment as another event.

5. \[
\text{[[IMP}(\phi)]^t = 1 \iff \text{there is an interval } R \text{ prior to } t \text{ such that } \phi \text{ is true at } R \\
\text{and there is some maximal interval } E \text{ such that } R \text{ is a properly internal subinterval of } E \text{ (i.e., } R \text{ is non-initial and non-final) and } \phi \text{ is true at } E.\]

### 2.1.1.1. Terminations

It appears that an example like (6) is ambiguous, since it could mean that the speaker woke up when his interlocutor called on the phone, or that he missed the call because he stayed asleep. But to claim that this is a semantic ambiguity is hardly justifiable considering that the different interpretations arise from our knowledge of the world and not from the grammar of the sentence. Rather, the difference in interpretation in (6) ought to be attributable to different background assumptions. That is, it is the interlocutors who know from their knowledge of the context whether the speaker awoke or not, which knowledge respectively cancels any implicature of continuation or not. They would mutually understand the intent behind (6), either to explain why he sounded groggy on the phone and acted incoherent, or to explain why he didn’t answer at all, even though he was there at the time.

6. Estaba dormido cuando me llamaste anoche.

   *I was-*IMP asleep when you called last night.*

---

8 In all fairness, it should be recognized that this hypothesis is never overtly stated in traditional grammars, and that this characterization of this traditional intuition as a semantic requirement is probably stronger than what is assumed by traditional grammarians. It is merely instructive to actually test this hypothesis in its strongest possible form to clarify exactly what this intuition could or could not imply.
7. Recogí el libro cuando estaba sobre la mesa.
   
   I picked up the book when it was-IMP on the table.

   The context of (6) contrasts with that of (7), where the state of the book being on the table necessarily came to an end, in virtue of the meaning of the verb recoger (to pick up). In other words, the meaning of the verb precludes any inference that the imperfecto event should continue beyond its reference time. But again, (6) and (7) are not really non-prototypical cases as much as ones where continuation of a state beyond the reference time is called into question for very natural real world reasons, whereas in (4) our real world knowledge of time and weather conditions leads to a continuative reading.

   On the other hand, in defense of the properly internal reference time hypothesis in (5), one might look to the progressive reading of the imperfecto, where the culmination of a telic event is systematically excluded from the reference time. Such a case is seen in (8)--Cipria and Roberts’ 2000 example (54a)--and (9), where the current narrative reference time could never include the moment when Claudia arrives at the far side of the street.

8. Claudia cruzaba la calle cuando la atropelló un camión.
   
   Claudia cross-IMP the street when CL-fem strike-PRET a truck.
   “Claudia was crossing the street when a truck struck her.”

9. Claudia cruzaba la calle cuando la vieron.
   
   Claudia cross-IMP the street when CL-fem see-PRET-3rd-PL
   “Claudia was crossing the street when they saw her.”

   While it is true that in the case of a progressive reading, the culmination of an event is always understood to be posterior to the reference time (that is, if it ever happens), the reason for this is arguably not simply aspectual. There is clearly some
additional mechanism at play in such cases, as alluded to in the introductory chapter and which I will briefly discuss here, but will treat in more detail later on.

2.1.1.2. A Sketch of Progressives

Since Dowty 1977 it has been understood that the progressive requires an additional modal or intensional component beyond the simple subevent treatment discussed above. Dowty 1977, 1979 has shown that a strictly temporal account of the progressive leads to incorrect entailments. In such a temporal account, the progressive (PROG\(\phi\)) is true at an interval \(i\) just in case there is some superinterval \(i'\), which does not have \(i\) as its final subinterval, and \(\phi\) is true at \(i'\). The problem is that this implies that if a progressive is true at all, it is because the full event has or will ultimately have culminated (in the real world). In other words, if (10a) is true, then either (10b) or (10c) would also have to be true, which clearly is not the case.

10. a. John was drawing a circle.
   b. John drew a circle.
   c. John will have drawn a circle.

Dowty’s intuition then is that the progressive relies on some means for extrapolating what is taking place at a given moment in time (i.e., the evaluation or reference time of the progressive) via some modal relation into related possible worlds at a posterior time when the event does finally culminate.

The details of this intensional relation have been revised a number of times since Dowty 1977, and have received the name of the inertia worlds analysis since Dowty 1979. The gist of this intensional relation is that if an event is permitted to continue
without interruption (perhaps contrary to real world facts), it would eventually result in a
certain state of affairs. And it is this final result (whether or not it comes about in the real
world) which ultimately may give meaning to the process under consideration by the
progressive. In this way, Dowty is able to distinguish circle drawing from triangle
drawing, since the two have very different results, without committing to the full
realization of those results in the real world.

Without further pursuing an analysis of progressives here, suffice it to say that the
extra modal component in the meaning of the progressive is what ultimately excludes an
event’s culmination from occurring during the reference time that seems to verify the
traditional intuition that the imperfecto excludes both beginnings and endings of an event
from consideration. However, it should be recognized that this effect is limited only to
the progressive interpretation of the imperfecto and should not necessarily be considered
part of a unified underlying logical meaning.

In any case, both the progressive and stative readings of the imperfecto are
compatible with the possibility that said processes or states either continue or come to an
end with the end of the reference time, depending on contextual factors. This can be seen
in (8-9), repeated here as (11-12). In (11) not only is Claudia’s arrival on the other side
of the street excluded from the reference time, but the process of crossing is also brought
to an end along with her getting hit by a truck. In (12), despite the fact that her arrival on
the other side is still excluded from the reference time, context suggests that the process
of crossing itself continued beyond the time that she was seen, even if ultimately she still
never makes it to the other side.
11. (= 7) Claudia cruzaba la calle cuando la atropelló un camión.  
*Claudia was crossing the street when a truck struck her.*

12. (=8) Claudia cruzaba la calle cuando la vieron.  
*Claudia was crossing the street when they saw her.*

I have tried in this subsection to debunk the implicit hypothesis (formalized in (5)) that the imperfecto necessarily excludes event endings from its evaluation time, even with the caveat that the progressive meaning seems to have this effect at some deeper level. But aspectually speaking, the imperfecto is compatible not only with an implicit continuation of an event or state beyond the current narrative reference time, but also with the possibility that it be cut short at that time as well.

2.1.2. The Non-Proper Subpart Hypothesis

Because of the reasons I discussed in the previous section debunking the properly internal reference time hypothesis, it seems reasonable to assume that this justifies the non-proper sub-part hypothesis, reflective of the relation given in (1), and formalized as in 13.

13. $\text{[[IMP(\phi)]]}^t = 1$ iff there is an interval $R$ prior to $t$ such that $\phi$ is true at $R$ and there is some maximal interval $E$ such that $R \subseteq E$ and $\phi$ is true at $E$.\(^9\)

That is, since the imperfecto must be compatible with the termination of a state, it must be the case that the reference time need not be a proper subinterval. However, I will show that this is generally not so either.

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\(^9\) Of course we must also include the caveat here that $\phi$ may be true at $E$ in worlds other than the real world, as discussed relative to the progressive interpretation of the imperfecto.
In examples (6-9), repeated here as (14-17), we must understand the *imperfecto* states and processes to have begun prior to the punctual events which they overlap, despite the fact that in some cases their endings coincide. Gennari 1999 goes so far as to claim that the *imperfecto* consistently lacks an inchoative reading, though without justifying why this should be so. Both of these observations (regarding non-initial and non-inchoative readings of the *imperfecto*) can be accounted for if the initial subinterval of the event time is systematically excluded from the reference time of the *imperfecto*.

14. (= 6) Estaba dormido cuando me llamaste anoche.
   *I was-IMP asleep when you called-PRET me last night.*

15. (= 7) Recogí el libro cuando estaba sobre la mesa.
   *I picked up-PRET the book when it was-IMP on the table.*

16. (= 8) Claudia cruzaba la calle cuando la atropelló un camión.
   *Claudia was-IMP crossing the street when a truck struck-PRET her.*

17. (=9) Claudia cruzaba la calle cuando la vieron.
   *Claudia was-IMP crossing the street when they saw-PRET her.*

A potential counterexample to this non-initial subinterval hypothesis is found in cases where because of context or semantics, the *imperfecto* eventuality is a new state that is entailed to immediately follow a previous event. Examples (18-19) are adapted from Dowty 1986. Because these express new states that properly follow the other events, Dowty’s argument would say that these *imperfecto* eventualities have an inceptive reading.

18. Elena ya se había acostado y ahora repasaba todos los eventos del día en su mente. De repente, estaba profundamente dormida.
   *Elena had already laid down and now was reviewing all the events of the day in her mind. Suddenly, she was (IMP) deeply asleep.*
19. Alguien apagó la luz. (De repente) no se veía nada.

Someone turned off the light. (Suddenly) nothing was seen (IMP) [i.e.,
nothing could be seen]

However, I would like to clarify how the advancement of narrative time is related
to the event time in such cases by adapting some points made in the same Dowty 1986
paper. In a case like (18) (similar to his (9) and (26)), Dowty argues that despite the fact
that we normally infer that a state obtains prior to its reference time in English, this is not
in fact a semantic requirement. That is, Dowty argues that due to the subinterval property
of states, they are simply semantically compatible with a properly included evaluation (or
reference) time and that the interpretation that the state obtained earlier than the
evaluation time arises as a pragmatic inference. In (18), the adverb de repente arguably
would cancel the implicature that Elena’s sleeping began before the reference time, and
therefore its beginning is understood to coincide with its reference time.

However, in his discussion of progressives, Dowty brings up a second possibility.
In this discussion, Dowty assumes his 1979 analysis of the English progressive, in which
PROG(∅) is true of a proper subinterval for which ∅ is true. Because this stipulation may
be satisfied by any arbitrary subinterval for which ∅ is true, the net effect is that
progressives also satisfy the definition of states, and therefore are assumed to behave
similarly to states in narrative.

On the other hand, unlike the interpretation of states in English, English
progressives seem to be much more resistant to an inchoative interpretation. I will ignore
for now the possible rationales Dowty offers for why this might be so. The relevant
observation here is that apparent inceptive interpretations of English progressives seem to
fall into a consistent pattern, which Dowty describes as “a very particular psychological effect on the protagonist of the narrative,” namely that “an event begins to happen, but it is only after it is already in progress that the protagonist realizes what is going on” (p 56). This effect can be seen in (20), while the absence of this effect makes (21) odd.

20. In the darkness, John felt his way up the stairway of the dilapidated old house. Halfway up, there was a loud cracking noise under his feet, and suddenly he was falling through space. (Dowty’s example (37))

21. John dropped the letter from the bridge and watched it hit the swiftly flowing water. (Suddenly/the next thing he knew), the water was carrying the letter downstream and out of sight. (Dowty’s example (40))

In such cases, the narrative time advances from the time of the previously mentioned event, “skips over” the moment when the event described by the progressive begins, and is aligned with a time when the event is already in progress. As Dowty argues, this sort of skip in the narrative is justified only as a reflection of the protagonist’s perception of the chain of events.

As we apply these intuitions back to the case of the Spanish examples (18) and (19), it should be borne in mind that native intuitions about the imperfecto pattern more closely with intuitions about the English progressive in its resistance to inchoative interpretations. In cases where a stative sentence receives a true inchoative interpretation in Spanish, the pretérito is preferred, if not required. This is a contrast which simply is not available in English, and of course does not figure in Dowty’s discussion of states.
Therefore, we might argue that Dowty’s discussion of the advancement of narrative time as it relates to progressives is more fitting in describing the effect of the imperfecto in (18). Elena has no consciousness of falling asleep and so the effect of de repente with the imperfecto is to skip over that instant and align the next narrative reference time with the state of her sleeping when it has already come into being. Again, this is similar to the effect of expressions like before I knew it…which imply that a part of the actual chain of events was not perceptually salient to the protagonist. If the instant of falling asleep is “skipped”, then the very next reference time would necessarily be one that excludes the state’s initial subinterval. Without de repente it would sound like Elena was doing all these things while she was asleep, i.e., after she had already fallen asleep.

Example (19) is different, but a similar rationale holds. The fact that the inability to see is entailed as the result of the preceding event is sufficient to validate my claim. If turning off the light implies the transition from light to dark, then at the very next instant, the light is already off and it is already dark. What is being described is a resulting state, whose initiation (initial moment) is the final part of the preceding event and therefore precedes the reference time of the following imperfecto. These examples and intuitions suggest that some sort of compromise between (5) and (13) might be in order, such that R must be a non-initial proper subinterval of E.

2.1.3. Durative Adverbs

More evidence for this claim comes from the widely recognized incompatibility between durative adverbs and the imperfecto and its counterparts in other Romance languages. This is seen in (22a). De Swart (1998) accounts for this incompatibility (in
French) by assuming that such adverbs always have narrow scope relative to the *imparfait*, or in other words, that they are always subject to the aspectual constraints imposed by the *imparfait*. The logical form she assumes is represented in (22b).


                Manuel was-IMP sick for many days.

                b. [IMP [varios días [Manuel estar enfermo]]]

In virtue of Cipria and Roberts’ analysis, the problem with the narrow scope durative adverb can be intuitively captured by the fact that the atelicity or uniform subpart restriction imposed by the *imperfecto* rules it out since the stated duration is only characteristic of the maximal duration of the eventuality, but not of all its subparts (in their case, technically subsituations).

On the other hand, contra de Swart’s assumed structure in (22b), we might imagine that durative adverbs can take wide scope over the *imperfecto*. This is a possibility which Cipria and Roberts provide for, though in so doing incorrectly predict that sentences like (22a) should be licensed with the structure in (22c) below. While it is true that this would avoid the atelicity or subpart restriction of the *imperfecto*, there must be some additional reason why this combination is bad.

22. c. [varios días [IMP [Manuel estar enfermo]]]

As I have discussed such examples with a few native speakers, they tend to agree that cases like (22a) and (23a) are not necessarily ungrammatical (as de Swart 1998 appears to claim), but that they sound contradictory. They have reported that if one were
to say such things, it would sound like one intended to assert that the event lasted no longer than a certain amount of time, while at the same time asserting that the duration of the event was longer still. This intuition fits solidly with the compromise I have proposed between (5) and (13), assuming that a durative adverb is understood to specify the duration of the evaluation or reference time of a verb tense.

23. a. ??Juan estaba enfermo 5 días.
   
   Juan was sick 5 days.

   b. [ [ be sick ] ]

   R = 5 days

If my analysis is correct and the event time associated with the *imperfecto* always begins before the evaluation or reference time, then a durative adverb will always specify a time that is necessarily shorter than the duration of the actual event, which is clearly lacking in informativeness. This problem is visually represented in (23b) above. This problem does not arise for the *pretérito* since its evaluation time can or is equated directly with the time of the event.

2.1.4. Summary

In section 2.1. I have argued for two important facets of the meaning of the *imperfecto*. First, we must account for the possibility that the reference time of the *imperfecto* may include the final moment of an eventuality, despite the fact that a true *telos* will always excluded in cases of a progressive interpretation. The other is that the initial subinterval of an *imperfecto* eventuality must be excluded from the *imperfecto* reference time, implying that *imperfecto* eventualities in a narrative will always be
underway prior to other punctual events which they overlap, and that the *imperfecto* will not be used inchoatively, as well as predicting that the *imperfecto* should be incompatible with durative adverbs, which would need to have access to the entire event time to be felicitous. These observations are captured in the following revised truth conditions of the *imperfecto*.

24. \[
\models_{\text{IMP}(\phi)}^t = 1 \iff \text{there is an interval } R \text{ prior to } t \text{ such that } \phi \text{ is true at } R \\
\text{and there is some maximal interval } E \text{ such that } R \text{ is a non-initial proper subinterval of } E \text{ and } \phi \text{ is true at } E. \]

10 The same caveat still applies.

2.2. Habitual *Imperfecto* and Durative Adverbs

One complication that arises from the analysis I have provided in (24) is that the *imperfecto* is in fact compatible with (wide scope) durative adverbs in one particular case, namely with a habitual interpretation, as in (25). Example (25) contrasts with (26), in which the durative adverb has narrow scope relative to the *imperfecto* (or a habitual operator) and is therefore a part of the event that is iterated habitually.

25. [Durante varios años, [[Enrique hacía ejercicios] todos los días.]]

*For many years, Enrique did-IMP exercises every day.*

26. [[Enrique practicaba el piano [por dos horas]] todos los días.]

*Enrique practiced-IMP the piano for two hours every day.*

If the analysis I have given above is at least on the right track, then for (25) to be licensed, the evaluation time of the habitual *imperfecto* must be able to span the total time of the iteration or “habit”. The problem, of course, is that I have also argued that this is
never the case, and to simply stipulate in the semantics that the imperfecto may have a different reference time only with a habitual reading and not in any other cases would at best be ad hoc. Certainly there is a deeper generalization that can be found to account for this apparent paradox.

To get at this deeper generalization, I will tentatively assume that when we speak about events in time, we make a broad distinction between particular episodes in a narrative and generally iterated or habitual eventualities. Specifically, given the data in section 2.1, the distinction must contrast stative and progressive (and potentially other) readings of the imperfecto, which are incompatible with durative adverbs, from the habitual reading, which are compatible. Some justification for this particular contrast seems to stem from the fact “habits” or event iterations are of a higher order than the particular episodes of which they are composed.

So let us suppose that when we describe episodic eventualities (e.g., stative and progressive ones) in the imperfecto, we relate these episodes with surrounding episodes in a narrative by assuming that the imperfecto episodes are already “holding” by the time of evaluation. This stipulation is in harmony with the general observations made in section 2.1. But when we talk about iterated, habitual eventualities (without regard for particular episodes) no such inference arises. Without this inference, the full event time may be accounted for in the time of evaluation and a durative adverb becomes felicitous.

However, the question arises as to the exact nature of this inference, and whether it is a conversational implicature or a presupposition. According to Dowty 1986, we might guess that this inference is a conversational implicature, which may be cancelled
simply by manipulating the context in which the sentence is uttered. With relation to the English progressive, which similarly exhibits a regular exclusion of the initial subinterval of the event time, Dowty offers the following diagnostic in favor of dubbing this inference a conversational implicature.

Suppose that I bet you $5 that John will be writing a letter at 2PM. At 1:59, he still has not started to write, but at precisely 2PM he begins the letter. Have I won my bet? If so, this is an indication that the added condition is conversational. (pp. 54-55)

A similar argument might be constructed with application to the Spanish imperfecto, implying that the imperfecto (like the English progressive) might simply be compatible with the state or progressive already holding before the reference time, but not require this at any level.

One potential weakness I see in this argument is that the time 2:00 is in fact an interval, not a point in time, so that if John starts writing at any point during that 60 second interval, there will always be some portion of that interval remaining in which his writing is already going on. However, this apparent weakness disappears in the past tense where we have the benefit of hindsight. We might claim that at the precise moment that the clock struck 2 PM (presumably now an instant) John was in the process of writing something, though nothing had actually appeared on his paper yet because, as we could tell only after the fact, that was the first instant of his writing.

So we might argue (following Taylor 1977 and Dowty 1979) that for perceptual reasons, progressives tend to generate the inference that some minimal amount of an
activity has or had already been going on before one finds justification to make an assertion in the progressive, though the semantics does not in fact require this. This added perceptual assumption appears to underlie Dowty’s 1986 claim that progressive sentences are more resistant than stative ones in English to cancellation of what we might term an initial subinterval exclusion implicature.

Returning now to the Spanish imperfecto, we find additional motivation for characterizing this inference of excluding the initial subinterval as an implicature. In this case it is not so much for perceptual reasons (since this rationale should hold only for the progressive interpretation), but because of the contrast between the imperfecto and pretérito itself. As pointed out by Horn 1984, if one grammatical form or construction is marked for a particular meaning, then the unmarked form or construction will be implicated to be insufficient to communicate that meaning, even if semantically its meaning should cover the marked meaning as well.

In the case of the pretérito/imperfecto contrast, it might not be quite so simple as calling one marked and the other unmarked. Cipria and Roberts 2000, for example, claim that the imperfecto is marked for imperfectivity or atelicity, while the pretérito is marked for termination. However, Gennari 1999b, 2002 disagrees with this latter assertion, claiming that the pretérito is semantically only a past tense and not marked at all for aspect. So for the sake of argumentation, let us assume the following tentative

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11 This disparity between the semantics and the normal conversational assumptions associated with the progressive leads Taylor to conclude that a present progressive of an activity does not technically entail its present perfect as traditionally assumed. However, the circumstances surrounding the way the progressive is used in normal conversation do normally justify using both the progressive or the perfect precisely because of the afore mentioned assumption which is also the essence of what we might call the initial subinterval exclusion implicature.
descriptions of the *pretérito* and *imperfecto* in a strictly extensional interval semantics. In this case I have adopted a definition of the *imperfecto* that is closer to Cipria and Robert’s definition than the ones I have proposed above.

27. a. \[ [[\text{PRET}(\phi)]]' = 1 \iff \exists i \ (i < t \& [[\phi]]') \]

b. \[ [[\text{IMP}(\phi)]]' = 1 \iff \exists i \ (i < t \& \forall i' \ (i' \subseteq i \rightarrow [[\phi]]') \]

Admittedly the simple contrast between “reference” and “event time” that I have been assuming is less transparent here. But if, as I have been doing implicitly, we identify the reference time as the nuclear evaluation time, the past interval \(i\) functions as the reference time in both of these definitions. And (27b) comes out saying that in the *imperfecto*, \(\phi\) is true of \(i\) (the base reference time) and every subinterval \(i'\) of \(i\) as well (as if we had multiple reference times). Nowhere in either (27a) or (27b) is a particular “event time” overtly represented, but may be inferred based on the pragmatic principles I have been discussing.

As Gennari 2002 points out, this sort of definition of the *pretérito* is actually compatible with the event time being more extensive than the reference time, making it theoretically possible to have *pretérito* sentences which describe only part of a particular eventuality. This observation implies that both the *pretérito* and *imperfecto* may be used to describe a properly internal subevent of a particular eventuality (usually a state, if this ever happens—see Gennari 2002 for further discussion). Furthermore, according to these two definitions, the *pretérito* and *imperfecto* will entail one another just in case the full event time is identified with the reference time \(i\) and the nuclear proposition \(\phi\) is stative.
This begs the question why (28a) is good while (28b)--a repetition of (23a)--is anomalous (assuming a wide scope durative adverb).

28. a. Juan estuvo enfermo 5 días.

   *Juan was-PRET sick 5 days.*

b. ??Juan estaba enfermo 5 días.

   *Juan was-IMP sick 5 days.*

A possible answer to this question seems to lie in the overall division of labor between the *pretérito* and *imperfecto*. Because, according to (27) the *imperfecto* is marked for the subinterval property or atelicity, it overtly requires evaluation of $\phi$ at intervals properly included in the full event time, despite the fact that $i$ could potentially be equated with that full event time. On the other hand, the *pretérito* is not marked to account for evaluation at properly internal subintervals of the event time, even though theoretically it may. The net effect in usage is that the *pretérito* is pragmatically marked for identifying the reference time with the full event time (though this inference may be cancelled), and so the *imperfecto* becomes unmarked in this regard. This in turn generates the implicature that the reference time is properly included in the event time when, all other considerations being equal, use of the *imperfecto* is contrasted with the possibility of using the *pretérito*. With this in mind, we can understand why it is that a durative adverb (which implicitly assumes that the reference time will be equated with the event time so as to be maximally informative) is most compatible with the *pretérito*. This also explains why the use of a durative adverb with the *imperfecto* is not sufficient justification to cancel the properly included reference time implicature, since the *pretérito*
is already available to more aptly fulfill that function. On the other hand, where the
imperfecto is used to describe a habitual eventuality, this is a function that is not so aptly
fulfilled by the pretérito (though potentially it could) and so the use of the imperfecto is
still justified despite the cancellation of the properly included reference time implicature.

However, this line of reasoning has one apparent problem. The use of durative
adverbs is equally anomalous with a progressive interpretation of the imperfecto as it is
with a stative interpretation. That is, the pretérito is certainly not a viable alternative to
the imperfecto with a progressive interpretation. So according to the inference pattern
described above, the properly included reference time implicature should be cancellable
in such a case, just as it is in the habitual case.

On a second look at this problem, despite the fact that the simple pretérito is not a
viable alternative to express a progressive sentence, the periphrastic pretérito progresivo
is, and in fact is the most natural way to express a progressive meaning with a durative
adverb in the past. (I will discuss this construction in more detail in Chapter 5.)
Therefore, it turns out that because there is a perfective alternative to the imperfecto with
a progressive interpretation, the use of the imperfecto in such a case continues to support
the inference that the reference time is a proper subinterval of the event time, and
therefore fails to be felicitous with a durative adverb.

This implies that the conclusions of the previous section must be revised slightly
to accommodate this division of labor between the semantics and the pragmatics,
therefore favors adopting the definitions in (27) instead. Specifically, the evaluation time
of the imperfecto must necessarily be allowed semantically to coincide with the full event
time. However, there is a strong tendency based on the *pretéritolimperfecto* contrast to infer that, in the absence of any other factors, the use of the *imperfecto* reflects the proper inclusion of the reference time within the event time.

2.3. Perfective Uses of the *Imperfecto*

In attempting to formalize the semantics of the *imperfecto*, I have focused exclusively on everyday conversational usage of the *imperfecto*. However, there are other ways in which the *imperfecto* is used which I have not discussed, most of which would still qualify as imperfective, though one or two documented uses of the *imperfecto* are ironically patently perfective. These are the uses I would like to consider in this section.

The primary case that I would like to discuss, and which has been offered to me as an apparent counterexample to the atelicity based definition of the *imperfecto* put forth by Cipria and Roberts 2000, is the (literary) use of the *imperfecto* with a clear perfective meaning. In such cases, in fact, the *pretérito* would probably be the preferred verb form in colloquial registers, at least in American dialects. Reyes 1990, discusses one such example, (29), taken from a news headline. A corresponding example from French is listed in (30).

   
   *Yesterday die-IMP (= died) Borges in Geneva.*

30. En 1492, Christophe Colomb découvrait l'Amérique. (= Labelle’s (16))
   
   *In 1492, Columbus discovered-IMP America.*

According to conventional descriptions of the *imperfecto*, this should mean that Borges was dying, not simply that he had died the previous day. However, this somewhat
more interpretation of the *imperfecto* implies only that he died. Reyes explains that this usage gives a certain emphasis to the event which overshadows all others during that day, whereas the simple *pretérito, murió (died)* would simply have catalogued the event as one among possibly many others. Likewise, Labelle 2002 describes the effect of the *imparfait* in corresponding French cases as implying that “the interval of time denoted by the adverb has been characterized by some memorable event...” (p. 178) and is “completely affected by this property [i.e., the event description]” (p. 175). While it is not my intent to catalogue all the possible semiotic values the *imperfecto* could have in any discourse context, these descriptions are at least suggestive of a logical characterization which I will attempt below.

Before I move to that step, I wish to include one other example, similar to the previous one in some ways. Reyes notes that the *imperfecto* can also be used to give closure to a sequence of events related in the *pretérito*. She cites from 1974 Spanish grammar of the Real Academia Española the following example.

31. Al amanecer salió el regimiento, atravesó la montaña, y poco después *establecía* contacto con el enemigo.

*At day break, the regiment left-PRET, crossed-PRET the mountain, and a little while later made-IMP contact with the enemy.*

In this context, this final event should not be understood as progressive, though it should also be noted that stylistically this usage is also highly marked. As Reyes explains,
this final *imperfecto* marks the end of a run of events, and has the effect of “freezing” 12
the narrative at that final moment.

I wish to reiterate that the question here is not whether this is a common or
conversational possibility, but rather come to terms with the fact that this is a
grammatical possibility at all, at least within certain registers. On the one hand, we could
assume that this is simply an alternative meaning of the *imperfecto*, which doesn’t happen
to be imperfective in any clear sense, which is certainly possible. However, I believe that
approach should only be used as a last resort if the logic of this usage cannot be
adequately subsumed under the larger umbrella of a unified *imperfecto* meaning.

Of course I have not really discussed the details of my analysis yet, but I will at
least sketch here how an analysis might be pursued that unifies the logic of this apparent
perfective usage of the *imperfecto* with its other more obvious imperfective readings.

As already discussed, imperfectivity may be described in terms of atelicity, or the
truth of a proposition at a given interval *i* and all its subintervals *i’*. And I mentioned
briefly that the progressive component of the *imperfecto* reading is responsible for
relating a telic event to every non-final subinterval of its event time. In this way, the
*imperfecto* is ultimately treated as a (stative) *relationship* between every subinterval of
the evaluation time and a more inclusive (possibly) telic event, and hence the *imperfecto*
retains its atelic character, despite the fact that it may be applied to a telic predicate.

12 This usage is traditionally known as the *imperfecto de ruptura* (*imperfect* of “breaking”) inasmuch as it
breaks a chain of events. This phenomenon is also present in French, under the name of the *imparfait
narratif* (*narrative imperfect*), which, as Labelle 2002 describes, is often used in novels to mark the end of
an episode (178).
In a similar vein, we might say that the perfective usage of the imperfecto relates every subinterval of the reference time to a single salient and complete event within some contextually defined super-interval. This super-interval ultimately may be seen to serve the function of the event time in other interpretations of the imperfecto, though itself does not correspond to the time of the salient event in question. Instead, the complete event will be identifiable as the most salient\(^\text{13}\) event within this super-interval.

The “perfective” interpretation of the imperfecto might be seen as having almost the reverse effect of the progressive reading, in that in the latter case every subinterval of the time of evaluation is related in the same exact way to a single full event\(^\text{14}\) whose event time properly includes the interval of evaluation, whereas in the “perfective” reading, every subinterval of the time of evaluation is related in exactly the same way to a single salient event included within a known interval, which again includes the interval of evaluation. This suggestion might raise a few eyebrows, but let’s consider how the logic of this explanation relates to Reyes’s intuitions.

In (29), Reyes argues that Borges’ death is not seen as just one among many events that occurred that day, but it was the prime event that characterized the day in the

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\(^{13}\) By salient, I do not mean a simple personal notion of saliency, but rather a cultural or historic sense of saliency shared by the language community. This would account for cases like Borges dying or Columbus discovering America. On the other hand, where this usage takes on a more literary function, the saliency might be understood relative to the perspective that the author wishes to emphasize, where saliency is dictated to the reader by the author.

\(^{14}\) In Dowty’s (1979) original inertia worlds treatment of the progressive, he makes no explicit reference to events, nor assumes such in his ontology. However, more recent proposals do generally agree that some sort of ontological entities such as events or situations are needed to make accurate predications. At this point I am intentionally mixing these perspectives, partly to make the parallelism between the progressive and perfective interpretations of the imperfecto more apparent, as well as to foreshadow the hybrid interval/event treatment of the imperfecto I will be assuming in subsequent chapters.
annals of history. Or in (31), the narrative time is arrested and purportedly hangs onto the scene of the final event. These stylistic effects follow naturally from the intuitions I have described, as long as we admit some primitive notion of event saliency, such that some most salient event can be defined relative to any given interval or set of intervals.

Due to these same observations in French, Labelle 2002 argues against de Swart’s (1998) and others’ treatment of the *imparfait* as only expressing ‘homogeneous’ or stative propositions (parallel to the atelicity based definition of the *imperfecto* assumed above). Instead, Labelle argues that the function of the *imparfait* is to “fully characterize” an interval. To this end, she argues that even if an *imparfait* event does not literally occupy all of a given interval, it still metonymically characterizes the entire interval. Though she does not provide an account of the logic of this particular phenomenon, I believe that the intuitions I have sketched above are compatible both with her informal description and at the same time with the broader formal notion of imperfectivity I have been developing to this point. Somewhat paradoxically, then, we might classify this use of the *imperfecto* as both perfective (denoting a complete event) and imperfective (implying evaluation at every subinterval of the reference time).

### 2.4. Other Modal Meanings of the *Imperfecto*

Lastly, I would like to comment on the use of the imperfective forms in Romance languages with modalized functions, as well as in the recounting of dreams, both for sequenced events and states. For example, the *imperfecto* may be used with reference to the future if there is a standing (i.e., atelic) plan (for human events, example (32)) or
principle (such as natural laws, example (33)) at the time of evaluation that predicts the future (telic) event. This reading will be discussed in detail in Chapter 3.

32. El avión llegaba a las cuatro. (from Gennari 2003, example (3))

_The plane was arriving at four o’clock._

33. Eran las 6. Los campesinos comenzaron a preparar el fuego. El sol se ponía a las 6:50. (= Cipria and Roberts 2000, example (39))

_It was-IMP 6 o’clock. The peasants started-PRET to prepare the fire. The sun (would) set-IMP at 6:50._

Similarly, in the more truly modalized uses, which may only be regionally employed, it may be argued that the _relationship_ between the time of evaluation and the _imperfecto_ event is again atelic. This can be seen in expressing wishes, as in (34) below, which might alternatively be expressed in the conditional. Related to this one might also include the use of the _imperfecto_, by or with children, to describe what is being pretended, as in (35-36).

34. (¿Qué te gustaría hacer ahora?) Pues mira, yo _liquidaba_ todo esto y me _iba_ a tumbar al sol. (= Reyes (29), with original italics)

(What would you like to do now?) Well, look, I _get rid-IMP of all this and I go-IMP sprawl out in the sun._

35. Yo era el ladrón y tú el policía, y tú me persegúías. (= Reyes (22))

_I was-IMP the robber and you the policeman, and you followed-IMP me._
36. *Vamos a jugar a que yo era un vaquero y tú eras un indio.* (= Butt and Benjamin 1988, p.202)

*Let’s pretend that I’m-IMP a cowboy and you’re-IMP an Indian.*

In each of these cases, the speaker’s present desire (which is stative) or present imagination “points to” those worlds where the desire or imagination is realized, albeit via a completed telic event in those worlds. And so again, atelicity from the point of view of the time of evaluation may still be preserved, though the tense reference is no longer past.

In the case of dreams, there appears to be a complete loss of aspectual contrast and no apparent logical modal relation. The *imperfecto* simply marks the narration as being from a dream, which Reyes justifies in terms of the tension between the reality of the experience and the patent lack of reality of the events experienced. As she argues, the narration of dreamed events in the preterite or present tense would make the events sound too materially real. And so Reyes identifies the *imperfecto*, with its general modal nature and lack of concreteness, as fitting to express this tension. This explanation leaves little room for a logical semantic formalization and does not appear to bear any of the hallmarks of an underlying atelic evaluation, as with the previously mentioned cases. So perhaps in such a case, which is the best candidate so far for a worst case scenario, it is best to simply assume a strictly stylistic or semiotic motivation for using the *imperfecto*, without attempting to force it into any of the previously mentioned categories.
2.5. Conclusion

In this chapter, I have discussed some of the properties required to give a unified logical characterization of the meaning of the imperfecto. I have focused both on the definition of imperfectivity, and on the inclusion relation between the reference and event times associated with the imperfecto. I have argued that in the semantics the reference time of the imperfecto must be a non-proper subinterval of the event time, but that pragmatically it is nearly always inferred to be a proper subinterval, and where possible a properly internal subinterval.

This inference that the reference time is a properly internal subinterval of the event time may be cancelled any time there is some mitigating factor, either a lexical entailment or background assumption, that favors (or requires) an interpretation of termination at the end of the reference time rather than continuation after it. However, such cases do not affect the inference that the initial subinterval of the event time is still excluded from the reference time. Cancellation of this inference (which is accomplished by identifying the reference time with the event time) is only possible if the pretérito (alone or in a periphrastic construction) is not a favorable alternative, as in the case of habitual sentences.
CHAPTER 3

TOWARDS A FORMAL ACCOUNT OF THE IMPERFECTO

In the preceding chapter I have discussed some core problems involving the notion of imperfectivity, such as the inclusion of the evaluation time within the “event time”\(^{15}\), whether this is a proper or non-proper inclusion, and the subinterval or atelicity property that gives substance to the notion of imperfectivity. I have shown that these two basic logical properties (i.e., inclusion and atelicity) can be identified in a wide range of uses of the imperfecto. In addition, I have argued (following Cipria and Roberts 2000, to be presented in more detail below) that the primary difference between the various interpretations of the imperfecto lies not in an aspevtual difference per se, but in the types of modality that are expressed. In so doing, I have outlined the intuitions that should be included in an account of the imperfecto.

In what follows, I will formalize a base case meaning of the imperfecto for expressing stativity. This will be extended in Chapter 4 to cover the remaining range of meanings of the imperfecto within these formal parameters. That is, in this chapter and in

\(^{15}\) I have put “event time” in quotes here since after the discussion in section 2.3., it hardly seems plausible anymore to call what is being evaluated an event in its normal sense. As discussed, in many cases, the “event time” is really the time at which a certain defined relation holds with regard to the event described by the atomic proposition.
the next, I will focus on how these meanings formally satisfy the atelicity requirement imposed by the *imperfecto*, and attempt to describe the distinct types of modality in each case. In this discussion I will pay particular attention to the analyses of Cipria and Roberts 2000 and de Swart 1998 relative to aspectual interpretation in Spanish and French respectively.

3.1. Base Case and “Extended” Meanings

One core contribution of Cipria and Roberts 2000 (*cf.* Cipria 1996) is to offer a unified account for the various readings of the *imperfecto*, including stative, progressive, and habitual readings. Similarly, de Swart 1998 provides a parallel account for these three readings of the French *imparfait*. Neither of these analyses, however, makes any attempt to cover the apparent ‘perfective’ interpretation of the imperfect, nor its (non-past) modal/counterfactual readings. And only Cipria and Roberts make any reference to the future reading, which they propose to simply subsume under the progressive reading.

According to these analyses, the core categories of meaning of the *imperfecto* and *imparfait* have as common denominator the uniform subpart property (or subinterval property), though the additional meanings beyond simple stativity are taken to be derivative of additional mechanisms. De Swart’s progressive reading, for example, is seen as the product of an intensional function that relates a telic event description to a corresponding atelic event description. The habitual reading likewise might be seen as the product of a function that relates an event of any type to the regular iteration of that event over an extended period of time in some systematic way, making it again a homogeneous
or atelic eventuality. I will discuss the details of each of these accounts, as well as provide some critique and refinement below.

I will begin with some background to Cipria and Roberts, since their analysis makes a lot of particular non-obvious assumptions. They employ a situation semantics, in the spirit of Kratzer’s situation semantics (cf. Kratzer 1989, 1998, 2002). The overall effect of their situation semantics is similar in many ways to the models of events assumed by Krifka (1989, 1992), Link (1987), and Bach (1986), which assume, among other things, that events may be ordered in terms of a subevent relation and that events may be mapped to the time which they occupy.

Similarly, Kratzer 1989, for example, assumes a partial order on situations, such that situations are ordered in terms of a “part of relation”, but she further asserts that every situation may be related to a unique maximal super-situation, which in her ontology provides the definition for what constitutes a world. In other words, Kratzer’s situations differ from these other event models in that her situations are understood as sub-worlds. That is, a particular situation $s$ can only be part of one particular world, though $s$ may have counterpart situations in other worlds.

Cipria and Roberts additionally assume that situations have spatio-temporal limits, which make situations a suitable medium for dealing simultaneously with tense, aspect, and modality. As such, Cipria and Roberts assume that every situation may be mapped to a unique interval which represents that time which it occupies.

Furthermore, Kratzer’s theory of situations is also distinct from the above cited theories of events in that she asserts that her situations are bundles of information (what
Kratzer 2002 calls “worldly facts”) that is necessary to verify the truth of a proposition in a particular context. This makes her notion of a situation richer than that of a Davidsonian type event or even an event description (e.g., a VP or complex event predicate--see Portner 1998 for further discussion about the relation between events and event descriptions).

Cipria and Roberts adopt Kratzer’s *exemplify* relation, which tells us how “worldly facts” are understood verify the truth of a proposition. A situation $s$ exemplifies a proposition (or event description) $\phi$ just in case there is nothing in $s$ which is superfluous to determining the truth of $\phi$. Such an exemplifying situation may contain subsituations which are simply too limited to determine the truth of $\phi$, but they will never contain things which are irrelevant to $\phi$. Formally, Kratzer 2002 recaps (from her earlier articles) the exemplify relation as follows.

1. If $s$ is a possible situation and $p$ a proposition, then $s$ is a fact exemplifying $p$ iff for all $s'$ such that $s' \leq s^{16}$ and $p$ is not true in $s'$, there is an $s''$ such that $s' \leq s'' \leq s$, and $s''$ is a minimal situation in which $p$ is true. (A minimal situation in which $p$ is true is a situation that has no proper parts in which $p$ is true.)$^{17}$

Assuming these distinctions and definitions, Cipria and Roberts attempt to incorporate much conventional wisdom regarding tense and aspect (based largely on

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$^{16}$ In Kratzer’s work, as well as for Cipria and Roberts, this denotes the subsituation relation.

$^{17}$ I should note that a proposition may have multiple minimal exemplifying situations if it is atelic or contains an existential quantification or something of that nature, which is what we would expect.
Dowty 1979 and related literature), but apply it specifically to the Spanish
imperfecto/pretérito contrast. Cipria and Roberts 2000 offer definition (2)—their (32)—
of the imperfecto as a tense/aspect operator. This operator assumes two indices of
evaluation, namely a situation and a time, i.e., the time of utterance. The situation index
corresponds to the more traditional world index in that a situation is defined as a subpart
of a world. (Presumably ST would be included within the temporal extension of s, the
“situation of utterance”, though this is not overtly stated anywhere and nothing in this
analysis hinges on that fact since it deals only with the past tense.)

2. \[ [[\text{imperfecto}(\phi)]^{s, \text{ST}} = 1 \text{ iff } \exists s' \leq w_s \left[ s' \prec, \text{ST} \& \right. \]
\[ \forall s'' \left[ s'' \leq s' \rightarrow \forall s''' \left[ R(s''', s'') \rightarrow \text{exemplify}(s''', \phi) \right] \right] \],
where either:
(a) Totally Realistic case: \( R = \{ <s, s'>: s = s' \} \)
(b) Progressive case: \( R = \{ <s, s'>: s \text{ is an inertia situation for } s' \} \),
or
(c) Habitual case: \( R = \{ <s, s'>: s \text{ is a characteristic } \)
\[ \text{subsituation of } s' \} \]

The first stipulation of the truth conditions asserts that there is a situation \( s' \) which
is a subpart of the world of evaluation. That is, both the index of evaluation \( s \) and the new
situation \( s' \) are subparts of the same world \( w_s \). Next, \( s' \) is temporally prior to the time of
utterance, as indicated by the relation \( \prec \), which denotes temporal precedence, as opposed
to \( \leq \), which denotes the subsituation relation.

\[ \text{This rendition of the imperfecto makes it impossible to account for the embedding of additional tensed clauses. I will return to this problem in Chapter 6, dealing with the sequencing of tenses.} \]

\[ \text{The temporal extension of a situation is defined in terms of the function } \text{Time, which maps a situation } s \text{ to the time that it occupies. For example, if the temporal limits of a situation } s \text{ are identical to an interval } i, \text{ then } \text{Time}(s) = i.} \]
The second line of the truth conditions relies on two additional restrictive clauses, introducing all subsituations \( s'' \) of \( s' \), and all \( s''' \) related in some way to \( s'' \). The restriction to all subsituations \( s'' \) of \( s' \) is where the atelicity condition (or uniform subpart property) is enforced, and serves as the common thread among all uses of the \textit{imperfecto}.

On the other hand, the situations \( s''' \) are all those situations that actually exemplify the event description \( \phi \), and may be of any type, telic or atelic. In the case of simple states (the totally realistic case), given that \( s''' = s'' \), it follows that all subsituations \( s'' \) of the situation of evaluation \( s' \) exemplify \( \phi \). This is just as we should expect as the default case of atelicity with regard to simple states.

In the case of the progressive reading, \( s''' \) may exemplify a telic eventuality, such as \textit{build a house}. All such situations \( s''' \) are those situations which exemplify a full event of \textit{house building} in all possible inertia worlds calculated on the basis of all \( s'' \), and where no \( s'' \) includes the final subsituation of \( s''' \). (The stipulation that the final subsituation—i.e., culmination—be excluded is overtly state in their definition of the inertia relation, p. 324). Furthermore, because all the situations \( s'' \) are subsituations of \( s' \), this makes \( s' \) and all its subsituations \( s'' \) ‘process subsituations’ of \textit{build a house}. This yields the right aspectual result, though some modifications to the inertia worlds relation could be made, e.g., based on Landman 1992 and Portner 1998. These will be discussed in detail, along with the specifics of what is implied by an “inertia” relation in chapter 3.

The result of having an arsenal of accessibility relations at the disposal of the \textit{imperfecto} operator amounts to what de Swart (1998, 2000) refers to as aspeclual coercion. In a nutshell, if an eventuality description (or in Cipria and Roberts’ terms, the
situation that exemplifies such a description) is not atelic, it must be mapped to one that is in order to be compatible with the *imparfait* or *imperfecto*, which imposes atelicity as a precondition. Cipria and Roberts’ relations provide just such a means for relating telic events to atelic ones, such as processes or habits.

De Swart envisions a very similar conceptual approach for the French *imparfait*, but with a very different theoretical architecture. It should be noted, however, that de Swart’s analysis could hardly be classified as a semantic analysis since it deals almost exclusively with the logical form and with DRT construction rules needed to interpret the *imparfait*, without actually providing the semantic details.

In any case, de Swart assumes an ontology of event descriptions that fall into one of three basic categories, namely states, processes, and events. These are categorized according to two crosscutting dichotomies: stative vs. dynamic (non-stative), and homogeneous (atelic) vs. quantized (telic). This ontology is loosely patterned after Bach 1986, Krifka 1989, and Piñón 1995. Modifying her description a bit to facilitate comparison, but retaining its essential qualities, I will assume two binary features, [±stative] and [±telic], where a positive value for both would be contradictory. Thus we have the following classification, shown in (3).

<table>
<thead>
<tr>
<th>Type</th>
<th>Stative</th>
<th>Telic</th>
</tr>
</thead>
<tbody>
<tr>
<td>“states”</td>
<td>+</td>
<td>(-)</td>
</tr>
<tr>
<td>“processes”</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>“events”</td>
<td>(-)</td>
<td>+</td>
</tr>
</tbody>
</table>

By giving these properties primitive status, de Swart claims that the *imparfait* selects only homogeneous [-telic] eventuality descriptions as its argument. While she does not provide her own overt semantic analysis of what this classification represents,
the gist seems to be in line with the spirit of Cipria and Roberts’ analysis. That is, the homogeneity or [-telic] restriction has the same effect as Cipria and Roberts’ atelicity restriction in the second line of their imperfecto truth conditions. But again, since this would create a (syntactic) incompatibility with any eventuality description that is not [-telic], de Swart must provide some means for converting the aspectual type of the argument to match the requirement of the imparfait operator. This is accomplished via a (covert) coercion operator.

3.2. Aspectual Coercion

According to Pinango, Zurif, and Jackendoff 1999, a coercion operator is a functor which is not represented in the syntax, but must be assumed or accommodated within the semantic module of the grammar to achieve a meaningful interpretation. A simple example of such an operation studied by Pinango et al., and which also figures among those coercion operators proposed by de Swart, is one responsible for mapping punctual telic events into iterations of such an event when modified by a durative adverb, as in (4).20

4. John kicked the door for 10 minutes.

\[ S \ [NP \ John] \ [VP \ [v \ kicked] \ [NP \ the \ door] \ [PP \ for \ 10 \ minutes]] \]

\[ \exists x \ (door'(x) \ & \ for' \ (10 \ minutes, \ (ITER(kicked(j, x)))) \]

Because a punctual event cannot be extended over time, the sentence should either be uninterpretable or internally contradictory and hence systematically false. So in

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20 Unfortunately, none of these authors actually provides a semantic analysis to independently validate this syntactic mechanism, but the approach is at least suggestive of how to get around the problem of the variety of aspectual interpretations with a limited amount of truth conditions for the imperfect.
order to salvage the interpretability or communicative value of the sentence, the operator ITER must be inserted before it may be properly understood.\textsuperscript{21}

In like manner, the proper interpretation of the imparfait may be salvaged via the insertion of some operator that is intended to map an eventuality description $\phi$ of a certain aspectual type into a related eventuality description $\phi'$ of the appropriate aspectual type.

5. Anne traversait la rue. (= de Swart, example (26b))

\textit{Anne cross-IMP the street.}

6. $^\text{IMP(e}_{[+\text{telic}]} \Rightarrow \text{IMP(C}_{\text{eh}}(e_{[+\text{telic}]})_{[\text{-telic}]})^\text{22}$

In this case, $C_{\text{eh}}$ is an operator which maps events ($[+\text{telic}]$ eventuality descriptions) to homogeneous ($[-\text{telic}]$) eventuality descriptions. De Swart claims that $C_{\text{eh}}$ is multiply ambiguous and may be realized as ITER, HAB, or PROC, respectively iterative, habitual, or process operators. De Swart describes PROC as a function which maps events onto the processes that underlie them, but without reference to any final culmination. Interestingly, she intends to distinguish this from PROG, which she describes as an operator which maps events and processes onto states, which in turn describe the former as being in process and headed toward culmination if allowed. Both yield atelic results, though technically the first would yield a process or activity, while the second a state (albeit a state describing a process).

\textsuperscript{21} Cipria and Roberts also assume that there is something like an ITER operation generally available in the grammar, given that similar iterated examples are possible in Spanish with both the imperfecto and pretérito.

\textsuperscript{22} The arrow ($\Rightarrow$) in (6) represents essentially a syntactic transformation within the DRS. While this is not the notation used by de Swart, it represents the fact that de Swart’s DRS construction rules are intended to avoid just this sort of aspectual clash syntactically. (6) is intended to show that the coercion operator $C_{\text{eh}}$ is inserted into the DRS to achieve syntactic well-formedness.
While it may be true that the progressive or process reading of the *imperfecto* does not have exactly the same sense as the periphrastic progressive in Spanish (and I would assume a similar contrast in French\(^{23}\)), I would still question if the difference she describes between PROC and PROG isn’t more reflective of a terminological division between the perspectives of those that do not espouse inertia world analyses (e.g., Parsons 1990, Link 1987), as opposed to those that do (Dowty 1979, Landman 1992, Portner 1998)\(^{24}\). Whatever the motivation for distinguishing these operators, de Swart does not undertake to formalize either, so ultimately no empirical claims can be based on these descriptive differences anyway. I will return to the contrasts between the *imperfecto* and the periphrastic progressive in Chapter 5.

De Swart makes one claim that Cipria and Roberts do not regarding the various readings of the *imparfait/imperfecto* (as respectively effected by coercion operators or accessibility relations), namely that they are invoked only on an as-needed basis (hence the name *coercion* operators). She argues that progressive and habitual readings are only warranted if the eventuality description is not already [-telic]. This is formalized in her DRT construction rules, where only in case the *imparfait* is combined with a [+telic] eventuality description is a coercion operator invoked to resolve the aspectual mismatch.

This claim appears to generally be the case in Romance languages, at least with regard to the imperfect, where the interpretation of a stative predicate in the imperfect

\(^{23}\) French does not have the same progressive periphrasis as Spanish and Portuguese, namely *estar + V-ndo* (or its English counterpart *be + V-ing*), though it does have the periphrasis *être en tren de + INFINITIVE* which denotes being in the middle of carrying out some accomplishment.

\(^{24}\) I will discuss these differences in Chapter 4 when I discuss progressives in more detail.
seems to always have a stative reading, unless accompanied by habitual adverbials (e.g., *generalmente*) or expressions of frequency. This, of course, suggests that the *imperfecto* with a stative nuclear predicate is not in fact ambiguous, as much as it is susceptible to other habitual operations. Telic predicates on the other hand, naturally yield progressive (or future/intentional) or habitual readings without the aid of additional adverbs, again reinforcing the idea that states described in the *imperfecto* are unique in not freely giving rise to these various interpretations.

This contrast is shown in Spanish in examples (7) and (8), where (7a) is only stative, while (7b-c) are habitual and (8) can have three possible interpretations, excluding stative. These include a progressive, future, and habitual reading.

7. a. María estaba enferma.

*María was sick.*

b. María generalmente estaba enferma.

*María was usually sick.*

c. María estaba enferma cada semana.

*María was sick every week.*

8. Mario salía con sus amigos a las 3.

*Mario left-IMP with his friends at 3:00.*

Cipria and Roberts do not prioritize the deployment of their various accessibility relations in this manner and therefore they cannot predict that the stative reading, if possible, will be required. However, it would be a simple step to simply stipulate that the
stative reading must be used if possible\textsuperscript{25}, and otherwise that one of the other options must be chosen. Or a mechanism similar to de Swart’s could be used, such that the basic meaning of the \textit{imperfecto} would be the stative or atelic reading, but that there would be covert operators that could be deployed as well.

3.3. A Revised Base Case definition for the Imperfecto

3.3.1. Preliminaries

I will now introduce the first part of my analysis, which integrates both Cipria and Roberts’ approach and some intuitions from de Swart’s. I will not, however, assume an interval semantics, as I did in Chapter 2, nor a Kratzerian situation semantics like Cipria and Roberts. Instead will assume a model composed of the following tuple: \( <A, E, W, T, \leq, \sqsubseteq, \sqcap, \tau, F> \). \( A \) is the set of individuals, \( E \) the set of events, \( W \) the set of worlds, \( T \) the set of times, \( \leq \) a linear ordering on the set of times, \( \sqsubseteq \) the subpart relation on \( E \times E \), \( \sqcap \) the join relation on \( E \times E \), \( \tau \) the temporal trace function, which is a function from \( E \) into \( \text{POW}(T) \) (see the definition of the set of intervals below), and \( F \) the interpretation function for the language. Based on \( T \), we can derive the set of intervals \( I \) as in (9).

\[ I = \{ i \mid i \text{ is a non-empty subset of } T \text{ and for all moments of time } t, t', t'' , \]
\[ \text{if } t, t'' \in i \text{ and } t \leq t' \leq t'' \text{ then } t' \in i \} \]

(9) asserts that intervals are sets of moments of time and that they have no internal gaps. Consequently, set relations may be used to define temporal relations between intervals, such as \( \subseteq \) for temporal inclusion, etc.

\textsuperscript{25}“Possible” here implies that it won’t automatically produce a contradiction and make the proposition systematically false, regardless of the actual content of the proposition besides its aspectual character.
The temporal trace function, $\tau$ will map any event to the interval of time it occurs during. For example, if $e$ is an event of John sleeping, and this particular event of John sleeping lasts from 10 PM until 6 AM, then $\tau(e)$ is equal to that interval which begins at 10 PM and ends at 6 AM.

Furthermore, I will assume a hierarchy of types for meaningful expressions in the object language, as is customary in Montague style grammars (cf. Dowty, et al 1981, p. 156-7). However, I will assume the following modifications: expressions of type $i$ (such as the variables $t$ or $i$) will denote members of $I$, and expressions of type $s$ (such as the variables $e$ or $s$) will be members of $E$. These modifications are intended to avoid confusion with the standard use of $t$ for truth (i.e., the type for propositions, given that they denote a truth value, 0 or 1) and $e$ for individual expressions.

I will assume a Davidsonian type event semantics such that an atomic proposition is composed of a predicate which is combined with all required arguments, including both individual and event arguments (e.g., $\text{kiss}'(e, j, m)$ is true just in case there is an event of John kissing Mary). The decision to incorporate this sort of approach, rather than simply assuming an event semantics as I have in the previous chapter, comes as a necessity, given some crucial insights relative to the progressive which seem to

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26 I chose $s$ as a mnemonic for situations since I will not need to specify intensional types, which Montague had designated as including $s$ (e.g., $<s, t>$ is the type for the intension of a proposition).

27 I follow Bach 1986 in identifying this sort of approach with Davidson 1967, though his original theory has been later modified by others. I will follow more closely Krifka 1989, 1992, as well as treatments of other relevant issues, including the progressive analyses of Landman 1992 and Portner 1998 to be discussed in Chapter 4.
require an ontology which includes events (cf. Landman 1992 and Parsons 1998). This problem will be discussed in detail in the next chapter.

Having assumed events as a primitive in my model, I will assume an event ontology following Bach 1986 and Krifka 1992, such that the model of events is structured as a complete join semi-lattice, and that the events are partially ordered relative to the subevent relation \( \subseteq \). The first assumption (cf. Krifka’s (1992) completeness postulate (P2)) says that for any pair of events \( e_1 \) and \( e_2 \), there will be a third (potentially non-distinct) event \( e_3 \) equal to the join of \( e_1 \) and \( e_2 \) (i.e., \( \forall e_1, e_2 \ (\exists e_3 (e_1 \sqcup e_2 = e_3)) \)). That is, any two events may be joined together to form an event. The second assumption follows from the first (cf. Krifka’s part postulate (P6)), which stipulates that \( e_1 \) is a part of \( e_2 \) just in case the join of \( e_1 \) and \( e_2 \) is equal to \( e_2 \) (i.e., \( \forall e_1, e_2 \ (e_1 \sqsubseteq e_2 \leftrightarrow e_1 \sqcup e_2 = e_2) \)).

As regards the treatment of time, the language I am assuming will include temporal expressions, rather than only using a temporal index for evaluation as I have assumed in the previous chapter. That is, temporal/aspectual relations will be dealt with directly in the object language, and will be assumed to figure in the logical form of a sentence. The temporal trace function mentioned above will play a crucial role in the interface between tense/aspect relations and the atomic proposition, which has no temporal argument per se, though its event argument of course will have a temporal trace, which is an interval of time.

Following suggestions by Partee 1973, 1984, and Enç 1986, 1987, I will assume that time expressions may be treated sometimes like pronouns, though I will also assume the possibility that they may be treated as existentially quantified temporal variables as
needed. In this way, I will assume that entities belonging to the set of times (denoted by referential expressions or variables) may serve as arguments in tense/aspect relations. The past tense, for example, may be represented as a relation between a pair of times, such as the time of utterance and some interval of time, which may or may not be specific or known. In cases like Partee’s well known stove example, (10), the past tense refers to a specific time (it has a definite temporal argument), while in other cases, such as Partee’s Chinese food example, (11), it is clear that the tense argument is a bound variable.

10. I didn’t turn off the stove. (Partee 1973, example (3))

11. When you eat Chinese food, you’re always hungry an hour later. (Partee 1973, example (20))

I will also assume a model which includes a set of possible worlds as well, again out of necessity to be able to capture insights relative to the progressive which require an intensional logic. As already discussed, this will follow the tradition of the inertia worlds analyses for the progressive.

3.3.2. Initial Proposal

Following Cipria and Roberts’ analysis of the imperfecto, I will also enforce the subinterval property within the semantics proper, rather than syntacticizing the aspectual distinctions, as de Swart does within her DRT construction rules, which ultimately obscures the underlying principles involved. However, like de Swart, I will define the various “stativizing” (coercion) operators as independent grammatical entities which may
be deployed in conjunction with the *imperfecto*\textsuperscript{28}. I will discuss these in detail in Chapter 4. Assuming such independently defined stativizing operators will give me more flexibility in their respective truth conditions, such that the only thing which is required is that they all have a stative or *fully atelic*\textsuperscript{29} output. This would be more challenging in Cipria and Roberts’ analysis, as should become clear in the actual proposals I lay out in Chapter 4.

I propose (12) as a basic or stative definition of imperfective aspect, past or present. The decision to separate the aspecual part of the *imperfecto* meaning from the tense reflects an effort to generalize the tense and aspect relations in the language, despite

\begin{quote}
(i) Los trabajadores saldrán a las 6 (hoy/de ahora en adelante).

*The workers will get out at 6 (today/from now on).*
\end{quote}

On the other hand, if PROG is a coercion operator that is licensed any time an atelic eventuality is required and is not provided, then a progressive reading should be available any time a durative adverb is combined with a telic predicate, which is not the case.

\begin{quote}
(ii) #Mi abuelo murió por 2 años.

#*My grandpa died for 2 years.*
\end{quote}

While it might not be fair to assume that these operators would be licensed *solely* on the basis of aspectual clash and in *any* circumstance, it is clear that the notion of coercion, as used by de Swart, should be more nuanced and multifaceted.

\begin{quote}
\textsuperscript{28} Bonami 2002 suggests that the operators which yield the various interpretations of the French *imparfait* should be subcategorized for syntactically rather than being true coercion operators licensed strictly by the semantics, as argued for iterated readings involving ITER. Such an argument would explain why certain readings that would be predicted to occur do not, and why certain readings which are not predicted, in fact do. This is the case, for example, with the simple future in Romance languages, which is compatible with both telic and atelic eventualities. Therefore, if HAB is in fact a coercion operator, licensed *only* via aspectual clash, such a reading should not occur in the future. And yet it does.

\begin{quote}
(i) Los trabajadores saldrán a las 6 (hoy/de ahora en adelante).

*The workers will get out at 6 (today/from now on).*
\end{quote}

\end{quote}

\begin{quote}
\textsuperscript{29} By “fully atelic” I mean to distinguish the sort of atelicity seen in activities, like walking, eating, reading, vs. that seen in states, like knowing, having, or states of being. In the former cases, it must be admitted that despite the fact that the event takes place in a very homogeneous manner, including many subintervals which could be classified as events of the same type, beyond a certain temporal resolution the events are no longer recognizable. Only states are true at every *instant*, while activity predicates can only characterize intervals which are long enough to “witness” some minimal amount of activity or change (*cf.* Dowty 1979, chapter 3).
\end{quote}
that fact that these may be jointly represented by the morphology. I will discuss tense
relations separately in Chapter 6.

12. \[\text{IMP} \Rightarrow \lambda P_{<s, t>} \lambda i [\exists e [i \subseteq \tau (e) \& \forall e' [e' \subseteq e \rightarrow P(e')]]]^{30}\]

This definition of imperfective aspect in (12) reflects a guarantee of atelicity, and
provides for the time of evaluation to be a subinterval of time associated with the nuclear
proposition. One significant difference here, as opposed to the \textit{imperfecto} definition I
gave at the end of Chapter 2, is that the atelicity requirement is instantiated as the sub-
\textit{event} property rather than the sub-\textit{interval} property.

Furthermore, it should be noted that (12) provides only for a stative interpretation,
and that because of the atelicity requirement, it will routinely yield a valuation of false
with telic events. To see (12) in action, consider the following sentence in (13) and its
corresponding interpretation in (14).


\textit{María was-IMP sick.}

14. a. PAST[IMP[be_sick(e, m)]]^{31}

b. PAST[\lambda P_{<s, t>} \lambda i [\exists e [i \subseteq \tau (e) \& \forall e' [e' \subseteq e \rightarrow P(e')]](\lambda s[be_sick(s, m)])]

c. PAST[\lambda i [\exists e [i \subseteq \tau (e) \& \forall e' [e' \subseteq e \rightarrow \lambda s[be_sick(s, m)(e')]])]

d. \lambda Q_{<s, t>} [t < ST \& Q(t)](\lambda i [\exists e [i \subseteq \tau (e) \&

\text{As can be seen, IMP is an expression of type } <<s, t>, <i, t>>, \text{ reflecting the fact that it must first combine
with an event predicate, and subsequently with a temporal expression by which to locate its event argument
in time.}

\text{I am using only a simplified translation for PAST for the purpose of presenting IMP.}
\[ \forall e' \left[ e' \subseteq e \rightarrow be_{\text{sick}}(e', m) \right] \]

\[ e. \; t < ST \land \exists e_j \left[ t \subseteq j \land \forall e' \left[ e' \subseteq e_j \rightarrow be_{\text{sick}}(e'', m) \right] \right] \]

The truth conditions for (13), shown in (14e), say that the time \( t \) is in the past and that it is a subinterval of the temporal extension of some event \( e \). For its part, all subevents \( e' \) of \( e \) are events of María being sick. This is the desired result.

In order to be able to combine this translation of the imperfecto with telic eventualities, telic predicates will first need to be mapped into atelic or stative ones. As already mentioned, this will be accomplished by various stativizing modality operations, which will need to be applied to the atomic proposition before it can combine felicitously with IMP. The details of such operations which will be the topic of Chapter 4.

3.4. Conclusion

In this brief chapter, I have laid down the basic framework and rationale that I will be using throughout the remaining chapters. I have also given a preliminary definition of imperfective aspect as part of the meaning of the imperfecto within a Davidsonian style event semantics.
In this chapter, I will go into more detail about the modality relations that are implied in each of the readings of the *imperfecto*, though I will put off a direct comparison of the meanings of the *imperfecto* and the periphrastic progressive until Chapter 5. In this chapter, I will first discuss the progressive relation and its closely related future relation. This will include a detailed overview of a number of important analyses of the progressive, including Dowty 1979, Parsons 1990, Landman 1992, Portner 1998, and Cipria and Roberts 2000. After discussing these, I will comment on the other necessary types of modality such as a habitual relation, an event saliency relation, and a counterfactual relation (including pretending).

4.1. Progressive Readings

The imperfective meaning that has undoubtedly received the most attention is the progressive. This is expressible in Spanish either with the simple *imperfecto* or the periphrastic *progresivo*. Since Dowty 1979, where Dowty introduces the inertia worlds analysis of English progressives, there has been some lively debate in the literature about the need for and the effectiveness of this type of analysis. As mentioned in § 2.1.1.2., Dowty 1977, 1979 first pointed out the need for an intensional treatment of the progressive. I will delve into more detail here, introducing what Dowty termed the ‘imperfective paradox’, providing some brief overview of the pros and cons of his
approach, and mentioning how the analysis has been revised in more recent years. Though I have mentioned some of the details of Dowty’s progressive analysis already, I will discuss it in more detail in this chapter. And even though I will not ultimately adopt his analysis in my own proposal, I have chosen to discuss it in detail here primarily to contextualize the whole debate surrounding inertia worlds, which lends some crucial details to my own proposal. Therefore, for those readers already familiar with this debate, it would be best to skip § 4.1.1. However, to the extent that the primary audience of this dissertation will be students and scholars of Spanish, who may not be as familiar with this debate, I have elected to retain this redundancy.

4.1.1. Dowty 1979

Previously, I mentioned that Dowty had noted that a strictly extensional analysis of the progressive would incorrectly predict that a progressive sentence entails its corresponding future perfect in all cases. Intuitively this should not be the case given that whatever is going on during the evaluation time of the progressive need not continue beyond that time. For instance, if the nuclear proposition is telic, as in the untensed sentence *Juan morir*/*Juan die*, the event need not continue to develop sufficiently (in the real world) to actually culminate.

1. This observation is related to an additional problem, which Dowty refers to as the imperfective paradox. This paradox consists in the fact that what ultimately determines the truth of the progressive at some interval \(i\) depends on a particular final result which should come about within some superinterval interval \(i'\) which extends later than \(i\), but that this final result
need not come into being at all (in the real world). That is, the thing that makes (1) true as describing an event of a coming about of a circle is the resulting circle, despite that fact that this circle need not (fully) come into being. Furthermore, the thing which purportedly distinguishes (1) from (2) is again the type of resulting state, which again need not come into being in either case. John was drawing a circle.

2. John was drawing a triangle.

To account for this paradox, Dowty 1979 treats the progressive as a modal operator such that the nuclear proposition may be true (which in turn would entail that the final result comes about as well) in a set of possible worlds related to, but not necessarily including the real world. The trick is that these related worlds must be identical with the actual world (or the local world of evaluation) at least up through the reference time of the progressive, but may differ after that interval. This implies that the final result need not come about in the real world, even when it is entailed to come about in these other worlds. These worlds are known as inertia worlds, as will be explained below. What is important for now is that if (1) is true, it will be because in the relevant inertia worlds, John finishes drawing his circle, and in the real world John will have made an exactly corresponding degree of progress toward this goal by the time of evaluation of the progressive, without requiring that after that time he continue to make progress in the real world.

As regards the details of these worlds, an inertia world is one where “the ‘natural course of events’ takes place” in such a way that “the future course of events after this
time [i.e., the reference time] develops in ways most compatible with the past course of events” (148). These are intuitively the worlds where an event may continue without external interferences from the time of evaluation to completion. Hence Dowty proposes the function $Inr$, which maps a given world $w$ and interval $i$ to all those worlds $w'$, which are identical with $w$ until $i$, and where what is going on at $i$ in $w$ continues without interference.

Finally, Dowty shows that requiring the nuclear proposition to be true merely in at least one such possible world is not sufficient. This is so given that such an approach would be susceptible to admitting that certain progressives which had no determinate end were true in cases where multiple possible outcomes are verified. In (3), for example, let us assume that John has not yet decided which kind of large cat he wants to draw, but has begun anyway. He has drawn the basic figure, but cannot decide if he wants to put on a mane, stripes, or spots. At this point all three of John’s children walk in and each utters a different observation, as listed in (3a-c).

3. a. Daddy is drawing a tiger.
   
b. Daddy is drawing a leopard.
   
c. Daddy is drawing a lion.

In such a case, all three of these propositions would technically be true, which is intuitively wrong. In fact, my intuition is that all three should be false since John himself had not decided. For this reason, Dowty ultimately stipulates that a progressive is true just in case the nuclear proposition is true in $every$ inertia world, implying that the progressive depends on their being a single final outcome in every possible scenario.
With this stipulation, Dowty gives the following truth conditions for the progressive, (p. 149).

4. \[\text{PROG}(\phi)\] \(i, w\) = 1 iff for some interval \(i'\) such that \(i \subset i'\) and \(i\) is not a final subinterval for \(i'\), and for all \(w'\) such that \(w' \in \text{Inr}(<i, w>)\),

\[\text{PROG}(\phi)\] \(i', w'\) = 1

The truth conditions in (4) predict that (3a-c) should be false since there is not a consistent outcome in all possible worlds where John finishes his drawing.

It was noticed in subsequent years, however, that the inertia worlds analysis as stated was not tenable. Landman 1992 notes that there are no worlds where the ‘natural course of events’ leads to everything continuing to completion without interference since some events will ‘naturally’ and inevitably interrupt others, as manifest by the now well known fatal street crossing examples (Mary in Landman 1992, Max in Portner 1998, Juanita in Cipria and Roberts 2000, etc.).

5. John was crossing the street when he was hit by a truck.

At the time of evaluation of the crossing, before it is interrupted by the hitting, it must be admitted that the processes leading up to both the crossing and the hitting are already underway (at \(i\) in \(w\)). Thus, in all inertia worlds \(w'\), accessible from \(w\) at \(i\), we would need to find all events which, following their natural course as established in \(w\) before and including \(i\), were ultimately completed. Given the circumstances, it is more likely that the due course of events would not lead to John getting to the other side, since he was about to be hit by a truck. There is no way for both the crossing and the hitting to continue uninterrupted to completion, each following their natural course but without
infringing on the other. Either John gets hit and stops crossing, or somehow he manages
to get out of the way of the truck so that he reaches the other side, but then the
(inevitable) hitting doesn’t take place. And since the hitting is known to have precluded
John’s crossing in the real world, we would have to admit that the “natural course of
events” did not in fact lead to a crossing event on John’s part, and so (5) would be false,
which is not the desired result.

4.1.2. Landman 1992

In order to overcome this weakness of the inertia worlds analysis discussed above,
Landman proposes a reformulation of the inertia worlds analysis. He makes two
fundamental modifications to Dowty’s original (1979) analysis. First, assuming a model
which includes events as well as intervals, he relativizes the inertia worlds accessibility
relation to specific events. In this way, the relevant inertia worlds are defined as those
worlds in which only a particular event is allowed to continue uninterrupted, regardless of
what that might imply about other events in those worlds (e.g., on-coming trucks being
removed, etc.). Now only John’s crossing must continue uninterrupted, while the truck,
or any other set of potential obstacles, can be freely ignored.

Landman insightfully points out that this still is not enough, leading him to a
second fundamental revision. Landman shows that there must be a certain limit on how
far an event can be continued in its own right (i.e., ignoring all external interruptions). He
questions the truth of the following propositions.

6. Mary is crossing the Atlantic.

7. Mary is wiping out the Roman army.
If (6) is uttered after Mary has been swimming for only 10 minutes, it cannot reasonably be taken as true. The problem, Landman argues, is that it is not reasonable that Mary should be able to continue swimming that long in her own right, regardless of external factors. That is, there is something inherent or internal to the event of Mary’s swimming that simply does not warrant its continuation to such an extent. The same could be said of (7) if uttered after Mary has managed to kill only one soldier.

To understand Landman’s formalization of this analysis, we must first understand how a counterfactual line of reasoning allows us to relativize the inertia worlds relation to particular events. Landman describes the gist of this relation as in (8)—i.e., bearing in mind a past progressive like *Mary was crossing the street when…*:

8. If *nothing* had interrupted the event, the completed event would eventually have been realized. (p. 18)

Landman is assuming an analysis of counterfactual logic along the lines of Stalnaker 1968 (cited in Landman 1992), where counterfactual worlds *w’* relative to *w* are those worlds that are most similar to *w*, i.e., identical except possibly with regard to the proposition introduced in the protasis of the conditional and whatever other differences are entailed by the counterfactual protasis. Under this analysis, the actual world *w* itself is included among the worlds that are most similar to *w*. Consequently, we can already begin to make the connection between counterfactual worlds and inertia worlds, which according to (16) we can understand to be those worlds where a particular event would (counterfactually) or does actually get realized.
To really work out the nuts and bolts of how this counterfactual logic analysis is to be implemented, we have to understand the event ontology that Landman assumes.

The set of events $E$ is ordered by two relations: a part-of relation and a stage-of relation. While these may seem confusingly like the same thing, Landman refers to a stage as a special kind of part of an event. A stage, as far as I can understand from his discussion, is in some sense qualitatively the same as the event of which it is a stage; it is essentially temporal cross-section of it.

This is different from a part, which may be qualitatively very different from the event of which it is part. Event stages must be thought of like Carlson’s 1977 stages (which Landman models his ontology after) which are not simply bits or pieces of individuals, but are essentially (recognizable) instances of individuals. That is, John as a boy is a stage of John the individual, and may be very different from John stages at a later time. So I would assume that Landman’s stages are recognizably the same event, but potentially distinct in the size of “slice” it is.

So, for example, a simple movement of a foot (which is part of walking) should not be a stage of walking. It needs to be itself an instance of walking, though not as temporally extended. With regard to telic events like dying, as opposed to atelic like walking, the stages will not all be homogeneous, but they will still be “slices” of dying (or the dying process), and will not be limited to particular subevents of dying, like the growth of a particular cancer tumor or a fever.

Assuming this does not misrepresent Landman’s vision of event stages, we can now move on and see how he uses stages to calculate the relevant inertia worlds, in
accordance with the counterfactual logic described above. Like Dowty 1979, who compares the inertia worlds analysis he proposes with an alternative version stated in terms of branching futures, Landman overtly adopts this sort of branching futures in his ontology. Over this ontology, he constructs the notion of a continuation branch for an event. As I understand it, a continuation branch of an event \( e \) in a world \( w \) is a series (a chronologically ordered set) of event \( \times \) world pairs \( <f, v> \), each of which Landman dubs ‘continuation stretches’, perhaps because each such pair can be mapped to an interval. Or in other words, each ‘continuation stretch’ intuitively represents a stage of an event in a given world at a given interval.

One interesting part of this analysis is the way that these continuation stretches are linked to one another to form a continuation branch. Landman stipulates that the continuation branch of an event \( e \) in \( w \)—or \( C(e, w) \)—depends not on substages of \( e \), but rather on the superstages of \( e \). That is, we are not given direct access to the maximal or complete ‘individual’ event\(^{32} \) of which \( e \) is a stage. Instead, one must track all events \( f \) such that \( e \) is a stage of \( f \). All these events or superstages \( f \) of \( e \), in turn, are presumably all substages of some maximal superstage \( g \) in that same world \( w \). Or if we think of it in terms of an ‘individual’ event \( \varepsilon \) of which these events \( e, f…f_n, \) and \( g \) are stages, the continuation stretch can be seen as representing how far \( \varepsilon \) would have been able to progress or develop in \( w \) from stage \( e \) and beyond. Once we reach the (temporal) limit of

\(^{32}\) By ‘individual’ event I mean to refer back to Carlson’s individual vs. stage distinction. Or alternatively, an ‘individual’ event \( \varepsilon \) which is realized by a stage event \( e \) might be defined as that maximal event \( \varepsilon \) such that \( e \) is a stage, irrespective of what worlds these events are in (except that \( \varepsilon \) will have to have at least one stage in what ever world of worlds \( e \) is in). This contrasts with the notion of a continuation branch or continuation stretch, each of which is relativized to particular worlds.
In this way, Landman recreates the same effect as Dowty 1979, except that only a particular event is traced beyond the interval of evaluation, rather than tracing everything in the universe of discourse beyond that point. The weakness of this proposal, however, is that inasmuch as the stage of relation itself only has an impressionistic definition, the notion of a “continuation stretch” and a “continuation branch” cannot ultimately provide any deeper formal insight aside from simply saying that \textsc{prog}(\phi) is true just in case the event under discussion is a partial event of type \phi. Ironically, such an analysis ultimately defeats the purpose of the inertia worlds analysis which tries to give substance to the notion of subevent.\footnote{Furthermore, Landman is specifically opposed to Parsons’(1990) analysis of the progressive which makes just this assumption, and in which Parsons directly opposes the use of inertia worlds. This is later recognized as a liability of Landman’s proposal (cf. Portner 1998).}

Notwithstanding this drawback, Landman’s proposal offers an additional insight to the debate over progressives. It is well to note that the analysis as I have described so far is not Landman’s whole proposal. As described so far, Landman’s proposal would predict that any process which had begun would always validate the truth of a progressive, which is of course not correct. For example, recall cases where it is not reasonable for the agent to be able to complete the task they have set out to accomplish, such as crossing the Atlantic or wiping out the Roman army (examples (6-7)).
And so Landman imposes an additional restriction on the way the continuation branch of an event is calculated. At each point when the relevant stage of the event ceases in each world, before we can add a new continuation stretch to the continuation branch, the new continuation stretch must be evaluated in terms of inherent reasonableness.

To accomplish this, Landman defines a relation $R$ (or Reasonable Option) which I understand to map an event $\times$ world pair $<e, w>$ to a reasonable alternative world $v$ for $e$. This relation becomes relevant when determining if it would be reasonable to continue tracing superstages of events into further counterfactual worlds $v$.

9. $v \in R(e, w)$ iff 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 $v$. (p. 25)34

What Landman seems to mean by this is that, even though $e$ comes to an end in $w$, we want to know if $e$’s stopping in $w$ was solely due to external factors (e.g., trucks running people down, etc.), or if $e$ really would not have had the potential to continue beyond where it did anyway (e.g., can Mary keep killing Romans?), regardless of external factors. If there is a lack of internal reasonableness, then the continuation is stopped at that point and the progressive is judged to be false.

To summarize Landman’s analysis, it accomplishes two goals. First, it provides a more constrained inertia worlds analysis than Dowty 1979, in that the inertia worlds are only calculated relative to the continuation of a specific event. In this way Landman is

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34 I think the definition would sound better with a counterfactual stipulation “that $e$ would have continued in $w$”, but this would obviously complicate the analysis which is already using counterfactual worlds as part of the analysis. Perhaps the following definition would do better:

i. $v \in R(e, w)$ iff $v$ is identical with $w$ up to $t(e)$, and there is a reasonable chance on the basis of what is internal to $e$ in $w$ that $e$ continues in $v$ beyond where it does in $w$. 

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able to avoid the weakness seen in Dowty’s original formulation. Second, this analysis is able to discern between two reasons for which a progressives would be judged false. The first and obvious reason a progressive should be false is if it does not accurately describe the process which is taking place. We should not say that Mary is drawing a circle if she is really drawing straight lines. The second, and more subtle reason that a progressive should be false is if, despite early indications that there is an event of a certain type going on, it simply isn’t reasonable that it should end up being a complete event of that type. So, even if Mary kills a single Roman soldier, which purportedly could turn out to have been the first signs of a massive defeat of the Army, it is preposterous based solely on this single killing to assert that Mary is wiping out the Roman army.

4.1.3. Portner 1998

Portner does not really disagree with the efficacy of Landman’s approach as much as its unconventionality, particularly with regard to his notions of reasonableness and continuation branches/stretches. As mentioned above, he is also critical of the notion of an event stage, which he finds to be insufficiently defined, and which to a large extent underlies Landman’s analysis.

To be specific, Portner points out that Landman’s treatment of reasonableness, though unquestionably a modal concept directly related to probability, does not involve any overt treatment in terms of traditional modality. Instead, reasonableness is left wholly independent of any other modal notion and is assumed as a primitive in Landman’s analysis. In addition, Portner sees in Landman’s notion of event stages a sort of primitive notion of an incomplete event, reminiscent of Parsons’ (1990) treatment of
progressives.\textsuperscript{35} And it is this very primitive notion of an incomplete event which ultimately competes in Parsons’ analysis with the need for a modal treatment of the progressive. Hence, Portner judges Landman’s event stages as a liability rather than a virtue of his theory. And lastly, Portner describes Landman’s analysis as a theory all on its own, especially with its unique and intricate notion of a continuation branch. And so Portner proposes to incorporate the insights of Dowty 1979 and Landman 1992 in reworking the inertia worlds analysis, and to recast it within a more familiar treatment following Kratzer’s treatment of modality (Kratzer 1977, 1981).

This type of analysis assumes two interacting mechanisms to arrive at the appropriate set of possible worlds from which to make inferences. For example, Kratzer (1977) defines the meaning of “must” and “can” in English, with both their deontic and epistemic interpretations, in terms of precisely defined sets of worlds and their relation to particular propositions that ought to be the case. Simplifying a bit, deontic “must” is defined in terms of those worlds in which everything that ought to be done in world $w$ is actually done. Let the function that defines this set of worlds be $f(w)$ (‘must in view of $w$’). This actually denotes a set of propositions, each of which in turn denotes a set of worlds, and these propositions represent all those things which ought to be the case (but aren’t necessarily) in $w$.

By taking the intersection of these propositions (i.e., each of these sets of worlds), we come up with a set of worlds where everything is as it ought to be according to $w$. Let this be represented as $\cap f(w)$. Then $\text{must}(\phi)$ is true relative to $w$ just in case $\phi$ is true in all

\textsuperscript{35} See note 32, this chapter, for more on this criticism.
those deontic worlds in the intersection of $f(w)$. That is, just in case $\cap f(w) \subseteq \phi$. This is what Kratzer ultimately calls a modal base, meaning a base set of propositions which represents some modal concept.

Kratzer additionally finds need to extend this modal base in some way to capture cases like (10). Assuming a situation where Mary has stolen Bill’s car, the law demands that she go to jail.

10. Mary must go to jail.

The problem arises when we define $L(w)$, i.e., everything required by the law in $w$. In the worlds where everything the law requires is actually done, Mary does not steal Bill’s car and so any punishment the law might come up with for car thieves is only vacuously fulfilled. And so Kratzer proposes a ranking of worlds according to $L(w)$, where the best worlds are those in $L(w)$, and are ranked progressively worse as the number of laws that are not met increase. In the case of Mary stealing Bill’s car, this represents one infraction of the law. But in accordance with the law, she must go to jail in such a case. If she did not, that would represent two infractions of the law. And so the world where she does go to jail is better than the one where she steals but does not, though it is worse than the one where she doesn’t steal at all. And so $[[\text{Mary must go to jail}]]$ is true in $w$ iff in all best deontic worlds $w'$ (defined in accordance with what the law demands and the ranked set of worlds where increasing numbers of infractions are made) Mary actually goes to jail. This rank ordering by such a criterion is what Kratzer calls an ordering source.
Portner analyzes the progressive relative to a modal base and an ordering source to arrive at the appropriate inertia worlds for verifying the truth of a progressive. He defines the modal base for the progressive as “the set of circumstances [i.e., propositions] relevant to whether [an event] e is [i.e., gets] completed” (774). This parallels Landman’s intuition that the progressive should be evaluated, at least in part, in terms of what is “internal” to the event in question. For Portner, “what is relevant” to e’s completion may be a bit more broad, but intuitively includes the same considerations.

Portner assumes a very conservative definition of an event in his ontology, where events are not like Kratzer’s or Cipria and Roberts’ situations, which are rich with details about the arguments involved. Instead, Portner assumes that much of this information is provided by the description of the event, i.e., the atomic proposition. So ultimately he defines the function which generates the modal base as taking two arguments, an event and an event description. My rendition of this function is represented in (11).

11. Modal Base for Progressives: The Circumstances Relevant to e

\[ \text{Circ}(e, \lambda e[P(e)]) = \text{the set of propositions relevant to whether an event } e \text{ may be completed as an event of type } P \]

Because, as mentioned earlier, propositions denote sets of worlds, by taking the intersection of all these propositions (i.e., the sets of worlds where all these propositions are true), we can limit our analysis to the set of worlds where all the relevant information holds. Of course these worlds will include those in which the event may become a P as well as ones where it does not, and so by itself the modal base is not sufficient for
determining the truth of a progressive.\textsuperscript{36} To give an example, for a proposition like (12), the modal base would be defined as something like (13).

12. Sonya is crossing the Atlantic.

13. \text{Circ}(e, \lambda e[\text{cross}(e, Sonya, Atlantic)]) = \{\text{Sonya is human, Sonya is a good athlete, The Atlantic is very wide, The Atlantic is very stormy,} \ldots\}\]

To determine which of these worlds constitute the appropriate inertia worlds, we must impose an additional set of restrictions which will discriminate between possible continuations in each of those worlds and identify those worlds with the fewest potential interruptions relative to the event in question.

For this purpose, Portner proposes an additional function \text{NI}(e) (non-interruptions for $e$), such that it yields “the set of propositions which assert that $e$ does not get interrupted” (774). For example, for (12) the ordering source will be something like (14).

14. \text{NI}(e) = \{\text{Sonya does not get too tired, No sharks eat Sonya, Sonya does not get caught in a fishing net, Sonya is not struck by lightning in a storm, The wind does not blow Sonya back faster than she can swim,} \ldots\}\]

As I mentioned earlier, an ordering source is a set of propositions which may be used to rank worlds in terms of how closely they resemble $\cap \text{NI}(e)$ (i.e., the set of worlds in which all these propositions are true). The best worlds are of course those in $\cap \text{NI}(e)$. As one or more of these propositions is falsified in a given world, this world is ranked respectively lower. So if Sonya gets eaten by a shark in $w_1$, this world is worse than $w_0 \in$\textsuperscript{36} This is reminiscent of the problem inherent in Dowty’s 1977 analysis, which only required the nuclear proposition to become true in at least some possible world.
w_2 where Sonya gets struck by lightning and eaten by a shark is worse than w_1. This ordering source is represented as in (15), where w’ is better (has fewer interruptions) than w”.

15. \( w' \leq_{\text{NI}, e} w'' \)

I should point out at this juncture that NI is not sensitive to the event description as Circ is. NI is only sensitive to whether e may proceed in its own right, regardless of what type of event it is. So, using this ordering source, we can now rank the various worlds in \( \sqcap \text{Circe}(e, P) \), thereby determining if the circumstances surrounding e at the time of evaluation are sufficient to predict that it should ultimately become P in the best of possible scenarios following from said circumstances. If so, the progressive is true. If in the best of possible scenarios following from Circ(e, P), e doesn’t stand a chance of not be interrupted at some point, then even in the best worlds of Circ(e, P), e cannot continue long enough to become P.

In the example I have been developing, we must determine if there are worlds in Circ(e, \( \lambda e[\text{cross}(e, \text{Sonya, Atlantic})] \)) where nothing prevents e from becoming fully developed, and consequently becomes Sonya’s complete Atlantic crossing. But before actually deciding if (12) is true, I will present Portner’s progressive definition. This definition depends on the function BEST(Circ, NI, e, P) which, as I have been explaining, identifies those worlds in Circ(e, P) which contain the fewest interruptions (possibly none) to e. The details are given in (16), and the truth conditions of PROG in (17).
16. \( \text{BEST}(\text{Circ}, \text{NI}, e, P) = \) 
\[ \{ w' \mid w' \in \cap \text{Circ}(e, P) \land \neg \exists w'' (w'' \in \cap \text{Circ}(e, P) \land w'' \succ_{\text{NI}} e \ w') \} \]

17. \( \llbracket \text{PROG}(e, P) \rrbracket^w = 1 \) iff
\[ \forall w' [w' \in \text{BEST}(\text{Circ}, \text{NI}, e, P) \rightarrow \exists e' [e \leq e' \land \text{non-final}(e, e') \land \llbracket P(e') \rrbracket^w = 1].^{37} \]

So finally we can determine if (12) is true. According to this analysis, Sonya must reach France in all inertia worlds to make (12) true. Given what we know about the world, e.g., humans cannot swim for longer than 3 days straight, we can deduce that Sonya, who is human, cannot swim for longer than 3 days. If she is swimming at 7 mph (a fact that should be included in the modal base), then the farthest she can get is 504 miles off the coast. Because France is farther than that, Sonya can’t make it in any of these worlds, and so even the best worlds contained in the modal base will all contain at least one interruption, so \( e \) will never be able to ultimately become Sonya’s Atlantic crossing, and (12) is judged false.

Comparing Portner’s analysis with Dowty’s 1979 analysis, we might say that the two yield the same predictions in the case of Sony’s ill-fated Atlantic crossing because swimming all the way across the Atlantic is not compatible with the ‘natural course of events’ anyway. However, the weakness mentioned earlier relative to the original inertia worlds paradox, is that as long as there is any inevitable interruption on the horizon, Dowty’s analysis gives the wrong prediction, as in the fatal street crossing examples.

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37 This analysis shares with Dowty 1979 the fact that the progressive is judged to be true only in case \( P(e') \) is true in all inertia worlds, thereby avoiding the problem of multiple possible outcomes.
Dowty's analysis would predict they should always be false since all goings on at the
time of evaluation must be considered. But Portner claims that this weakness is corrected
in his analysis because such interruptions could arguably be excluded from the modal
base in the first place, though it is apparent that this issue is not completely settled in his
analysis either.

To ensure that this result is achieved, we might assume that the Circ function
identifies only those circumstances implicit in the particular goings on that constitute $e$
and in its potential description, including the direct participants in $e$. Stated differently, if
we hypothesize that $e$ is in fact a subevent of some $e'$ such that $P(e')$, then that would
imply that what is relevant to determining if $e$ will become $P$ should only include those
considerations that follow from $P$ and its arguments.

In the case of the celebrated fatal crossing events, even if there are oncoming
trucks or hungry sharks or whatnot, we must consider only those facts entailed by the
possibility that $e$ should be a subevent of a complete crossing on the part of some
particular agent relative to some area. If it really is part of a crossing, then $e$ must involve
some sort of transverse directional locomotion on the part of an agent relative to some
area, implying both a point of origination and a final destination and some distance
between them. These now become the set of criteria against which all participants must
be judged. Intuitively this implies the following simple considerations. If Max is a normal
person, he is presumably capable of taking such a short walk across the street, whereas if
Sonya is a normal person, she probably doesn’t have the potential to swim the distance
across the Atlantic.
Let us look now at two examples that Portner compares in connection with the Circ function. By including additional adjunct clauses, Portner finds that (18) and (19) (= Portner’s (47a-b)) arguably differ as to their truth.

18. Given that the bus was going to hit him, Max was in fact not crossing the street.

19. Despite the fact that the bus was going to hit him, Max was crossing the street.

He finds (18) more likely true, and (19) probably false, though he admits his judgments are not completely clear. This may be because (19) has a more salient reading where the progressive is interpreted as a futurate, implying not what Max is in the actual process of doing, but what he is determined to do (in the future) despite the risk. In its true progressive interpretation it sounds as if Max is indestructible, and so I would agree with Portner that it is probably false.

But these are obviously exceptional examples, where we might assume that the adjunct clauses actually modify the interpretation of Circ, so that it is no longer limited only to those circumstances following from the nuclear proposition. In such a case, we might predict that Circ will yield those propositions following from the nuclear proposition \( \phi \) plus whatever considerations entailed by the adjunct. In this case, the truth valuations observed by Portner would be predicted.

4.1.4. *Inertia Situations and Imperfectivity*

Cipria and Roberts’ 2000 treatment of the progressive reading of the *imperfecto* does not explicitly address all the issues discussed above, though in footnote 13 they
claim that their analysis is not incompatible with such concerns. For example, Cipria and Roberts do relativize the calculation of inertia worlds to specific events (situations), though they have no stipulation regarding the reasonability or inherent potential that the event should develop to completion. On the other hand, by assuming an ontology of situations, the semantics implicitly assumes much of what is needed. In the following section I will reiterate and get into more detail regarding Kratzer’s situation semantics and discuss how Cipria and Roberts’ definition of inertia situations embodies many of the necessary criteria.

To begin, I will recap what the relevant issues are for an adequate progressive analysis and what problems we have to address. First, the broad notion of the ‘natural course of events’ is not sufficient to rule out inevitable external interruptions, thus leading to incorrect predictions that inevitably interrupted progressives are always false (i.e., the natural course of events is that they do not complete). On the other hand, we need to preserve the notion of the ‘natural course of events’ relative to how the event is developing in its own right (i.e., the natural course of events does not lead to ordinary humans swimming across the Atlantic). If any and all interruptions, whether external or internal, are simply removed, this leads to the opposite incorrect prediction that any progressive that denotes a process that has at least begun is necessarily true in all cases. Instead, what we need is some mechanism that differentiates and removes “external” factors from consideration, while preserving those considerations which are “internal” or most closely associated with just the event and its participants.
4.1.4.1. Cipria and Roberts 2000

In Cipria and Roberts’ 2000 we find a description of inertia situations which, while it offers no surprises, gets to the heart of this issue.

Intuitively, an inertia situation for a situation \( s \) is one which begins just like \( s \), but continues in the way that \( s \) would continue were there no interference with the course of events as they have developed up to that point. (324)

Implicit in this description we must assume that the idea that the “course of events” that continues to develop is restricted exclusively to those events that are typified by the relevant exemplifying situation or “worldly facts”. This would automatically exclude “external” interference, since such factors would not be included within any minimal exemplifying situations which serve as the situation of evaluation of the progressive. In this way the “natural course of events” would necessarily only be determined on the basis of who and what is directly involved in the event—again because they would be included within the minimal exemplifying situations for the progressive.

Furthermore, this description, taken together with their other formalized constraints, implies that \( s \) is a maximally similar sub-situation of its inertia situations, while the temporal relation between the situation of evaluation \( s \) and its inertia situations \( s' \), is such that \( s \) must temporally precede the final subsituation of \( s' \). Or temporally speaking, \( \text{Time}(s) \) is a non final subinterval of \( \text{Time}(s') \). These facts directly correspond to Dowty’s original formulation of the progressive, except in place of intervals, Cipria and Roberts’ have employed a much richer medium, namely situations.
As described so far, this version of the inertia worlds analysis should be unproblematic and essentially comparable to Portner’s and Landman’s analyses. However, the way in which this conceptual framework is actually implemented poses some difficulties. As described in Chapter 3, Cipria and Roberts also attempt to enforce an atelicity constraint relative to the *imperfecto*. The *imperfecto* truth conditions are repeated here for convenience as (20).

\[
\begin{align*}
20. \quad &[[\text{imperfecto}(\phi)]]^{\text{ST}} = 1 \text{ iff } \exists s' \leq w_s \ [s' \triangleleft \text{ST} \land \forall s'' [s'' \leq s' \rightarrow \forall s'''[R(s''', s'') \rightarrow \text{exemplify}(s''', \phi)]]], \\
&\text{where either:} \\
&\text{(a) Totally Realistic case: } R = \{<s, s'>: s = s'\} \\
&\text{(b) Progressive case: } R = \{<s, s'>: s \text{ is an inertia situation for } s'\}, \\
&\text{or} \\
&\text{(c) Habitual case: } R = \{<s, s'>: s \text{ is a characteristic subsituation of } s'\}
\end{align*}
\]

Within this context, the progressive analysis as described above must meet an additional requirement. Not only must the nuclear proposition $\phi$ be exemplified by all inertia situations $s'''$ of some particular past situation of evaluation $s'$, but all inertia situations $s'''$ of every subsituation $s''$ of the situation of evaluation $s'$ must also exemplify $\phi$.

The problem that this requirement raises is that the situation of evaluation was supposed to contain all the information necessary in order to calculate what would constitute an appropriate set of inertia situations. If we liken this to Portner’s analysis, the base situation of evaluation for the progressive must provide some minimum amount of relevant information. But if we then parcel up this base situation into its corresponding set of subsituations, it should not follow that these subsituations would provide sufficient justification for determining the relevant set of inertia situations.
To give an example, if Juanita was preparing supper and Miguel recalls that the phone rang during that time, he might say (21). Intuitively we should expect to be able to figure out that the activities that Juanita was involved in were ultimately part of a dinner preparation. And it is also true that at every instant throughout the preparation time, it could be said that her actions would eventually yield a dinner.

21. El teléfono sonó cuando Juanita preparaba la cena.\(^{38}\)

*The phone rang when Juanita prepared-IMP the dinner.*

However, this is not so for Cipria and Roberts. Because all the relevant information is contained within the base situation of evaluation, to divide this situation up is to reduce the corresponding amount of information that is available to calculate inertia situations. Or more specifically, it is not the “natural course of events” that cutting onions will create a meatloaf, or that pacing back and forth between the stove and sink will produce any edible results. These subsituations, much less even smaller ones, are not sufficient on their own to warrant any particular conclusion about a dinner.

This is not to say that a progressive does not imply an imperfective or atelic relation, as I have already alluded to. So we see here the negative side effect of using situations as events, information, and intervals all wrapped into one, which creates limitations when we only want to vary one of these considerations at a time. We need to retain all the relevant information that is accessible at a particular time, though that

\(^{38}\) I will ignore here that the use of the simple *imperfecto* in such cases sounds odd and that the periphrastic progressive would be highly preferred.
information (or state of knowledge) will apply to every subinterval/subevent of the time/event of evaluation.

4.1.4.2. Subsituations, Subevents, and Subintervals

The problem I have identified in Cipria and Roberts’ analysis of enforcing the subinterval property as a subsituation property for the purposes of calculating inertia situations would be a problem for Portner’s analysis as well, except this time with sub-events. This is because the way his analysis is constructed, his non-interruptions function is not sensitive to the actual properties of the progressive event itself. It simply calculates what constitutes non-interruptions for whatever that event is.

As long as we need only find a single progressive event such that its continuation really could lead to the target event being realized, the progressive can be evaluated as true. But once we require this to be the case of every subevent as well, we potentially run into the same trouble. For relatively homogeneous activities this is perhaps still unproblematic, such as with crossing a street. This usually consists of a simply activity, such as walking, which if uninterrupted, gets the agent all the way across.

However, returning to non-homogeneous activities, such as house building or dinner preparation, the various subevents may not yield the target event, even if indefinitely continued. Hammering nails forever will never make a house by itself. What is needed to guarantee atelicity is a notion like Landman’s event stages. These are not simply parts of an event, such as nailing relative to building a house, or cutting onions relative to making dinner. Stages are more like temporal cross sections of the continued and completed event.
In a situation semantics, where all the relevant information or facts are contained within the situation under consideration, this can be corrected by assuming one additional constraint. Instead of stipulating that the inertia situations \( s'' \) for every subsituation \( s' \) of the progressive situation \( s \) yield the same inertia situation exemplifying the nuclear proposition, only those situations which are temporal cross sections or stages of \( s \) should be considered. Formally, this would imply that every stage \( s' \) of \( s \) would be identical to \( s \) during the “run time” of \( s' \), just as \( s \) should be identical to its inertia situations \( s'' \) up through the interval occupied by \( s \). Practically, this implies that if Mary is building a house, then at least Mary and the house (at whatever stage of development) should be present in every stage.

To see how this helps, consider again Juanita cutting onions as part of dinner preparation. If we only evaluate onion cutting, then all the inertia situations will be ones where the onions are all cut, but will not lead to a dinner (unless Juanita just eats cut onions for dinner). But if instead we consider onion cutting over a backdrop of an evolving set of ingredients at some particular stage of preparation, this is a much broader set of facts and could be construed to eventually yield a complete dinner preparation. The same solution could be applied in Portner’s case as well.

4.1.5. Conclusion: A Progressive Proposal

In order to accommodate a progressive reading of the imperfecto, I will slightly modify the preliminary definition I offered of the base case interpretation at the end of Chapter 3. Specifically, I will require that the nuclear proposition of the imperfecto be true not of all subevents whatever, but rather that it be true of a subset of its subevents,
which I will call *event stages*, following Landman’s (1992) terminology. However, I will define event stages in the following way. They will be subevents $e'$ of some event $e$ such that they are maximal chronologically ordered subevents of $e$. That is, $e'$ is an event stage of $e$, just in case all other subevents $e''$ of $e$ which share the same temporal trace as $e'$ will be subevents of the same. For this I will introduce a new relation $\sqsubseteq$, defined as follows:

15. **Event Stage Postulate:**

\[
\exists e, e' (e' \sqsubseteq e \leftrightarrow \forall e'' (e'' \sqsubseteq e \& \tau(e'') = \tau(e') \rightarrow e'' \sqsubseteq e'))
\]

This notion of an event stage of course shares nothing with Landman’s except its name. Mine is defined strictly in terms of the subevent relation and temporal trace function, and derivatively on the join relation.

Now for my revision of IMP, I will replace $\sqsubseteq$, which denotes the subevent relation, with the more constrained $\sqsubseteq_\varnothing$, to denote the event stage relation as I have described it.

16. **IMP** \(\Rightarrow \lambda P_{\llcorner, \varnothing} \lambda i [\exists e [i \subseteq \tau(e) \& \forall e' [e' \sqsubseteq e \rightarrow P(e')]]]
\)

This change will of course not affect the base case, since for a state, all of its stages are also all of its parts. On the other hand, this is not sufficient to account for the progressive reading of the *imperfecto* if not accompanied by an additional modal relation, PROG, whereby the appropriate inertia worlds may be calculated. And because, as I have argued, the event stage relation is sufficient for adapting Portner’s progressive analysis to fulfill the subinterval property, I will adopt his analysis directly.

17. **R_p** \(\Rightarrow \lambda Q_{\llcorner, \varnothing} \lambda e [\text{PROG}(e, Q)]\)
18. \[ [[\text{PROG}(e, P)]^w] = 1 \text{ iff } \forall w' [w' \in \text{BEST}(\text{Circ}, \text{NI}, e, P) \rightarrow \exists e' [e \sqsubseteq e' \text{ & } e \text{ is a non-final subevent of } e' \text{ & } [[P(e')]^w] = 1]].^{39}\]

\( R_p \) of course refers to the progressive modality relation and must be construed to mediate between IMP and the nuclear proposition before the subinterval requirement can be satisfied. Thus, we have the following structure and corresponding truth conditions.

19. IMP \[ R_p (\lambda e [\text{prepare}(Juanita, la cena, e)]) \]

IMP \[ \lambda Q_{ts, s} \lambda e [\text{PROG}(e, Q)] (\lambda e' [\text{prepare}(Juanita, la cena, e')]) \]

IMP \[ \lambda e [\text{PROG}(e, \lambda e' [\text{prepare}(Juanita, la cena, e')])] \]

\[ \lambda P_{ts, s} \lambda i [\exists e [i \subseteq \tau(e) \text{ & } \forall e' [e' \sqsubseteq e \rightarrow P(e')]]] (\lambda e [\text{PROG}(e, \lambda e' [\text{prepare}(Juanita, la cena, e')])] \]

\[ \lambda i [\exists e [i \subseteq \tau(e) \text{ & } \forall e' [e' \sqsubseteq e \rightarrow \lambda s [\text{PROG}(s, \lambda s' [\text{prepare}(Juanita, la cena, s')]) (e')]]] \]

\[ \lambda i [\exists e [i \subseteq \tau(e) \text{ & } \forall e' [e' \sqsubseteq e \rightarrow \text{PROG}(e', \lambda e'' [\text{prepare}(Juanita, la cena, e'')])]] \]

The truth conditions for (18) say that, relative to the time of evaluation \( i \) of IMP, \( i \) must be a subinterval of the temporal extension of some event \( e \). Then for all stages \( e' \) of \( e \) (including \( e \) itself) \( \text{PROG}(e', Q) \) must be true, implying that there should be some event \( e'' \) which is Juanita’s complete dinner preparation, and each \( e' \), if continued, should

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\(^{39}\) It is not necessary to use the event stage relation in place of the subevent relation within the calculation of PROG itself since in virtue of NI, \( e \) would already have to be a stage of \( e' \) for the calculation to work out in the first place.
eventually become this same preparation event. This final requirement entails that \( e' \) will always be a stage of \( e'' \).

4.2. Future Readings

The future reading of the *imperfecto* is very much like the futurate progressive in English, despite the fact that the Spanish *progresivo* lacks such a meaning. So for purposes of presentation, I will briefly contrast these two possibilities in Spanish, but postpone a fuller discussion of the *progresivo* until Chapter 5.

22. (Mario dijo que) Estaban saliendo a las 3.

*(Mario said that) He was-IMP leaving at 3.*

23. (Mario dijo que) Salían a las 3.

*(Mario said that) He left-IMP at 3.*

Example (22) can only mean that at 3:00 the people were actually in the process of leaving, while (23), could mean that according plan, the people would leave at 3:00, though it could also be interpreted with a progressive meaning as well. In traditional grammars this use of the *imperfecto* is sometimes referred to as having a conditional meaning given that it can be paraphrased with the conditional. This meaning is parallel to the future reading of the present, but embedded within a past indirect discourse.

Reyes 1990 notes that beyond this literal past tense embedding, the *imperfecto* may be used in such cases as a sort of evidential to attribute the content of the proposition to an external source, even if that source is not overtly mentioned. Thus, (23’), uttered at 2:00, should be understood to mean that the people will purportedly be leaving in an hour. Alternatively, it could be stated as a question (23’’). This implies that the speaker
had heard that the people would get out at 3:00, but wants to confirm that this second hand information is (still) correct or valid.

23’. Me parece que salían a las 3.

*It seems to me that they were leaving* (i.e., leave-IMP) *at 3:00.*

23’’. ¿No salían a las 3?.

*Weren’t they leaving* (i.e., leave-IMP) *at 3:00.*

This evidential use of the *imperfecto* is intimately related to the “tenseless future” (described in detail in Dowty 1977/1979) in the present, but temporally removed into the past, reflective of indirect discourse. Thus, to say *Salen a las 3* (*They leave at 3*) would commit the speaker to a certain degree of certainty and first hand knowledge of some predetermined plan. But by attributing this assertion to the past, it also indirectly attributes the information to an external source, and so the speaker is able to imply that he or she does not have direct access to the evidence for the predetermined plan. Therefore, I will assume that an account of the posterior meaning of the present and *imperfecto*, will also provide a sufficient explanation for the supposed evidential use of the *imperfecto*.

While Cipria and Roberts note that the *imperfecto* has both a progressive and posterior meaning, they ultimately attempt to collapse the two readings of into a single ‘progressive’ meaning that is unique to the *imperfecto*, and distinguish this (informally) from the meaning of the *progresivo*. They do this by appealing to the argument that in cases of a futurate reading, one makes reference to a preparatory phase that is immediately prior to the active process phase, if any. The *progresivo* is presumably
restricted only to the active process phase, unlike the English progressive, and consequently cannot be used to refer to the future.

As already discussed, analyses of the progressive general imply that the interval of evaluation is taken to be a proper, non-final subinterval of the interval for which the atomic proposition $\phi$ is true. While this fact underlies the sense that a progressive is understood as describing the “middle” of an event, it also suggests that there is some inherent notion of futurity (i.e., subsequent termination) already implied in the progressive.

Cipria and Roberts informally describe a preparatory phase as either a period during which one has intensions to do something, or a period during which “all the wheels are in motion which would ordinarily lead to an event” (329), as in the case of natural phenomena like the sun setting. This sort of treatment of the futurate (progressive) is neither exclusive nor new to Cipria and Roberts. Landman 1992 and Portner 1998 both informally posit the same sort of idea, though neither develops the idea.

Cipria and Roberts argue in addition that this preparatory phase treatment has independent grounding in cases where a main clause event seems to temporally precede a when clause event. Partee 1984 cites the following example as just such a case ((24) = her example (18b), originally from Stump 1981), and suggests in footnote 25 that this may be possible only when the main clause event is interpreted as a subevent of the when clause event.

40 They base many of their descriptions of a corresponding event ontology on observations by Moens and Steedman 1988.
24. When the Smiths threw a party, they invited all their friends.

Just as the inviting event is understood as a preparatory subevent of throwing a party, such a preparatory (subevent) phase may also be used, according to Cipria and Roberts, to license a future interpretation of the *imperfecto*, as in (23) above. While the intuition regarding (24) seems to be sound, it does not necessarily follow that such extended events (preparatory phases + active phase) are needed for calculating future readings of the *imperfecto*.

One problem I see in this approach is that it is not clear how one could distinguish between events with preparatory phases and ones without, so as to properly distinguish the meaning of the *imperfecto* from that of the *progresivo*. That is, because they claim that the *progresivo* does not have access to the preparatory phase, but the *imperfecto* does, there should also be some explicit procedure for identifying which events are of which type. However, Cipria and Roberts sidestep this issue by not pursuing a comparison with the *progresivo* and leave this question unanswered. Since this question is central to the present analysis, I will first attempt a solution to this problem and then evaluate how it stands up against alternative approaches.

Though de Swart 1998 does not mention the topic of implied future readings, she proposes a coercion operator that would map homogeneous eventuality descriptions onto ones with a preparatory phase, such that the transition from the preparatory phase to the active phase counts as an event ([+telic]). This mechanism is to account for cases like (25) (= her example (22)) on the reading that describes the process of the program gearing up to begin running and which culminates when the activity starts. In such a case,
the atelic eventuality *run* is coerced into a telic (inchoative) event by the presence of the IN adverb, which requires a telic argument.

25. The program ran in four minutes.

[PAST [IN four minutes [the program run]]]

While there seems to be the sense that some sort of preparation or process takes place in (25) or any time an IN adverbial of this sort is used, I don’t think it warrants a special operator to overtly denote this process. According to this logic, we should also have an operator which maps telic events to preparatory phase + telic event, as in (26).

26. After they gave Tim the injection, he died in 10 minutes.

This is a possibility that de Swart does not deem necessary to account for, presumably relying solely on the compositional meaning of the telic event with adverbial modification (i.e., the event \( e \) takes place sometime during that 10 minute interval).

Hence, all that is needed in (25) is that the event description be telic (either implying the total running of the program or implying an inchoative interpretation, which is what de Swart is intuitively getting at) so that it may be interpreted parallel to (26), in which case the “preparatory phase” would not need to be represented directly in the event ontology.

Whatever the status of de Swart’s use of preparatory phases, we might imagine a similar type of mechanism serving a different function in Cipria and Roberts’ analysis. A coercion operator might be imagined such that a telic situation/eventuality is mapped to one with a preparatory phase. The trigger for such an operator would presumably be the temporal mismatch overtly implied by a non-contemporaneous adverb or by context. The trade off suggested by this approach is that for the sake of simplifying the *imperfecto*
truth conditions, the event ontology (as implied by the usual interpretation of the lexicon) must be supplemented with covert operators.

The immediate problem with this approach would again be that unless this sort of covert operation were specified to occur only with the *imperfecto*, it would still be impossible to discriminate between the progressive reading of the *imperfecto* and the periphrastic progressive, implying that the latter should have a futurate meaning. And as long as we need to make special provisions for the *imperfecto* that are not made for the periphrastic progressive, it doesn’t seem that this approach ultimately simplifies anything. It is just one possible way of accounting for it that only vaguely has any independent motivation.

Furthermore, if we compare this phenomenon in Spanish with its English counterpart, it becomes a disadvantage to assume an analysis which depends on both the notion of preparatory phases as well as some variety of progressive (inertia worlds) relation, precisely because in English similar interpretations are possible with simple present (and sometimes past) forms which lack a progressive reading altogether.

27. “My plane leaves at 7:00.”

28. When I asked him what time he was leaving, John just replied that his plane left at 7:00 and so he had to go soon.

The alternative to making this strict connection between implied future and the progressive, would be to account to the extent possible for implied future interpretations in both Spanish and English in terms of a single mechanism or related mechanisms as independent from (but possible interactive with) grammatical imperfectivity. In English
this would include both simple and progressive forms, while in Spanish it would be restricted to the simple *imperfecto*. This suggested course of action brings us to the account offered in Dowty 1977/1979, where the progressive and futurate progressive are clearly distinguished by the absence or presence of an implied future operator, respectively.

Dowty 1979 discusses the futurate meaning of the English progressive, but he distinguishes it from the “normal” process reading of the progressive by analyzing the futurate meaning as implying a “tenseless future” within the scope of the progressive. By “tenseless future”, Dowty implies cases where a simple present (or in some cases, past) tense is used to refer to a posterior time. Because it is not independently marked morphologically, it must have some covert status in the grammar. This approach is quite similar to the possible amendment I have argued for relative to Cipria and Roberts’ approach. Yet it differs fundamentally in that instead of mapping events of one type to a more complex type of event to be subsequently subsumed under the progressive, this second alternative should be considered an independent reading of the *imperfecto*, and not specifically a product of the progressive at all.

As suggested above, and as argued by Dowty 1979, the “tenseless future” is generally licensed by an adverb which refers to a posterior time, though in rare cases it can be licensed by context alone. Dowty cites the following (a) examples as instances of the “tenseless future” in English. These are contrasted with the other alternatives for expressing futurity.
29. a. John leaves town tomorrow.
   b. John is leaving town tomorrow.
   c. John will leave town tomorrow.

30. a. The sun sets tomorrow at 6:57 PM.
   b. The sun is setting tomorrow at 6:57 PM.
   c. The sun will set tomorrow at 6:57 PM.

The (a) examples differ from the normal future tense (c) as well as from the “futurate” progressive (b) in English. The “tenseless future” implies that there is some established plan or expectation that serves as a basis for predicting future events. The English futurate progressive, on the other hand, implies only that there is a tentative or personal plan for a future event. This lends to the progressive a nuance of less certainty than the “tenseless future”, and it explains why (30b) sounds odd, since the time of the sun setting always follows fixed principles and expectations and is never subject to a personal or variable agenda. And finally, the “regular” future tense simply expresses a relatively high degree of certainty about what will happen in the future, though without depending on any specific type of evidence.

While (29) and (30) illustrate that there is a difference between the “tenseless” future and the futurate progressive, no such contrast exists in Spanish. The range of meanings spread between these two in English are jointly and exclusively expressed via the simple present and the imperfecto (both of which are imperfective verb forms). However, there are some subtle cross-linguistic differences as well.
For example, the *imperfecto* behaves similarly to the English “tenseless future” (in the past) in cases involving both wide scope and narrow scope temporal adverbs, which is felicitous only with the English futurate progressive. These are illustrated respectively in (31-33). In the former cases, this sounds blatantly contradictory, (31-32). This undoubtedly has to do with the difficulty of licensing the “evidential” or “citational” use of the *imperfecto* or past “tenseless” future in English solely on the basis of a time adverbial. However, if the external source of the proposition is explicitly referred to, the problem disappears in Spanish, (34), and is at least lessened in English, (35)\(^41\).

*The following are uttered at 9:00 AM.*

31. ??A las 6, me iba al mediodía, but ahora dicen que no salgo antes de las 5.

32. ??At 6, I left at noon, but now they say I won’t leave before 5.

33. At 6, I was leaving at noon, but now they say I won’t leave before 5.

34. A las 6 me dijeron que me iba al mediodía...

35. (?) At 6, they told me I left at noon…

In any case, despite the subtle differences, Dowty’s explanation does not fully distinguish these differences, and it relies on the same underlying mechanism in both English cases, namely a “tenseless” (or covert) future. This is fine for Spanish, however, since there is only one possibility.

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\(^41\) I find (35) marginally OK vs. (32) which I can license only under very explicit assumptions. In each case I imagine a business man who travels frequently and leaves all travel plans up to a travel agency. In this case, they have given him conflicting information, presumably due to some mix-up with the airlines and cancelled flights. So now the man has become frustrated and relates his frustrations to his wife. In such a case the multiple voices in the conflict are very salient and easily license (35), and with some effort might license (32) as well.
As we look in more detail at Dowty’s solution, we see the complication of trying to define the notion of a plan or expectation, which he ultimately leaves informally defined. Dowty gives the gist of what he intends in the following sample definition (p. 158):

36. \[
[[\text{tomorrow } \phi]]^i = 1 \text{ iff }
\]
   \[
   \begin{align*}
   &\phi \text{ is true at some interval } i' \\
   &i' \text{ is included in the day following the day that includes } i \\
   &\text{the truth of } \phi \text{ at } i' \text{ is planned or predetermined by facts or events true at some time } t \text{ prior to } i
   \end{align*}
\]

Dowty’s analysis relies on a future time adverb (or alternatively it could be some other covert tense operator) intervening between the sentential tense operator (present or imperfecto in Spanish) and the atomic proposition \( \phi \), as shown in (36) (based on Dowty’s explanation). Alternatively, I would also suggest (37), but this time applied to the Spanish imperfecto and using a covert futurity operator, \( R_f \) (i.e., “relation of futurity”).

37. John leaves tomorrow.

\[
\text{[PRES [tomorrow [John leave]]]}
\]

38. Juan se iba al día siguiente.

\[
\text{Juan was going the next day.}
\]

\[
\text{[IMP [R_f [the next day [Juan go]]]]}
\]

---

42This unsolved notion has remained a sideline issue in progressive analyses since then, receiving only suggestive sketches of analysis since then.
Following Dowty’s proposal, the thing that \( R_f \) should depend on is a fact or set of facts at the local evaluation time, such that the atomic proposition may be *predicted* to become true at some later time, without requiring it to have materially begun. This is distinct from the usual intuition that a true progressive relates an incomplete event to a more extended one *of the same type*, albeit only in possible worlds other than the actual one.

Portner 1998 claims that his progressive analysis is compatible with Dowty’s approach stated here, though like Cipria and Roberts’ approach, his definition of the progressive requires, as it should, that the progressive event be a subevent of the target event in the inertia worlds. Stated differently, unless an event can be construed to possibly include its “preparatory phase”, this approach will not work.

However, if we slightly modify Portner’s analysis to derive a related covert future operator, we could continue to take advantage of the mechanisms that underlie his progressive analysis. I am representing this future relation as \( \text{FUT}' \) to distinguish it from the regular future tense, \( \text{FUT} \). Also, I am assuming a second Circ function, \( \text{Circ}' \), which is almost identical to Portner’s but adapted to a future interpretation. And lastly, I am assuming a precedence or overlap relation for intervals, \( \leq_0 \) in place of the subevent relation \( \subset \).

39. \[ R_f \Rightarrow \lambda P_{<_{sl}} \lambda e \left[ \text{FUT}'(e, P) \right] \]

---

43 I will define \( \leq_0 \) as a relation of precedence or overlap of intervals. Given two intervals \( i \) and \( j \),

\[
(i \leq_0 j) \leftrightarrow \left[ \forall i' (i' \subset i \rightarrow (i' < j \lor i' \circ j)) \& \neg \exists i'' (i'' \subset i \land j < i'') \right]
\]
40. \[[\text{FUT}'(e, P)]^w = 1 \text{ iff } \forall w' [w' \in \text{BEST}(\text{Circ'}, \text{NI}, e, P) \rightarrow \exists e' [e \leq_o e' \& \[[\text{P}(e')]^w = 1]]\].

We can continue to make use of \text{BEST}(\text{Circ}, \text{NI}, e, P), though now \(e\) will not be a subevent of the target event \(e'\) in all inertia worlds. Rather, \(e\) will be the “event” which embodies the plan or expectation that \(e'\) should eventually take place. Then given what is known about that plan, and consequently about the event that \(e\) predicts should come about, we can calculate \text{Circ}'(e, P) which differs from \text{Circ}(e, P) in that the latter implies that \(e\) should become \(P\), while the former implies that \(e\) is a plan that some event \(e'\) should become \(P\). Furthermore, \text{NI}(e) will yield those worlds where the plan or expectation is not interfered with.

Intuitively, until \(e'\) becomes \(P\), the plan will not be fulfilled, and so it must be the case that some part of the plan should begin prior to \(e'\), but the plan in its entirety and \(e'\) should terminate together. Furthermore, because a plan is really a state of knowledge or expectation, any subevent of this plan will qualify as an appropriate \(e\) and so \(R_f\) does in fact yield a stative output for \text{IMP} to operate on.

While much more could certainly be said of the future interpretation of the imperfecto, what I have proposed here at least solidly distinguishes the (true) progressive meaning from its closely related future meaning. Furthermore, I would suggest that it is because of these deep-rooted similarities that linguists have tried to reduce them to a single mechanism. However, after finding that coping with the discrepancies between the two readings lead to series of formal caveats anyway, I have preferred to keep the two independent from the outset.
4.3. “Perfective” Readings

As described in Chapter 2, the *imperfecto* also has a reading which appears in some sense to be perfective, in that some completed telic event is entailed to take place *within* the time of evaluation of the *imperfecto*. But, as described in the literature, this reading differs from the interpretation of the usual perfective forms in that it characterizes an entire interval on the basis of a single event contained within that interval. This is what motivates Labelle 2002 to described this effect (in French) as a single event metonymically characterizing an interval, because an interval is characterized by one of its parts.

Since I have already discussed this phenomenon in Section 2.3., I will only discuss a single example here, repeated below as (41) (= (29) in Chapter 2).

41. Ayer moría Borges en Ginebra.

*Yesterday died-IMP Borges in Geneva.*

As discussed earlier, to make this work, we must assume a relation of saliency, such that for any given interval and for all pairs of any two events *e* and *e ’* which occur during that interval, *e* will either be more or less salient than *e ’*, or they will be equally salient. This will be a three place relation, LESS_SAL, whose arguments will be an interval and two events. LESS_SAL(*t*, *e*, *e ’*) will imply that *e* is of lesser or equal saliency than *e ’* relative to *t*. And as stated in Chapter 2, by saliency I mean a generally
available notion, such as the saliency of a memorable historical event relative to a given period of time.\footnote{Recall in Chapter 2 that two of the examples were the death of Borges and the discovery of America. See \S 2.3. for more details.} The properties of the saliency relation are summarized in (42).

\begin{align*}
\forall t \forall e \forall e' \left[ \tau(e) \subseteq t & \land \tau(e') \subseteq t \rightarrow \\
LESS_{\text{SAL}}(t, e, e') \lor LESS_{\text{SAL}}(t, e', e) \right]
\end{align*}

And for a given event \( e \) to be the most salient relative to a given interval, (43) must be the case. And abstracting the existentially quantified elements, thereby making a two place relation, we have a relation of greatest saliency relative to an interval, \( \text{MOST}_{\text{SAL}} \), in (44). And finally, in order to derive the appropriate relation of saliency for use with the \textit{imperfecto}, such that it will be atelic, we assume that the \textit{imperfecto} event represents any one of the events that take place during the interval for which there is one most salient event. This is given in (45).

\begin{align*}
\exists t \exists e \forall e' \left[ \tau(e) \subseteq t & \land \tau(e') \subseteq t \land LESS_{\text{SAL}}(t, e', e) \land \\
\forall e'' & \left[ LESS_{\text{SAL}}(t, e, e'') \rightarrow e = e'' \right] \right]
\end{align*}

\begin{align*}
\text{[[MOST}_{\text{SAL}]}] & \Rightarrow \\
\lambda t \lambda e \forall e' \left[ \tau(e) \subseteq t & \land \tau(e') \subseteq t \land LESS_{\text{SAL}}(t, e', e) \land \\
\forall e'' & \left[ LESS_{\text{SAL}}(t, e, e'') \rightarrow e = e'' \right] \right]
\end{align*}

\begin{align*}
R_s \Rightarrow \lambda Q_{s, t} \lambda s \left[ \lambda i \left[ \tau(s) \subseteq i \land \exists s' \left[ \text{MOST}_{\text{SALIENT}}(i, s') \land Q(s') \right] \right] \right]
\end{align*}

One complication here is that according to Reyes 1990 and Labelle 2002, this reading of the \textit{imperfecto} characterizes a particular or definite interval, which is why the interval argument is abstracted, so as to be able to provide a referential argument.
However, the *imperfecto* requires an argument of type \(<s, t>\), while \(R_s\) is of type \(<s, <i, t>>\). To rectify this situation, we must assume that the interval argument is provided by context before IMP can take \(R_s\) as its argument. The benefit of this approach is that this interval may be bound by a temporal adverb occurring higher in the sentence, assuming that adverbs like *yesterday* simply denote an interval.

The final result is that, while adverbial modification implies that the time of evaluation, or reference time, is contained within the interval denoted by the adverb, this adverbial interval may also bind the temporal argument of the saliency relation, such that \(R_s\) truly characterizes that interval as containing a unique most salient event. However, even if the temporal argument of \(R_s\) is not co-indexed with the adverb, the truth conditions at least require that these two will overlap. But perhaps we ought to assume that there is an even more narrowly defined condition enforced by the pragmatics, as a felicity condition, that the two in fact be co-indexed.

4.4. Habitual Reading

I again look to Cipria and Roberts’ analysis of the *imperfecto* to evaluate how they have formulated the habitual reading. Recall that the imperfective part of their truth conditions for the *imperfecto* are as follows.

\[
\forall s' [s' \leq s \rightarrow \forall s'' [R(s'', s') \rightarrow \text{exemplify}(s'', \phi)]]
\]
This implies that all subsituations $s'$ of the base situation of evaluation $s$ are each related to a set of situations $s''$ that make $\phi$ true. In the case of the habitual reading, the set of situations $s''$ accessible to each $s'$ are all those “characteristic” subsituations of $s'$ (p. 323). This analysis suggests that the base situation of evaluation $s$ is really more like a substantively large interval of time that is populated by many events of a variety of types, and that from among these, one can identify those which are “characteristic” of that interval as opposed to those which are really more accidental within that interval.

While this seems to have a great deal of intuitive appeal, I find a problem with the implementation. As mentioned relative to the progressive reading and calculating inertia situations, even if we can identify what events are characteristic of $s$ (the base situation of evaluation), this relation should not logically extend to all of the subsituations $s'$ of $s$. To see why this is so, consider the following scenario. Let’s assume that for a period of two years, María and Jorge were seeing each other on a regular basis. Thus, we could truthfully say the following.

47. Jorge iba donde María mucho en esa época.

\textit{Jorge went-IMP where María a lot in that time period.}

“Jorge used to go to María’s a lot at that time”

This type of activity presumably also characterizes one year of that time, or even 6 months, or even each month or each week of those two years. But what about each hour, each minute, each second. Relative to each of these smaller subintervals it becomes doubtful that they contain characteristic subsituations that make $\textit{Jorge go to María’s}$ true, and so Cipria and Roberts’ analysis would predict that (47) is false.
The problem lies in the fact that what is considered characteristic of an interval is evaluated relative to every subsituation independently, while the sense of imperfectivity stems from the fact that we should be able to determine what events are characteristic of an interval by evaluating any of its subintervals. Though these two sound quite nearly identical, the difference lies in that in the latter alternative, the subintervals should be overtly recognized as being subintervals of some superinterval, and that what is considered characteristic should be determined only relative to this superinterval. Or simply put, there should be an overt recognition that the time of evaluation is an arbitrary subinterval of some substantively larger time that is characterized by the regular occurrence of such and such an event type. This dependence on a particular superinterval or supersituation is what is lacking in Cipria and Roberts’ analysis.

At this point, I will also sidestep the issue of formally defining a “characteristic events” function, though I will assume that such is possible. Instead, I will jump directly into a formalization of the habitual relation of the imperfecto, Rh.

48. \( R_h \Rightarrow \lambda Q_{s, r} \lambda e \ [\lambda i \ [\tau(e) \subseteq i \& \forall e' \text{CHARACTERISTIC}(i, e') \rightarrow Q(e')]] \)

In most ways, this is structured just like \( R_s \), where there is some larger superinterval within which \( e \) occurs. And similar to \( R_s \), where the event of evaluation is not necessarily the most salient, in this case as well, \( e \) is not necessarily among those events which are characteristic of \( i \).
4.5. Other Non-Past Modal Readings

To finish up with the various additional relations implied by the imperfecto, we have the counterfactual and the pretending relations. These are both non-past, though the counterfactual seems to be future oriented, while the pretending appears to have present reference. However, I suspect that this difference is more apparent than real. Consider, for example, that states in the imperfecto will systematically receive a simple stative meaning. Where there is an aspeсtual mismatch, a future oriented meaning may be licensed. As long as one is talking about telic events, they will wind up with future reference. On the other hand, in the case of pretending, one usually makes reference to atelic eventualities, such as descriptions or events in progress.

In each of these cases, then, instead of sensing any real aspectual difference relative to the meaning of the imperfecto, I will assume that there is a particular modal relation which in the morpho-syntax bears the feature [+past], while all else should function as already stated. Therefore, I will so nothing more about these in this chapter.

4.6. Conclusion

In this chapter I have proposed a revision of the base case for the imperfecto, such that it enforce the subinterval property strictly in terms of intervals. I have done this by requiring that the nuclear proposition of IMP to be true of every event stage (or temporal cross section) of some event \( e \). This was to avoid certain pitfalls relative to the progressive and future readings which could not otherwise have been maintained. In addition, I have provided additional relations to modify the nuclear proposition of IMP so as to satisfy the atelicity requirement.
CHAPTER 5

EL PROGRESIVO

Spanish, along with some other Romance languages, has a periphrastic progressive which may have either a perfective or imperfective auxiliary. This implies that certain imperfective notions associated with the *progresivo*\(^{45}\) may be compositionally combined with an additional aspectual operator. In this chapter I will explore some contrasts between the *imperfecto progresivo* and the *pretérito progresivo* in the first section. In the second half, I will explore some contrasts between the *imperfecto progresivo* and the simple *imperfecto*, including how the progressive relation, as defined in terms of inertia worlds, when applied to stative predicates, is predicted to have exactly the sorts of interpretations that it has. While this may not sound very surprising, to my knowledge no attempt has been made to explain the meaning of progressivized states in terms of inertia worlds, and second, what attempts that have been made assume that there is more going on than compositional semantics.

\(^{45}\) By the term *progresivo* I mean to indicate those forms which end with –ndo, essentially corresponding to English –*ing* forms, at least with regard to the progressive periphrasis.
5.1. Pretérito Progresivo vs. Imperfecto Progresivo

In this first section I will begin with an overview of the meaning of the pretérito, which is much less involved that the imperfecto, followed by a discussion of how the meanings of the pretérito and imperfecto interact with the meaning of the progressive participle (-ndo forms).

5.1.1. El Pretérito

In this section, I will provide some brief overview of the meaning of the pretérito, though of necessity I will not be able to go into as much detail in this regard as I have with the imperfecto. The relevance of the pretérito here is limited to its interaction with the progresivo. Traditionally it is assumed that the meaning of the pretérito coincides with the notion of perfectivity, and that perfectivity is associated with completion or termination. One need only look to the traditional terminology used to refer to forms like comió (he/she ate) and abandonaron (they abandoned) to see this in names like el pretérito perfecto simple. Below I will discuss some traditional approaches to understanding the meaning of the pretérito.

5.1.1.1. Perfectivity As Wholeness

Though the term perfective is generally associated with completed termination, Bello understands it in a way more in tune with its etymological meaning, namely implying wholeness. In this sense, Bello’s interpretation is something akin to what we think of in model theoretic semantics as simply being true, that is in that it is concerned with facts about an event that allow us to truthfully assert that a proposition is true. Bello discusses cases where the pretérito is used (with stative predicates) to imply the
beginning of the state. He argues that from the very first instant that state is *perfected* or *whole*, and we might therefore add that from the outset, an assertion communicating said state will be judged as true. In this light, the *pretérito* implies wholeness more than termination or completion. Only in the sense that telic events must achieve some predetermined terminal point to be whole or complete do we also have the entailment that the *pretérito* also implies termination.

### 5.1.1.2. Perfective Vs. Terminal

Arguably, Bello’s explanation about wholeness to account for inchoative readings is perhaps not completely accurate in that in such cases that which is communicated is a *change of state*, not simply the new state. But this aside, it is significant that his explanation diverges from a more pervasive intuition that the *pretérito* always entails termination.

Following the more traditional approach, Cipria and Roberts 2000 explicitly formalize the termination hypothesis in a model theoretic semantics. In this analysis, they propose that if any eventuality is true of the interval evaluated by the *pretérito*, then that same eventuality must *not* be true beyond the end of that interval. Specifically they claim that if there are any super-events (super-situations) of the event being evaluated, their final moment will coincide with that of the event under evaluation. This has the effect that if there is another event of the same type which occurs after that time, it must be counted as a distinct event—one that does not have the earlier one as subpart.

Gennari 2002 argues that this is not a correct characterization of the phenomena, precisely because of cases where there is continuation of an event after the time evaluated
by the *pretérito*. Instead she argues that the *pretérito* is a simple past tense with no further stipulation. The termination or end-point effect (i.e., the lack of continuations) which frequently arises is then attributable to two sources, one semantic and one pragmatic.

The semantic facts underlying entailed non-continuation stems from the formal definition of telicity, whereby any non-final subevents of a telic event $e$ will not be of the same type as $e$. For example, not all subparts of a house-building event are house-building events as well. Hence, if a telic event is verified at an interval $i$, then a completed termination is also entailed to occur at the final subinterval of $i$. And so when the *pretérito* is combined with a telic event description, it will entail the completion of that event if judged true.

The pragmatic facts, as Gennari argues, contributing to a non-continuation reading have to do with canceling a super-interval implicature that she argues is associated with states and atelic eventualities in general. Her super-interval implicature is really the same thing as the properly included reference time implicature I proposed in Chapter 2, except that she associates this with states in general rather than with the *imperfecto*. This being the case, unless there is overt cancellation or other incompatibility, a state will be assumed to continue. Since the *pretérito* stands in aspectual contrast to the *imperfecto*, which guarantees atelicity and therefore might be taken to implicate continuation, the former is used to cancel such an implicature in the event that it is combined with an atelic eventuality description.

1. Juan estuvo enfermo anoche $\Rightarrow$ Juan está mejor ahora.

   *Juan was sick last night. $\Rightarrow$ Juan is better now.*
I would take her rationale a step further, following my discussion of the
pretérito/imperfecto contrast in Chapter 2. I would argue that the pretérito not only
cancels a super-interval implicature, it does so in virtue of the opposite implicature that
the event time and reference time actually coincide. This assertion is not incompatible
with Gennari’s argument in which, as in my proposal, the pretérito may have a
continuation reading. I will call this implicature generated by the pretérito the
“completion implicature”, and recognize that this implicature may be cancelled by
conversational factors.

This fact may be seen in the following types of examples, where a state actually
continues beyond the evaluation time of the pretérito.

2. a. María estuvo enferma esa noche.
   
   *María was-PRET sick that night.*

   b. Y siguió igual de enferma el día siguiente también
   
   *And she continued equally sick the next day as well.*

I will assume with Gennari that the pretérito is essentially a simple past, though
given the other assumptions I have made thus far with regard to the imperfecto, I will
have to make some modifications. I will assume Ogihara’s (1996) definition of the past
tense, which is nearly identical to Gennari’s. The essential elements in (3) are that
temporal arguments may be referential, so that \( i \) may be bound by some particular or
salient interval in the discourse, and that the past tense is sensitive to the local evaluation
time, which will bind \( i_0 \). Given these facts, if the past tense is not in an embedded
context, \( i_0 \) will be bound by the time of utterance, thereby constraining its interpretation to \( i < \text{ST} \).

3. \[ \text{PAST} = \lambda Q_{<i}, i \lambda i_0 [i < i_0 \land Q(i)] \]

For now I will not be concerned with the property that the past tense as described is always interpreted as a relative tense. I will discuss this problem and the solution to this problem in detail in chapter 6 when I discuss sequence of tense. What is relevant for now is that \( Q \) must be true at \( i \) and that there are no other semantic constraints.

However, in Chapter 4 I made the assumption that eventuality descriptions (atomic propositions) are predications on events, not intervals. This was not a problem with the imperfecto since it ultimately served to bridge this difference, claiming that the time of evaluation was a subinterval of the temporal extension of some event. Therefore, in order to make the past tense compatible with an event description, I will assume the following aspectual relation to represent perfectivity. This relation simply guarantees that the event in question takes place at the time of evaluation.

4. \[ \text{PERF} \Rightarrow \lambda Q_{<s}, \exists i \exists e (\tau(e) = i \land Q(e)) \]

As I have been arguing in this section, this definition does not ultimately guarantee that an atelic event in its entirety is bound within the limits of \( i \), since there may be a super-event \( e' \) of \( e \) of the same type \( Q \) occupying a superinterval \( i' \) of \( i \). On the other hand, if the event in question is telic, then its termination will be required to be within \( i \).

As Bello argues, the pretérito always denotes that an event is whole (i.e., true of an interval). And we might add that the effect in the discourse is that this event,
regardless of other considerations, is in some sense independently relevant. That is, in the case of atelic eventualities, the particular sub-event or stage of the atelic eventuality may be one that is of independent interest for the interlocutors. This is the case with (2a), where the stage of María’s sickness that was relevant was limited to that night. This is imaginable in a few different cases.

**Scenario A**

It could suggest that María had a bout of terrible illness starting that night. This would not be an inchoative reading per se, since it would not be limited to her getting sick, but it could at least include the inception of her worsened state.

**Scenario B**

Another imaginable scenario is where the speaker is remembering a time in a somewhat distant past when she dropped by to visit María on that night and unexpectedly found her very sick. Since that time she has forgotten most of the other details or worry about her illness and therefore only relates the experience as isolated.

**Scenario C**

Or perhaps the speaker is answering a question about why María did not attend the PTA meeting that night since it was discovered after that she had the binder with the minutes from the previous meetings and so no one remembered what had been discussed the month before and the meeting ended up being somewhat chaotic and unproductive. In this case, without thinking so much about María’s health as about the frustrated parents and teachers, the speaker simply asserts the circumstances of that night as they related to her absence.
Had (2a) been (4), it would have had a different effect in each case, despite the fact that it may not alter the truth of the assertion.

5. Recuerdo que esa noche María estaba bien mal.

In scenario A, it would not have the inceptive reading, even if she actually did become very sick that night. Rather, it would imply that, from the speaker’s perspective, María was in the middle of doing poorly. In scenarios B and C the effect would perhaps be somewhat more sympathetic to María’s situation because it would not suggest that her illness was relevant only to the other events at the time under discussion. Instead, it would suggest that María was having her own lamentable situation, and that the other events under discussion were temporally coincident with her illness.

These descriptions are far from formal, nor are intended to be such. Rather I hope to show, given these sketches of some real world situations where the contrast between pretérito and imperfecto might be relevant, how certain macro concerns of language use in real life are conceptually grounded in the logical characterization I have given up to this point.

5.1.2. Pretérito Progresivo

Unlike the simple pretérito, which under normal circumstances advances the narrative time\(^{46}\), the pretérito progresivo does not advance the narrative time. In the

\(^{46}\) This would be the standard treatment under standard assumptions, such as Kamp & Reyle 1993, Hinrichs 1986, Partee 1984, \textit{inter alia}. However, Cipria and Roberts question this, arguing that the pretérito may not in fact advance the narrative time in combination with atelic eventualities. This would purportedly include the pretérito progresivo, which by definition is always atelic.
CREA, CORDE and the Corpus del español I have found numerous cases where the pretérito progresivo serves to background some on-going process or activity relative to the foreground events in the simple pretérito. Consider a couple such examples.

6. El año pasado en [...] la primera bienal que hubo de Ciudad de Las Palmas, pues también me seleccionaron un cuadro y, ya te digo, también me quedé muy contenta, luego te lo enseñaré para que veas qué cuadro fue un cuadro de varias mujeres tomando el té, y luego te lo enseño. Y [...] luego expuse en en Tremp expuse, donde estuve viviendo, en el pueblo este...

Last year in the first bi-annual exposition that took place in City of Las Palmas, well they selected one of my paintings and, I’m going to tell you, I was so happy too, later I’ll show it to you so you can see which painting it was, a painting of various women drinking tea, and later I’ll show it to you. And then I exhibited in, in Tremp, where I was living, in this town...

7. Y, llegando a la cueva, acaeciómé un acaecimiento, y, tornándome a retraer muy de presto, me junté del todo a la puerta, y tomé en la boca la que otras veces en la mano tomaba, y estuve pensando qué haría...

47 Corpus de Referencia del Español Actual and Corpus Diacrónico del Español, accessible from the website of the Real Academia Española, at www.rae.es.

48 This database is available on the web at www.corpusdelespanol.org.


50 Selection taken from Segunda parte del Lazarillo de Tormes, anonymous, 1555.
And arriving at the cave, a happening happened to me, and, turning to retreat quickly, I got right up to the door, and I took in my mouth what at other times I took in my hand, and I was-PRET thinking what I would do…

The first of these comes from modern Spanish, in an oral interview with an artist who mentions the circumstances surrounding the presentation of her painting. Native speakers indicate that the sense would be very different if the simple imperfecto or imperfecto progresivo were used. Such a change would give the sense that the speaker was intending to say more about the time during which she lived in that place. Instead, the pretérito progresivo communicates that that era is essentially a closed chapter of her life; it puts distance between the present and that past time.

In the second example, I understand Lazarillo’s thinking to be marked as limited to the moment that he is afraid, but potentially surrounding the other actions he takes at that time. Therefore, I take these descriptions to be reflective of what I have already said about the pretérito, that it implicates termination or closure. This also corroborates the descriptions I have given of the imperfecto as characterizing an interval (i.e., a superinterval of the time of evaluation) as opposed to the pretérito which is simply for placing an event in time. Equally, though perhaps more importantly, these examples shows that the assumptions that the pretérito generally advances the narrative time or that the pretérito always represents an event with no internal structure simply does not hold for the pretérito progresivo. Therefore, for the sake of semantic compositionality, we
must conclude that these latter effects are strictly pragmatic, and do not arise with the *progresivo*.

5.1.3. Contrasts

Beyond the “closed chapter” / “open chapter” effect brought on by the contrast between the *pretérito* and the *imperfecto* as applied to the *progresivo*, there are some deeper issues of how the progressive relation itself is interpreted. As is widely assumed, the progressive relates an event $e$ to some more developed super-stage $e'$ of $e$. And in formal definitions, it is generally required that $e$ not be a final subevent of $e'$. This implies that $e'$ is always temporally longer than $e$.

But consider now what happens with durative adverbs. Purportedly these should measure the duration of $e$, not $e'$, and therefore this duration should not logically include the final result of whatever process $e$ denotes. And yet it is possible to refer to the entire process implied by an eventuality, including its culmination, with the progressive.

8. **Estuve leyendo ese libro durante 3 días.**

   *I was-PRET reading that book during 3 days.*

9. **Mi pobre abuelo estuvo muriendo por 2 años.**

   *My poor grandpa was dying for 2 years.*

In each of these cases, it is possible to construe the culmination of the event within the period denoted by the durative adverb. Example (8) can be continued felicitously with indications either that I finished or did not finish the entire book. On the other hand, in (9), the only felicitous reading is one where the grandfather did in fact die. That is not to say that *estuvo muriendo* could not denote a partial dying event, such that
the subject was in fact understood to still be alive. And in fact I was able to find just such an example in the *CREA*.  

10. El poder tienta al hijo contra el padre. Cuando se estuvo muriendo en el 21, su hijo Vicentico ya disponía como rey en mando. Cuando se recuperó le captó en la cara el desencanto.

*Power tempts a son against his father. When he [the father] was-PRET dying on the 21st, his son Vicentico was already exercising kingly authority. When he [the father] got better, he noticed the disappointment in his son’s face.*

What is significant about this fact is that no such reading appears to be possible with the *imperfecto progresivo*, which incidentally is not compatible with durative adverbs either. In Chapter 2, I attributed this general incompatibility of the *imperfecto* with durative adverbs to a pragmatic contradiction, in that evaluation time of the *imperfecto* was assumed to be a proper subinterval of the event time (in case the *imperfecto* did not have a habitual interpretation).

However, this problem seems to go one step beyond this sort of solution because the issue concerns final subevents in inertia worlds, not initial subintervals corresponding to the evaluation time. Therefore I see two possible solutions (though of course there may be others), one semantic and one pragmatic.

The semantic solution would treat the progressive reading that includes a final culmination as simply an secondary reading independent of the non-culmination reading.

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51 Selection taken from *En la casa del pez que esconde el agua* by Francisco Herrera Luque, 1985.
That is, the culmination reading might be thought of as the product of some function which maps a telic eventuality onto the entire process that constitutes it. And there is some independent evidence for such a perspective considering the fact that the \textit{pretérito progresivo} is used most frequently with predicates that imply a gradual change over time, so that the final accomplishment is not substantively different from any other moment of change except that it happened to be the last.

The problem arises as we try to preserve the compositional nature of the \textit{progresivo} with either the \textit{pretérito} or the \textit{imperfecto}. If the \textit{pretérito} is in fact responsible for this difference, then we would have to provide some mechanism whereby the \textit{progresivo} was sensitive to which aspectual operator it was selected by, which strikes me as difficult if not impossible.

Ultimately, then, some mechanism outside of the semantics proper would have to intervene to guarantee the right interpretation, which begs the question of why we shouldn’t place the entire problem with the pragmatics and keep it out of the semantics all together. So now I will sketch how I might accomplish this as a pragmatic solution.

The first step would be to eliminate the stipulation that the progressive event \( e \) must be a non-final subevent of the target event \( e' \). Then comes the correspondence between the grammatical aspect of the auxiliary and the interpretation of the progressive relation. As discussed in Chapter 2, given the contrast between the \textit{pretérito} and the \textit{imperfecto}, a speaker may exploit this contrast for the greatest possible clarity. This leads to the following generalization: if an overtly imperfective form is used, to the extend possible it will be inferred that the evaluation time will be properly internal to the
relevant event under discussion. And to the extent possible, the evaluation time of a
perfective form will be inferred to include the entire event.

Such a generalization should be taken on its most intuitive understanding. The
“relevant event” could either be a simple state or it could be the target event of the
progressive. Furthermore, if some constraint of this type were not assumed to constrain
the interpretation of the aspectual contrast, it should be just as easy for an imperfecto to
be interpreted as synonymous with its pretérito counterpart. Therefore, instead of asking
why an imperfecto cannot denote an event in its entirety, we should be asking instead
which grammatical form is the most appropriate for doing so, and the answer would be
the pretérito. Therefore, if the pretérito is not chosen, it must mean that the speaker did
not intend to describe the full event.

5.2. Imperfecto vs. Progresivo

Interestingly, the simple imperfecto and the progresivo share a number of similar
readings. The first point of contact is of course the progressive reading of the imperfecto
vis-à-vis the periphrastic progresivo. But the similarities go beyond this. The progresivo
also has a frequentive meaning, similar in some ways to the habitual reading of the
imperfecto, and the progresivo may also be combined with stative predicates to yield a
meaning which is distinct from the simple expression of stativity with the imperfecto.

These will each be discussed below in the following order. In § 5.2.1., I will
contrast the use of the imperfecto with the progresivo when a simple progressive meaning
is intended. In § 5.2.2., I will turn to the issue of progressivized states, specifically

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52 See Chapter 2 for the further discussion.
drawing on the inertia worlds analyses discussed in Chapter 4 to explain why the 
*progresivo* has the effect that it does. And finally, in § 5.2.3., I will show that the insights 
gained in § 5.2.2. may be applied to habitual readings as well. This final phenomenon 
also suggests that the *progresivo* may accept some secondary operators to intervene 
between the nuclear event description and the *progresivo*.

### 5.2.1. Progressive Readings

To this point I have assumed that the *imperfecto* has a true progressive meaning as 
one of its sub-meanings that is directly comparable to the progressive meaning of the 
periphrastic *progresivo*. However, this turns out to be problematic if we simply compare 
the *imperfecto* straight across with the *progresivo*. Consider the following contrasts in 
examples (11-12). In (11), the simple *imperfecto* is more acceptable than the *progresivo* 
when relating a punctual event with an on-going one. The reverse is true in (12) (in this 
case # represents the fact that the example sounds more stylistically out of place than 
grammatically incorrect).

11. a. Salí a ver a Juan cuando venía del trabajo.

   *I went out to see Juan when he came-IMP from work.*

   b. ??Salí a ver a Juan cuando estaba viniendo del trabajo.

   *I went out to see Juan when he was-IMP coming from work.*

12. a. #Cuando entré en el salón, Jorge comía su almuerzo.

   *When I came into the room, Jorge ate-IMP his lunch.*

   b. Cuando entré en el salón, Jorge estaba comiendo su almuerzo.

   *When I came into the room, Jorge was-IMP eating his lunch.*
The behavior we see with the verb *venir* is typical of other verbs which denote direction, but not any specific mode of locomotion, such as *ir*, *regresar*, and *volver*. The thought here is that these verbs are unique in that they do not denote any particular process, as much as just a goal. If we take this idea seriously and strictly apply it to the progressive analysis, we might think that there is really no event that is becoming a “coming” event as much as that there is a goal to arrive somewhere from elsewhere that is about to take place. Then in this sense, the simple *imperfecto* meaning may perhaps be analyzed as a future reading.

However, even in such a case, we must admit that the goal to come is evaluated at a time that is simultaneous with Juan actually making progress toward achieving that goal. This is a possibility that I have provided for in my analysis of the future reading, and given that the *progresivo* does not have a future reading, this would explain the contrast. On the other hand, given that Juan is actually making progress toward his goal, we should still ask why we should not allow the *progresivo*?

To answer this question, we should consider that it is possible to find these verbs (*venir* (come), *ir* (go), *volver* (return), etc.), when used to describe some overt process, being used naturally in the *progresivo* (at least in certain dialects).

13. *(A doctor says to his patient during a medical procedure)*

—No te inquietes, Juani, todo *está yendo* bien.

*Don’t worry, Juani, everything is going fine.*

[from Ludovico Gulminelli (2000), translation and emphasis mine]
14. —¿Vendrá alguna vez lo que vos llamás tiempo nuevo?

—Se está viniendo.

—Y cuando llegue, ¿no habrá ya veneno en las mentes de los hombres?

Will what you call ‘new time’ ever come? –It’s coming. –And when it arrives, will men no longer have poison in their minds?

[from Dimas Aranda (2001), translation and emphasis mine]

And if we turn the question around, comparing the use of the imperfecto when the progresivo is natural, a few native speakers have commented to me that the use of the simple imperfecto sounds archaic or literary. This is what we find in (12)—hence the # mark—where the progresivo is much better suited to describing a simple accomplishment in progress. This suggests that the progresivo in Spanish may be sensitive to there being an actual process or activity that is going on53, at least where telic eventualities are concerned, while the simple imperfecto may be more neutral in this regard.

In light of these observations, instead of bifurcating the analysis of the progressive relation into one for the imperfecto and one for the progresivo, I will assume that the solution I have already proposed is already adequate for capturing just this sort of distinction. That is, the future meaning of the imperfecto is capable of evaluating a goal or plan during the time that progress is being made toward the goal, but does not commit the speaker to any particular sort of physical activity or mode of locomotion. This is in harmony with the fact that these verbs themselves seem to lack any such entailments. On

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53 This is actually similar to something suggested by Landman 1992, that the progressive event itself should be an activity or process subevent.
the other hand, to the extent that these verbs are used to describe real processes, the progressive analysis becomes felicitous in light of the specificity of the activity in question.

Corroborating this analysis yet further, we also find this same set of verbs of motion (i.e., directional, goal-oriented motion) used in progressive periphrases as well. In such cases, the participle overtly specifies the means of locomotion. This is illustrated in (15-16).

15. Juan venía corriendo.
   \textit{Juan came-IMP running.}

16. María se fue caminando.
   \textit{María left-PRET walking.}

In summary, in this section I have argued that the differences between the progressive readings of the \textit{imperfecto} and the \textit{progresivo} may be formally captured in the distinction between the progressive and future readings of the \textit{imperfecto} in combination with verbs which we traditionally think of as verbs of motion, but which I have argued denote a goal more than anything, and that goal entails motion. Furthermore, where the \textit{progresivo} has come to compete with the true progressive meaning of the \textit{imperfecto}, the former is preferred in conversational registers, though in literary registers the former is possible and at times preferred.

\subsection*{5.2.2. States in the Progresivo}

In this subsection I will discuss the effect of expressing states in the \textit{progresivo} as opposed to the simple \textit{imperfecto}. Recall that in the \textit{imperfecto}, the stative reading, when...
possible, is the only option, meaning that the *imperfecto* is incapable of exercising a progressive effect on states. This contrasts with the *progresivo*, which imposes a progressive meaning on whatever its argument, regardless of its Aktionsart.

In (17-19) all three pairs show a similar contrast. In the (a) examples there is a simple state. Claudia simply likes the novel, Marisol has planned to go out with her sister, and Francisco had London as his place of residence. These contrast with the (b) examples, which each has an attenuating or temporally focusing effect relative to the (a) examples. Claudia was still deciding if she liked the book, but did so far; Marisol had thought to go out with her sister, but was still open to reconsidering that plan; and Francisco may have only been in London on a temporary assignment.

17. a. Claudia comentó que le gustaba la novela.
   
   *Claudia commented that she liked the novel.*

   b. Claudia comentó que le estaba gustando la novela.
   
   *Claudia commented that she was liking the novel.*

18. a. Marisol pensaba salir con su hermana esta noche.
   
   *Marisol thought-IMP to go out with her sister that night.*

   b. Marisol estaba pensando salir con su hermana esta noche.
   
   *Marisol was-IMP thinking of going out with her sister that night.*

19. a. Francisco vivía en Londres cuando conoció a su esposa.
   
   *Francisco lived-IMP in London when he met his wife.*

   b. Francisco estaba viviendo en Londres cuando conoció a su esposa.
   
   *Francisco was-IMP living in London when he met his wife.*
Of course each of these interpretations is also based partially on context, given the possibilities from our knowledge of the world. But what they share is that they do not represent an unqualified view of the state in question. In each case we are required to look into our world knowledge to qualify the status of the progressivized state.

5.2.2.1. Coercing States into the Progressive

One possible treatment of this phenomenon is de Swart’s proposal to treat progressivized states as another case of aspectual coercion. Following Smith 1991, she assumes that despite the fact that the progressive yields a stative output, it can only be combined with [-stative] predicates. Again, in the case of an aspectual mismatch, a coercion operator must intervene between the stative predicate and the progressive operator, mapping the state onto a dynamic ([-stative]) eventuality before PROG can apply. De Swart discusses the following English examples from Smith 1991 of progressivized states.

20. Susan is liking this play a great deal.

21. Peter is believing in Ghosts these days.

However, de Swart does not actually say much about the semantics of these mechanisms. Informally she describes the effect of the progressive on states as “a lot more ‘dynamic’ than the underlying lexical state” and that the progressive adds more “vivid color [to] the description” (363). In her semi-formalized description of the DYNAMIC operator, she states that it presents states as “a process or event that the agent is actively involved in” (383). From this we might assume a greater degree of agentivity, decision, choice, or work on the part of the subject, though I think it might be difficult to
formalize any such constraints as a general description of this effect. Any particular effect appears to be strictly ad hoc.

5.2.2.2. States and Inertia Worlds

Instead of assuming a coercion operator which simply makes these states more ‘dynamic’, I will attempt to apply Landman’s and Portner’s approaches to the progressive directly to the interpretation of states in a simple compositional fashion, and see what comes of it. As already discussed, one fundamental consideration in these approaches, which Landman considers a primitive notion, is the idea of reasonableness of continuation. It should be recalled that this is determined on the basis of considerations internal to the progressive event $e$ in Landman’s account and can be circumscribed by the Circ function in Portner’s account. That is, when we consider all the circumstances relevant to the truth of the progressive, the reasonableness of its continuation will be implicitly included.

For the evaluation of states, which are already upward compatible and whose continuation was shown to be generally implicated, though still dependent on discourse assumptions or lexical entailments available in the context, the added consideration of reasonability of continuation adds a new dimension to this interpretation. That is, instead of continuation of the state being merely implicated, its continuation beyond the time of evaluation will now additionally be subject to how likely it is that the state should continue based on the circumstances that surround it. And making use again of Horn’s (1984) observations regarding markedness, because the progressive form is specifically marked for such considerations while the simple imperfecto is not, we may infer from the
use of the progresivo that there is in fact some property or properties relevant to the state and/or its arguments which make continuation questionable.

In the case of liking a book, as we interpret the progressive version, the progressive relation requires that we consider the attributes of the event of liking and its arguments to figure out if the liking should continue. That is, we must consider, perhaps among other things, the qualities of the book and the tastes or personality of the reader. To the extent that such information is not available to us, we can at least infer that one or more of these is in question. So we naturally conclude from (17b) that Claudia was still deciding and that perhaps she still had some reservations or concerns about the book.

In this way, the progressive (b) examples in (17-19) each implicates that there is some set of circumstances relevant to each state and its arguments such that it is not as likely to continue as the general states in the (a) examples. These observations suggest a means for explaining how the attenuating effect is brought about by the consideration of factors relevant to the eventuality, namely reasonableness of continuation, which is an inherent part of these progressive analyses already. Ultimately, then, it seems that the dynamic effect brought about by the periphrastic progressive may be seen not as de Swart argues, a precondition to interpreting the progressive, but rather as the direct product of the truth conditions and pragmatic considerations following from the progressive.

However, the problem with this approach is that it incorrectly predicts that the progressive will have a felicitous interpretation with all stative predicates. This is clearly too strong a statement, given odd (English) cases like (22-23), suggested to me by David Dowty (p.c.), which would be equally odd in Spanish.
22. I studied last night, and I am knowing lots of French this morning, but I'll probably forget it all by tomorrow.

23. My class is consisting of 30 students today, but probably a bunch will drop by the end of the week.

He further suggested that this is only possible with perceptual and psych verbs. If we look again at (17-21), we can see that this the case in all examples except (19). Whatever the solution, it appears that a simple compositional analysis will not be sufficient.

In the case of psych verbs, there is additional justification aside from the progressive examples that they may be ambiguous between a stative and non-stative meaning. For example, pensar (to think) may mean to hold an opinion or to process a thought/opinion, while gustar (to please/like) may describe a general predilection vs. an impression made at a particular time. The stative/non-stative contrast may be brought out in other ways besides the progressive as well, as seen in (24-25).

24. a. Pensaba que no iban a salir hasta las 4.

   I thought that they were not going to leave until 4:00.

b. Sin pensarlo dos veces, agarró su pistola a se fue.

   Without thinking it (through) two times, he grabbed his gun and left.

25. a. Recuerdo que a María le gustaba hablar con su abuela.

   I remember that María liked to talk with her grandma.

b. Recuerdo que a María le gustó esa película.

   I remember that María liked that movie.
Example (24a) in the *imperfecto* is naturally interpreted as denoting the state of holding a certain opinion, as opposed to (24b), where it clearly denotes an idea occurring to the subject. Likewise, (25a) refers to a general feeling María had about talking to her grandma, while (25b) refers to an impression she had on a given occasion. While these examples are not intended in any way to be exhaustive in illustrating the various means that these meanings may be brought out, it is at least apparent that these different meanings are accessible through means other than the progressive, and that the interpretation of the progressive with these verbs seems to pick out the latter meaning of each.

Likewise, a similar ambiguity can be seen in verbs like *querer* (*want*) and *poder* (*be able to*), on the one hand, which vary between stative and active meanings (i.e., making an attempt or accomplishing a goal, respectively), or verbs like *tener* (*have*), *conocer* (*be acquainted with*), and *saber* (*know*), which vary between stative and inchoative meanings. These different meanings may be brought out in combination with the *imperfecto* vs. *pretérito*, respectively, with the latter meaning also possibly brought out with the *progresivo*.54

As regards the verb *vivir* (*to live*), there does not seem to be any obvious or independently accessible lexical ambiguity aside from the difference brought out by the *progresivo*. The difference seems to be simply to live somewhere vs. to live somewhere *temporarily*. On the other hand, it may be that living is indeterminately a state or an

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54 I do not provide examples of all of these merely in an effort to economize, but the interested reader may find ample examples of these at [http://corpusdelespanol.org/](http://corpusdelespanol.org/), using the query “estar.* queriendo” , etc.
activity, making it equally compatible with either a simple imperfective form (the simple present or the imperfecto) as well as the progresivo. In any case, here as well as in the former examples, there seems to be a lexical issue, which I will not be able to treat in any detail here.

These observations suggest that the attenuating effect witnessed above might be accounted for, not simply by the progressive analysis alone, but additionally by substituting a perceptual or cognitive process, which is inherently more susceptible to change, in place of the more static meaning generally associated with said predicates. And that this substitution or coercion of meaning falls within a more general phenomenon that includes substituting other sorts of activity meanings as well. Therefore it follows that a coercion analysis of some type is still needed, though I will not attempt an account of this process since it falls outside of the scope of the current work.

5.2.2.3. Temporal Focus

I don’t think that coercion is the whole story either, however, in light of more direct comparisons between the imperfective (the simple present and past imperfecto) and progressive forms. Returning again to vivir, which I’ve claimed to indeterminately describe a state or activity, whatever its Aktionsart status, it can be used in both simple and periphrastic imperfective forms with approximately the same meaning. I would like to reiterate here, however, that there is a perceptible difference in the context of the progressive, in which case it may have a more temporary or precarious feel to it (cf. (19b)), if not simply more temporally relevant in the context.
Similar to vivir, there are verbs like trabajar (work) and estudiar (study) which may be used either to imply a contractual relation between an individual and an agency or field of study respectively (though the contractual relation also implies some sort of activity) or to imply that the individual is activity engaged in some sort of activity at a given moment in time. This contrast is illustrated in (26-27).


    Gregorio worked-IMP in Chicago.

   b. Gregorio estaba trabajando en la cocina cuando lo vi.

    Gregorio was-IMP working in the kitchen when I saw him.

27. a. Manuel estudiaba inglés hace unos años.

    Manuel studied-IMP (i.e., was studying) English a few years ago.

   b. Manuel estaba estudiando vocabulario cuando lo vi.

    Manuel was-IMP studying vocabulary when I saw him.

The (a) examples imply that the subject stands in some sort of contractual relation, which is distinct from the potential habitual interpretation, such as would be required with an adverb like siempre (always). That is, the (a) examples do not per se denote an iteration of an activity. The (b) examples on the other hand show that these verbs are equally compatible with the progressive to express a single instantiation of an activity at a particular moment.

What is interesting, however, is that these verbs may also be used in the progressive to denote not a single instantiation of activity, but with a meaning more like the (a) examples above. That is, in (28-29) there is still a contractual meaning, but the
sense is that it is either temporary or for some other reason has special relevance to a particular moment. This contrasts with the (a) examples above, which seem to be relevant in a more general epoch.

   
   *Gregorio is working in Chicago.*

29. Manuel estaba estudiando inglés.
   
   *Manuel is studying English.*

Looking at another class of verbs, this time psych verbs, which seem to be indeterminate between a stative and non-stative meaning, there are the verbs *sentir* (*to feel*) and *querer* (*want*). Their meanings, like that of *vivir*, are somewhat unique in that they denote a continuous sensation (it is fully atelic like a state) that is neither agentive nor completely static. In the case of *sentir*, its interpretation does not seem obviously different between the simple and progressive forms, except for the sense of immediacy with the progressive.

30. a. María se sentía mal.
    
    *María felt bad/sick.*

    b. María se estaba sintiendo mal.
    
    *María was feeling bad/sick.*

Similarly, the verb *querer* (*want*), besides its active meaning (i.e., to attempt or refuse when it is negated), may also have a sense more closely related to its stative meaning in the progressive, except with an added sense of immediacy of emotion. In such
cases it seems to best characterize an urge, or sudden feeling of desire. This is illustrated in (31).

31. a. ¡Quiero irme (ya)!

   *I want to go (now)!*

   b. ¡Estoy queriendo irme (ya)!

   *I’m wanting to go (now)!*

What the progressives in (19) and (28-31) share is a sense of immediacy, more immediate relevance, or in some cases temporariness when compared with their simple *imperfecto* counterparts. I will refer to this general effect of the *progresivo* as “temporal focus”. There is no apparent coercion or other alteration in the meaning, suggesting that this effect is a direct product of the progressive. In fact, the sense of immediacy seems to be a constant property of the progressive, even in its more stereotypical usage with activity predicates or in its coerced meanings. So the question is why the progressive generates this effect, as opposed to the simple imperfective forms (simple present and past *imperfecto*).

To begin, recall that the *imperfecto* is upward compatible and that *imperfecto* assertions implicate that the event time surrounds the evaluation time. This has the effect in actual discourse that the *imperfecto* de-emphasizes the time of evaluation in favor of the larger event time. In (32), for example, the time of Fernando’s arrival is embedded within the time of a more extensive event of Juana’s sleeping, though both are presumably evaluated relative to the same actual interval of evaluation.
The effect of the progresivo, on the other hand, does not seem to be limited to a simple embedding of the evaluation time within a general background (though of course the imperfecto progresivo will obviously share this function with the simple imperfecto with which it is combined). Instead, the effect of the progresivo seems to hinge on an emphasis on the evaluation time.

At this point, I will revise somewhat what I said about the inertia worlds analysis in the previous section and its attenuating effect, and show that while those mechanisms may not be responsible for everything, they are responsible for the temporal focus effect observed in this section.

To account for the greater sense of immediacy or what I’m calling temporal focus, we might look again to pragmatic contrasts. More specifically, we know that the progressive relates an event at a given moment to a more extensive event that is projected within a set of inertia worlds. While these inertia worlds might just as easily include the real world, in such a case its meaning would be identical to that of the imperfecto or simple present. And so, I would suggest, the contrast between the imperfecto and the progresivo implicates that the real world should not be assumed to be among those inertia worlds, lending to the progresivo a sense that the assertion is limited only to the time which is nearer or identical to the time of evaluation. From this rationale stems directly the sense of temporariness or precariousness.
Alternatively, as in cases where the intent is not to express temporariness, the sense of more immediate relevance may be derived secondarily by giving greater importance to the event at or nearer the time of evaluation. That is, instead of inferring that the continuation of the event in question is doubtful in the real world, we may simply infer that any significant extensions of the event beyond (both earlier and later) the time of evaluation are irrelevant.

The difference between the temporary (or attenuated) meaning and the temporally focused meaning seems to hinge primarily on the type of predicate involved, as well as on discourse context and assumptions. But what is most relevant here is that in general, the contrast between the imperfecto (or simple present) and the progresivo is the more direct focus on the eventuality at the reference time rather than on a general background state of affairs. This contrast might help explain why in conversational Spanish, speakers prefer the periphrastic progressive over a simple imperfective verb form with a progressive interpretation.

In conclusion, while it seems that some sort of coercion analysis would be profitable in some cases, independent of that phenomenon the progresivo seems to invoke its own sense of temporal focus. This is most notably isolated in cases where the verb is indeterminate between a stative and non-stative meaning, and therefore simple imperfecto and progresivo counterparts are more directly comparable.

5.2.3. Frequentive Readings

Finally, I will show that the temporalizing effect of the progresivo is present in cases besides stative predicates. In particular, this may be seen in the frequentive reading
of the *progresivo*. I will assume that this reading may be analyzed as progressivizing a habitual sentence, which, like states, are also known to already be atelic. Because they are already atelic, the progressive should again be redundant in some sense. However, there is a clear distinction between a simple *imperfecto* habitual and its progressive or frequentive counterpart.

33. a. Juan iba donde María mucho en aquella época.
   
   *Juan went-IMP where María a lot in that time period.*
   
   “Juan went to María’s a lot at that time.”
   
   b. Juan estaba yendo donde María mucho en aquella época.
   
   *Juan was-IMP going where María a lot in that time period.*
   
   “Juan was going to María’s a lot at that time.”

Intuitively, the difference between these is the sense in (33a) that Juan’s going was a general characteristic of a certain time period, while (33b) communicates that there was an emergent pattern of Juan’s going to María’s, but not to the point of qualifying as a general characteristic of that time period. This contrast is corroborated by the fact that the progressive version is much more amenable to modification by adverbs such as *últimamente* (lately) or *en estos/esos días* (these/those days). This contrast is perhaps even more clearly felt in the simple present vs. the present progressive.

Recapitulating the pervious arguments, we should say that the simple *imperfecto* has the effect of simply embedding the time of evaluation within some more general state, or in the case, habit. In this way it seems that the particular epoch in mind sits squarely within an established habit of Juan going to María’s. In the progressive case, the
continuation of the habit will both be relegated to inertia worlds and become subject to reasonableness constraints. That is, we must consider if Juan continues going to María’s, does his going have the potential to become a characteristic event of the time period? In this we can again see the concomitant attenuating effect which threatens an observed pattern to mature into a characteristic of a more general interval.

5.3. Conclusion

In this chapter I have explored more in depth the nature of the periphrastic progressive in Spanish by comparing the effect of combining it with the pretérito and imperfecto. I found that the pretérito progresivo not only exhibits properties directly stemming from the semantics and pragmatics of the pretérito, as we should expect in a compositional semantics, but also that there was some variability in how the progressive relation itself was interpreted.

This could be seen in the fact that a pretérito progresivo could denote a completed event. In an effort to keep the semantics as unified as possible and assuming a strict compositionality, I argued that the differences had to do with the pragmatic considerations surrounding the perfective/imperf ective contrast in general. To this end I concluded that the progressive relation was more general, so that it did not require that the target event realized in the inertia worlds to actually be a proper super-event of the progressive event.

In the second half of the chapter, I have considered how the inertia worlds analysis might be independently applied to analyzing the effect of the progressive on stative and habitual sentences. My conclusion was that the notion of reasonability
inherent in both Landman’s (1992) and Portner’s (1998) analyses contributed to an attenuating effect on the permanence or continuation of a state, or at least on the relevance of its continuation. This effect may also be observed in the frequentive interpretation of the progresivo, in which a series of iterated events stands in contrast with being a general habit that characterizes an interval.
In this chapter I will focus on the embedding of tenses. This phenomenon adds to a semantic analysis the morpho-syntactic properties that are involved with the interpretation of embedded tenses. The idea of sequencing of tenses (traditionally referred to as the *consecutio temporum*) is well established in the Romance tradition, though it normally refers to the choice of tense of subjunctive forms. This view is certainly justified in the case of literary Latin, where the indicative is much more scarce in subordinate clauses. However, in modern Romance languages, like English, the term may be applied just as well to the selection (and interpretation) of indicative tenses. Therefore, in addition to discussing indicative tenses, though without discussing the subjunctive per se, I will include in this chapter some discussion of present and past subjunctive examples as well.

In the first section of this chapter, § 5.1., I give some background to the problems involved with embedding tenses, without sequence of tense or any other mechanisms which would alter the basic interpretation of the tenses. I will show that unless there is some means for supplementing a unified set of basic tense definitions, a paradox arises,
whether tenses are assumed to be absolute (calculated relative to speech time) or relative (calculated relative to a matrix tense). In § 5.2., I will focus on attempts to circumvent these paradoxes by means of some sort of tense ambiguity rules, including sequence of tense. In this latter category, I will discuss hypotheses by Ladusaw 1977, Abusch 1988, 1991, Ogihara 1996.

Then taking a completely opposing view for a moment, in the § 5.3., I will focus on alternatives to sequence of tense. In this section, I discuss Abusch’s later proposal (1997), which is an extension of her earlier ideas, but provides a more elaborate alternative to the sequence of tense analysis per se. I will also given an overview and critique of Gennari’s 1999/2003 proposal to replace any sort of mechanism which alters the semantic interpretation of any tense by providing more flexible tense definitions, supplemented with more pragmatic interaction. Though her proposal would simplify many issues significantly, it ultimately does not accurately predict the interpretation of a few important embedded tense phenomena. On the other hand, Gennari also shows that Abusch’s and Ogihara’s account of double access readings have some logical flaws and she is able to offer a viable solution, which I will also adopt.

And finally in § 5.4., I will adapt these analyses to Spanish, within a formal morphological framework similar to distributed morphology (cf. Halle and Marantz 1993). This choice of morphological theory is based on an effort to give more independence and flexibility to the interface between semantics, syntax, and morphology as regards the sequence of tense phenomenon.
6.1. A Naïve Approach

The problem with trying to give a single unified semantic descriptions of the tenses (e.g., in Romance languages and English) has long been known to be paradoxical, at least given somewhat naïve definitions. We find differences both comparing complement clauses with relative clauses, as well as along the pretérito/imperfecto contrast within the embedded clauses.

In complement clauses we find that the pretérito generally implies that the embedded event took place first (or in rare cases it may be simultaneous), and that it never can be interpreted as taking place after the matrix event. This is shown in (1a-b).

With the imperfecto in the complement clause, the possibility of the embedded event time being simultaneous becomes the preferred reading, though again, it is never interpreted as referring to a time after the matrix (unless, of course, the imperfecto can be interpreted with a future meaning, in which case it still does not affect its evaluation time). And finally, a present complement embedded under the past gives rise to a double access reading (cf. Abusch 1988, 1991, 1997, Ogihara 1996, Gennari 1999a), where the state (including progressives) must hold continuously through both the matrix evaluation time and the time of utterance.

1. Complement Clauses
   
a. Felipe dijo anoche que Carina visitó a sus abuelos la semana pasada.
   *Felipe said last night that Carina visited her grandparents last week.
   
   VISIT (pretérito) < SAY

b. *Felipe dijo la semana pasada que Carina visitó a sus abuelos anoche.
   *Felipe said last week that Carina visited her grandparents last night.
   
   *SAY < VISIT
c. Felipe dijo anoche que Carina estaba donde sus abuelos en ese momento.  
*Felipe said last night that Carina was at her grandparents’ at that moment.*  
BE_AT (imperfecto) ◦ SAY

d. Felipe dijo anoche que Carina estaba donde sus abuelos la semana pasada.  
*Felipe said last night that Carina was at her grandparents’ last week.*  
BE_AT ◦ SAY

e. Felipe dijo la semana pasada que Carina estaba donde sus abuelos anoche.  
*Felipe said last week that Carina was at her grandparents’ last night.*  
*SAY ◦ BE_AT

f. Felipe dijo anoche que Carina está donde sus abuelos (ahora).  
*Felipe said last night that Carina is at her grandparents’ (now).*  
SAY ◦ BE_AT ◦ NOW

Complement clauses contrast with relative clauses, which are well known for being temporally independent. In (2b) and (2e) we find the two cases that were ruled out as possibilities for complement clauses, where the embedded event time is after the matrix event time. It is also possible, but not mandatory, in (2f) that the crying be continuous from the time of Felipe’s speaking to the utterance time of the sentence.

2. **Relative Clauses**

   a. Felipe habló anoche con una muchacha que ganó la lotería la semana pasada.  
*Felipe spoke last night with a girl that won the lottery last week.*  
WIN ◦ SPEAK

   b. Felipe habló la semana pasada con una muchacha que ganó la lotería anoche.  
*Felipe spoke last week with a girl that won the lottery last night.*  
SPEAK ◦ WIN

   c. Felipe habló anoche con una muchacha que estaba llorando en ese momento.  
*Felipe spoke last night with a girl that was crying at that moment.*
CRYING (progressive) = SPEAK

d. Felipe habló anoche con una muchacha que estaba llorando una hora antes.
   \textit{Felipe spoke last night with a girl that was crying one hour before.}
   CRYING \textless\ SPEAK

e. Felipe habló anoche con una muchacha que estaba llorando esta mañana.
   \textit{Felipe spoke last night with a girl that was crying this morning.}
   SPEAK \textless\ CRYING

f. Felipe habló hace un minuto con una muchacha que está llorando.
   \textit{Felipe spoke one minute ago with a girl that is crying.}
   SPEAK \textless\ CRYING \circ NOW or SPEAK \circ CRYING \circ NOW

The paradox that arises from these data is as follows. If the past tense were always absolute, calculated solely in relation to the time of utterance, meaning something like \( t < ST \) (\( t \) being the past reference time denoted by the past tense), this would predict all the possibilities listed above with relative clauses. However it would not explain why past complement clauses can never have an interpretation that is later than the matrix. Unless this behavior of complement clauses can be constrained by some additional pragmatic factors, this restriction is unexplained.

On the other hand, if the past tense were always interpreted relative to the matrix tense, meaning something like \( t' < t \) (where \( t \) is the matrix tense and \( t' \) the subordinate tense), this would predict the prior or backshifted readings of past complement clauses, but it would not predict the forward shifted readings of relative clauses, nor the simultaneous readings of both complement and relative clauses. These initial observations suggest that a treatment of tense as absolute comes closer to providing the right predictions, though still not without some caveats.
However, despite how promising this alternative seems at first, the absolute theory of tense can ever account for cases where a past tense form has reference to the a time later than the time of utterance. To give just a simple example, consider (3), in which the past tense is interpreted as prior to some future time, potentially after the time of utterance.

3. María nos dirá después de la fiesta mañana que bebió demasiado.

_María will tell us after the party tomorrow that she drank too much._

In this case, though the absolute theory of tense cannot account for the future reference of the past tense, the relative theory of tense naturally predicts that the past is simply prior to the local evaluation time, which in this case happens to be in the future. And so in these cases the relative theory of tense seems to be more promising.

At the same time, both of these theories fail when applied to Abusch’s now famous example of John’s final meal with his mother, which implies both future reference with a past tense form, and simultaneity of a past form with its local evaluation time.

4. John _decided_1 a week ago that in ten days he _would_1 _tell_2 his mother at breakfast that they _were_2 _having_ their last meal together.

5. Juan _decidió_1 hace una semana que en diez días le _diría_2 a su mamá durante el desayuno que _estaban_2 _comiendo_ juntos por la última vez.

I have added some temporal indices for the sake of exposition, as well as an approximate Spanish translation showing that the exact same phenomenon occurs in Spanish as well.
In (4-5), though John’s deciding is prior to the time of utterance, the future makes reference to a time that is three days after the time of utterance, which serves as the evaluation time for the final embedded clause. It should be clear that if the past tense is taken to always denote a time prior to speech time, then under such circumstances it will make the wrong predictions. Furthermore, if tense is relative, always preceding its local evaluation time, then again the wrong prediction is made.

In order to resolve these paradoxes, many linguists have proposed additional mechanisms to supplement or otherwise modify the semantic or morphological components of the grammar. In the following subsections, I will discuss in more detail some of the ways in which these two basic approaches to tense have been modified or supplemented, along with their strengths and weaknesses.

6.2. Tense Ambiguity

By “tense ambiguity”, I refer to the general intuition that a given embedded past tense form may have multiple non-equivalent interpretations, such as denoting precedence vs. simultaneity. In the sequence of tense literature, the general approach is to treat tenses as relative and to account for the simultaneous interpretations via the sequence of tense rule.

6.2.1. A Syntactic Approach to Sequence of Tense

The treatment of tense as relative was originally accomplished via the Priorian tense operators assumed in much early semantic work in the 70s. These functioned by replacing the local temporal evaluation index with a new one, either earlier or later. The “present” tense was treated simply as a simultaneous tense, which in unembedded
contexts was always evaluated relative to the time of utterance. Sample tense operators are given in (6-8).

6. $\left[ \text{PAST}(\phi) \right]' = 1 \text{ iff } \exists t' (t' < t \& \left[ \phi \right]' = 1)$

7. $\left[ \text{FUT}(\phi) \right]' = 1 \text{ iff } \exists t' (t < t' \& \left[ \phi \right]' = 1)$

8. $\left[ \text{PRES}(\phi) \right]' = 1 \text{ iff } \left[ \phi \right]' = 1$

In order to formalize the consecutio temporum within such a system, it was recognized that a morphological past tense form needed to be interpreted as being semantically vacuous. To this effect, Ladusaw 1977 proposed a rule system whereby an underlying present (simultaneous) tense was subsequently converted into a morphological past tense. In this way, the discrepancy between form and meaning would be accounted for as a part of the derivation from underlying to surface forms of the sentence.

6.2.1.1. Ladusaw 1977

In the syntactic theory assumed by Ladusaw at that time, the logical form of the sentence also served as input form for the syntax. The syntactic rules were then thought to operate on this underlying form in a strict sequential order. Given these assumptions, Ladusaw argued that an embedded tense which was governed by a past matrix at Deep Structure would be converted into a past morpheme. This would operate vacuously if it was already past, whereas future was not treated as a tense per se, and so was immune to this rule.
9. Sequence of Tense: Ladusaw 1977

<table>
<thead>
<tr>
<th>X (TENSE)</th>
<th>Y</th>
<th>PAST</th>
<th>Z (TENSE)</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

where 4 commands 2 and 6, but neither 2 nor 6 commands 4

This fact was argued to account for the simultaneous reading of a past tense, since it could be interpreted as underlingly a present/simultaneous tense. The backshifted past reading, on the other hand, was accounted for if the underlying logical form already had an embedded past before the application of sequence of tense.

In this way the ambiguity of the past tense could be accounted for in simple cases, as (1c-d) above, repeated here as (10-11). In (10) the past form *estaba* (*was*) is accounted for as a product of the sequence of tense rule, which has converted an underlying simultaneous tense into a past morphological form. In (11), the same verb is represented as a true past tense in the underlying logical form.

10. Felipe dijo anoche que Carina estaba donde sus abuelos en ese momento.

    *Felipe said last night that Carina was at her grandparents’ at that moment.*

11. Felipe dijo anoche que Carina estaba donde sus abuelos la semana pasada.

    *Felipe said last night that Carina was at her grandparents’ last week.*

One crucial part of this analysis was that a present tense embedded under a past tense in the surface form of the sentence had to be analyzed such that it was not

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1 This is a simplified version of Ladusaw’s rule provided by Ogihara 1996.
commanded by that past tense in the underlying form, i.e., it had to have wider scope in the underlying logical form. In addition, the tense agreement rule needed to apply before movement (i.e., NP lowering in the case of a wide scope present tense moving into an embedded context in the surface form), so as to not incorrectly apply the rule to cases of present embedded under past sentences. This sort of case is illustrated in the following sentence involving a present relative clause under a past matrix, where the NP is interpreted de re.

12. Marisol estaba buscando a un vecino que vive al lado.

*Marisol was looking for a neighbor that lives next door.*

The only interpretation of (12) is one where *un vecino que vive al lado* (*a neighbor who lives next door*) is understood as a specific person. This is guaranteed in Spanish in virtue of the indicative mood in the relative clause.

The problem with this analysis is that it incorrectly predicts that present under past clauses will *always* be interpreted with wide scope. This problem becomes obvious in the following example where the NP must be interpreted with narrow scope relative to the intensional verb, but may still appear in the present tense, as in (13).

13. Marisol estaba buscando a alguien que hable francés.

*Marisol was looking for someone who speaks French.*

In Spanish the non-specific or narrow scope interpretation of the NP also requires the use of the subjunctive. While prescriptive grammars might prefer that (13) had a past subjunctive, the present subjunctive is also acceptable. The reason that Ladusaw’s analysis cannot handle these cases is that it assumes a necessary relation between scope
and possible surface morphological forms, and it assumes that the present tense is also a relative tense, i.e., it is strictly speaking a simultaneous tense.

### 6.2.1.2. Ogihara 1996

Bearing the drawbacks of Ladusaw’s proposal this in mind, Ogihara 1996 reformulates the sequence of tense analysis so that it gives the right predictions in these cases. One key modification is that Ogihara claims that the present tense, unlike the past, is an absolute tense that always refers to the time of utterance. In order to accommodate this difference, it is obvious that the Priorian tense operators would not be sufficient since access to the time of utterance is lost in clauses embedded under the future or past tense.

This problem was actually identified much earlier than Ladusaw’s (1977) analysis by Kamp (1971), for which he proposes a mechanism to account for any sort of speech time based interpretations in embedded contexts. This includes both present under past cases and deictic adverbs, such as *now*. In this sort of system, two temporal indices are needed. One can be shifted, like with the Priorian operators, while the other remains constant, always denoting the time of utterance. Following this procedure, indexical adverbials would have the following sort of denotation, where $j$ always denotes speech time.

\[
[[now']]^{i,j} = \{ I \mid j \in I \}
\]

Ogihara, however, employs a system that is even one more step removed from this sort of enhanced Priorian operator, where tenses are treated as temporal predicates in

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2 In this case, $I$ denotes a set of intervals, so that $now'$ denotes the set of sets of intervals which contain $j$, the time of utterance.
the object language. Then only a single temporal index is needed, namely one representing speech time. This approach grows originally from the intuition that tenses are referential temporal expressions that may be treated like pronouns, as first proposed by Partee 1973, and developed within a GB framework by Enç 1987. In Enç’s system, she proposes a set of criteria for binding temporal arguments which is similar to the traditional notion of GB style binding, and treats tense as constraints on the denotation of temporal arguments rather than quantifying over times.

Similarly, Ogihara assumes that tenses are transitive relations between a local evaluation time and an event time. In addition he assumes that each tense has a reference time whose denotation is taken directly from context, and so is not treated like an argument of the tense relation per se. He provides the following definitions for the past and present tenses (p. 60), in concert with his translation rules from the syntax into IL (p. 59).

15. PAST $\Rightarrow \lambda t_1 \lambda t_2 \left[ t_1 < t_2 \& t_1 \subseteq t_{RT} \right]$

16. PRES $\Rightarrow \lambda t_1 \lambda t_2 \left[ t_1 = s^* \& t_1 \subseteq t_{RT} \right]$

17. $\left[ TP \ T \ VP \right] \Rightarrow \lambda P \ \lambda t' \left[ P \left( \lambda x \lambda t \left[ T(t(t')) \& VP(x(t)) \right] \right) \right]$

In (17), the category TP represents the Tense Phrase, as assumed in GB and minimalist frameworks, replacing one component of the earlier notion of INFL. The category T includes expressions of the type in (15) and (16), while VP is any intransitive verb (or verb with all of its arguments positions filled except the subject and its temporal argument). P is an expression of type $\langle \langle e, <i, t>, <i, t> \rangle, \langle i, t \rangle$, implying an NP, which will ultimately be the subject argument.
According to (17), the evaluation time in the tense expressions (represented as \( t_2 \)) is bound by the local evaluation time of the TP (represented as \( t' \)), which in turn will be bound by whatever the local evaluation time in which this TP is embedded. If it is not embedded, then by convention, it will be bound by the time of utterance. Furthermore, the past tense relation, (15), stipulates that the event time or temporal argument for the VP will be prior to the local evaluation time. The present tense relation in (16), on the other hand, essentially ignores the local evaluation time, which does not bind anything in the present tense relation, and instead the temporal argument of the VP is equated directly with the time of utterance, represented by \( s^* \).3

Ogihara of course assumes a more current generative syntactic model than Ladusaw 1977 as well and assumes that scope is resolved at Logical Form, after the surface form of the sentence has been derived. Because tense is not interpreted until after the surface form is derived, and assuming that tense morphemes as they appear on the surface are present at Deep Structure, Ogihara proposes a sequence of tense rule whereby tenses may be deleted at LF. This is provided in (18) and a sample configuration for this rule is illustrated in (19).

18. Sequence of Tense Rule (Ogihara 1996):

If a tense feature B is the local tense feature of a tense feature A at LF\(^4\),

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3 The denotation of \( s^* \) in any context is identical to the temporal index: \( [[s^*]]' = t \).

4 If B is associated with an NP, then B asymmetrically commands A, or if B is associated with a tense, then B asymmetrically c-commands A, and in either case, there is no tense feature C which intervenes between B and A.
and A and B are occurrences of the same feature (i.e., either [+past] or [+pres]), A and the tense associated with A (if any) are optionally deleted.

19. Sample Configuration for SOT at LF

![Tree Diagram]

It is clear that aside from his treatment of the present tense, Ogihara’s proposal functions essentially the same as Ladusaw’s approach, but “upside down”. Like Ladusaw’s proposal, where tense interpretation is sensitive to scope, Ogihara adopts an equivalent set of additional translation rules that accommodate the interpretation of raised NPs to the same effect⁵.

On the other hand, as I’ve already mentioned, Ogihara treats present under past sentences completely differently than Ladusaw. In these cases he assumes a de re analysis of the object of an attitude verb (i.e., saying and believing verbs). Because Gennari 1999a shows that this analysis is ultimately untenable, I will not worry about the details of that analysis here, which become quite complex. But to at least give a gist, Ogihara argues that in cases like (20) below, the subject of the attitude (Felipe) would be acquainted with a particular state, the res, at some past time, such as Susanna hiding something behind her back. Furthermore, Felipe holds a belief about that res at the time that he is acquainted with it, though that belief need not necessarily be the case in the real

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⁵ According to the interpretation rule given in (17), only sentences of the form [NP [TP [VP]]] could be interpreted. Therefore, he provides the necessary rules for the interpretation of sentences with extracted NPs as well. The important thing, however, is that extraction provides a distinct structural configuration which can affect the application of the SOT rule as stated.
world. In this case he thinks that the thing that she is hiding or appears to be hiding is his money. And finally, the res state should be identified by the reporter of Felipe’s utterance to continue until the present.

20. Felipe dijo que Susana tiene su dinero.

*Felipe said that Susanna has his money.*

It is because of this dual perspective (i.e., past acquaintance relation and present existence of the state) that this reading was originally dubbed a *double access* reading. Despite the problems with this present under past analysis, which I will discuss in more detail relative to Gennari’s proposals, it comes much closer than Ladusaw’s analysis, which gets hung up on a scope paradox in such cases. Ogihara’s increased success, on the other hand, stems specifically from not requiring the present tense to take wide scope in such cases because it is not simply a simultaneous (i.e., relative) tense.

As far as relative clauses are concerned, both Ladusaw’s and Ogihara’s analyses yield the right result where there is no intensional environment to contend with. This is so because the scoping relations between the tenses are not constrained by any additional scope issues. So long as the NP containing the relative clause can have wider scope than the matrix tense at LF, its tense can be evaluated relative to speech time. In the event that both tenses are past, all three relative orderings between their denotations are possible.

This is illustrated in (21), where the direct object takes wide scope at LF, and so T₂ is interpreted relative to the time of utterance, not relative to T₁.  

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6 The SOT rule cannot not delete T₁ in Ogihara’s analysis because T₂ does not c-command it.
have cried before Martha talked to her, while she talked with him, or after that time but before speech time.

21. a. Marta habló con un hombre que estaba llorando.

Martha talked with a man that was crying.

This being said, it is also possible to account for backshifted and simultaneous past-under-past readings in situ, given the optionality of the sequence of tense rule in Ogihara’s system and the possibility of vacuous application in Ladusaw’s. The backshifted reading in a relative clause is possible if it is analyzed transparently as a past tense that is interpreted relative to a higher past tense. A simultaneous relative clause interpretation is possible after applying the sequence of tense rule (copying for Ladusaw and deleting for Ogihara), such that the lower past tense is semantically null. However, the forward-shifted reading is only possible if the NP takes wide scope over the matrix past tense.

In virtue of these mechanisms, Ladusaw and Ogihara maintain that the past tense is inherently a relative tense, though it may scope outside of an embedding tense to have a indexical or absolute interpretation, and it may be interpreted as a simultaneous tense due to sequence of tense.

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6.2.2. A Semantic Approach to Sequence of Tense

The observation that in extensional environments all three relative orderings between two tenses are possible and that both tenses are required to be prior to the time of utterance leads Abusch (cf. 1988, 1991, 1997) to conclude two things. First, that tense should be treated primarily as absolute, so that there is no requirement placed on relative ordering. And second, that any sort of SOT phenomenon, if it should be called such, is limited to intensional environments. This contrasts with Ogihara and Ladusaw, who assume that tense is generally relative and that SOT is cued solely by syntactic configuration.

By assuming that tense is absolute, Abusch does not need to say anything particular about cases like (21a) above. Because each past tense is interpreted independently of the other, such that each is simply be prior to the time of utterance, all three ordering are possible if the tenses are interpreted in situ. That is, all three orderings are entailed by this single constraint. But, as discussed in § 5.1., this is insufficient to predict why it is that the tense of a complement clause is never later than its governing matrix. For such cases, Abusch adopts Heim’s 1994 proposal for an Upper Limit Constraint on tense denotations. Specifically, she argues that there is a presupposition that a tense cannot denote a time later than its local evaluation time. However, to understand the implications of this constraint, we must understand specifically what a local evaluation time is (particularly under the assumption that tenses are absolute), and we must understand what it means when we say that a tense “denotes” a time.
Implicit in Abusch’s remarks is that tenses are in fact temporal predicates or relations, similar to those assumed by Ogihara 1996 and Enç 1987, and that the “denotation” of a tense, or its temporal referent is really a temporal argument (the “subject” of the tense) of which the tense is predicated. The “object” of a tense, on the other hand, is its local evaluation time. We might assume that in default cases, this argument is supplied implicitly⁷. To see this in action, consider the following past tense definition in (22a), its syntactic structure in (22b), and their application to (21a), repeated below as (23).

I will assume here a hybrid definition of PAST combining Ogihara’s (1996) definitions given above with that assumed by Gennari (1999), which may be combined with a VP simply by functional application rather than syncategorematically, as in Ogihara’s proposal. This sort of schema is graphically represented in the following tree.

---

⁷ Below I will argue that it is provided with an unbound variable which is identified with the time of utterance by the variable assignment function.
22. a. PAST ⇒ λQ_i,t_1, t_2 [t_2 < t_1 & Q(t_2)]

b. Structure of TP:

\[ \text{TP: } <t> \]

\[ t \]

\[ t_0 \]

\[ \text{T': } <it> \]

\[ \text{T': } <it> \]

\[ \text{T: } <it> <it> \]

\[ \text{XP: } <it> \]

The LF analysis of the relative clause in (23) is given in (24).

23. Marta habló con un hombre que estaba llorando.

\emph{Martha talked with a man that was crying.}

24. [que [PAST(estar-llorando(x, t_2))]]

⇒ [que [t' < t & (estar-llorando(x, t'))]]

Now, I will need a rule for actually interpreting the relative clause. I will borrow a version of the Predicate Abstraction rule from Heim and Kratzer 1998. For my present purposes, which are not focused on the interpretation of relative clauses per se, I will adopt the following adaptation of their rule. My rule says that given a branching node \( \alpha \), with daughters \( \beta \) and \( \gamma \), where \( \gamma \) is an expression of type \( <t> \), there is a variable \( x \) that is free in \( \gamma \), and \( \beta \) is a complementizer or a relative pronoun co-indexed with \( x \), then for any
variable assignment $g$, $\llbracket \alpha \rrbracket^g = \lambda y (\llbracket \gamma \rrbracket^{g(y/x)})$. So for the interpretation of (24) we can derive (25) by applying our predicate abstraction rule.\(^8\)

$$
25. \quad \llbracket [\text{que } t' < t \& (\text{estar-llorando}(x, t'))] \rrbracket^{g(ST/t)}
= \lambda y [ \llbracket t' < t \& (\text{estar-llorando}(x, t')) \rrbracket^{g(ST/t, y/x)}]
\equiv \llbracket \lambda y [ t' < t \& (\text{estar-llorando}(y, t'))] \rrbracket^{g(ST/t)}
$$

There are two important things here. First is that to interpret the relative clause, we must assume that all of its arguments have been provided, including its temporal arguments. Let us assume that the convention mentioned above of supplying the “local evaluation time” with a value equivalent to the time of utterance is accomplished by providing it with an unbound variable, and that in the end, the assignment function $g$ will assign it the value of speech time if not bound by anything else. In this case, the time “denoted” by the tense is any time prior to speech time.

The second has to do with the additional assumption that Abusch makes regarding intensional predicates and their arguments. She assumes that the sentential complement of intensional predicates must be of type $<i, t>$, i.e., it is required to be a temporal abstract. Though this is presumably the same type as the nuclear proposition minus its event time argument, the temporal abstract is different in that it abstracts the evaluation time of any and all embedded tenses. Like the relative clause example above, which is an individual abstract of type $<e, t>$, we must assume a similar mechanism to give us a temporal abstract.

\(^8\) Notice that the variable assignment will assign $\text{ST}$ (speech time) to $t$ by convention. The variable $x$ is also free.
Specifically, since the event time “denoted” by the tense is assumed to be a referential or constant expression, we won’t be able to abstract that. Furthermore, by functional application, the lower clause will have already supplied its nuclear proposition with its event time argument. So instead, we will abstract the evaluation time argument (which has been supplied with an unbound variable) so that it is not simply assigned the value of the time of utterance by default. The resulting temporal abstract is graphically represented in (26) in contrast to a simple TP, as in (22b) above.

26. Structure of Temporal Abstract

Beyond this, we will have to assume that the semantics of the predicate which selects the temporal abstract will provide it with a temporal argument so that by functional application it may bind the “local evaluation time argument” of the lower
clause. The logical form of the temporal abstraction of the complement clause in (27) is shown in (28).

27. Marta dijo que José estaba listo.

*Martha said that José was ready.*

28. Temporal Abstraction ($[[t' < t \& (estar-listo(j, t'))]]^\delta$)

$$= \lambda i([[t' < t \& (estar-listo(j, t'))]]^{g(i(t))})$$

$$= [[\lambda i[ t' < i \& (estar-listo(j, t'))]]]^\delta$$

According to this process, we obtain a reading where the complement clause is interpreted as prior to $i$ and via the semantics of *decir*’ (*say*’), $i$ would presumably be bound ultimately by of the event time of the higher clause via functional application. It is significant that by this means, Abusch turns absolute tenses into relative tenses. That is, from this discussion it is clear that what differentiates a relative tense from an absolute tense is ultimately the way the local evaluation time is treated. If it is always abstracted and bound by functional application by a higher event time (as with Ogihara 1996 and Gennari 1999b), then tense will always be relative. But if each tense is permitted to receive the value of the time of utterance as its evaluation time, then the tenses will be absolute. The tense relation itself is not distinct. What Abusch has proposed blurs the line between these because the evaluation time argument may be provided in two different ways, one making it absolute and the other making it relative.

In any case, the problem here is that we are again back to the issue of relative tenses which cannot predict the simultaneous reading, which is also possible in (27). On the other hand, if we throw out the whole notion of a temporal abstract that Abusch
proposes, we cannot explain why the lower clause cannot have a denotation that is after the matrix tense.

To remedy this, Abusch’s approach assumes that a past tense, embedded in an intensional environment (i.e., ones that require a temporal abstract, not all of which incidentally are intensional), is dependent on its matrix tense for its interpretation in a special way. Abusch devises a new mechanism, whereby embedded tenses inherit constraints on interpretation from their matrix. Using the following tree representation (29) of example (27), I will explain how this process works.

29. *(Martha said that José was ready.)*

\[
\begin{array}{c}
S \\
\mid \\
NP \\
\mid \\
Marta \\
\mid \\
T \\
\mid \\
PAST_1 \\
\mid \\
con: R^1(t_1, t_0) \\
rel: \{R^1\} \\
\mid \\
V \\
\mid \\
decir \\
\mid \\
C \\
\mid \\
que \\
\mid \\
\lambda t_2 \\
\mid \\
NP \\
\mid \\
José \\
\mid \\
TP \\
\mid \\
PAST_3 \\
\mid \\
con: R^3(t_3, t_2) \\
rel: \{R^1, R^3\} \\
\mid \\
V \\
\mid \\
estar \\
\mid \\
A \\
\mid \\
listo
\end{array}
\]

\*I have used boxes to highlight the relevant parts that I will be discussing.

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In this tree, the index on each past tense is to be understood as the event time of that tense. Below each tense is a feature \textit{con} which represents the local semantic \textit{contribution} of that tense, namely a transitive relation between the stated variables. And below that, the feature \textit{rel} represents the set of local and non-local \textit{relations} that have been inherited to that point. In the higher clause, the only relation available to it is its own local semantic contribution, while the lower clause inherits \textit{R}^1 in addition to its own local relation \textit{R}^3.

In the higher clause, the local tense relation relates \( t_1 \) to its local evaluation time, which is \( t_0 \) or the time of utterance. In the lower clause, the local tense relation relates \( t_3 \) to its local evaluation time, which is the abstracted temporal variable \( t_2 \). Bearing all this in mind, we are now ready to see the essence of Abusch’s proposal. She proposes that \textit{PAST} requires that at least one of its set of tense relations be the precedence relation.

In the higher clause, because it only has its own local contribution, this one must be the precedence relation. This mechanism guarantees that an unembedded past tense (or at least not embedded under an intensional predicate) will always be prior to the time of utterance. In the lower clause, because \textit{PAST}_3 has both its local and non-local relations, \( \textit{R}^3 \) is not required to be the precedence relation. Such could be the case, for example, if \( t_3 \) were co-indexed with \( t_2 \). In this case a simultaneous reading of the complement clause would result.

And finally, in the case that \textit{PAST}_3 is satisfied by \textit{R}^1 being the precedence relation, nothing in the semantics so far prevents \( t_3 \) from being \textit{later} than \( t_2 \), despite the fact that the grammar of Spanish (and English) prohibit that. This is where the Upper
Limit Constraint comes in. According to Heim’s (1994) ULC mentioned above, it is presupposed that no tense can be later than its local evaluation time. Therefore, the only two possible relations between a tense referent and its local evaluation time are precedence or simultaneity.

This observation brings up one additional important issue, namely how a posterior time reference is to be accomplished and what the effects will be. Abusch shows that the future ought to be treated as a temporal relation that requires a temporal abstract as its complement. It then provides a time that is later than its own tense reference to bind the temporal variable of its complement, which is its local evaluation time. Abusch’s (66) is adapted as (30) below and applied to (31) to (32).

\[
30. \quad \text{FUT} \Rightarrow \lambda P_{\leq i_n} \rightarrow \lambda t \exists t' [t' > t & P(t')] \\
31. \quad \text{Marta hablará con un hombre que está llorando.} \\
\textit{Martha will speak with a man that is crying.} \\
32. \quad \text{0FUT}_1 \lambda t_2 [t_2 > t_1 & \text{Martha speak}(t_2) \text{ with a man that }_2\text{PRES}_3 \text{ be crying}] \\
\]

Because tenses denote a transitive relation, I have placed an index for the local evaluation time to the left and an index for the referent of the tense on the right. Notice that the present tense alone could not refer to a time that is later than the time of utterance because of the ULC. Therefore it must be the case that the future provides a later local evaluation time relative to which the embedded present tense may be interpreted. In virtue of the temporal abstraction, FUT assumes a nuclear scope that the present and past do not. In order for the embedded present to refer exclusively to the time of utterance, the
NP must take wide scope at LF so that its tense will be evaluated independently of the future matrix.

The future also provides the proper environment for Abusch’s tense relation feature inheritance such that a past embedded under both a past and a future may be marked past, but have a simultaneous reference to a time later than speech time. This is the case of (4-5), repeated here as (33-34).

33. John decided a week ago that in ten days he would tell his mother at breakfast that they were having their last meal together.

34. Juan decidió hace una semana que en diez días le diría a su mamá durante el desayuno que estaban comiendo juntos por la última vez.

In these cases, we can see that only the first past tense is actually interpreted as the precedence relation. Because the other two past tenses (on would and were) inherit higher tense relations as well, their own past tense is already satisfied and they may be interpreted with simultaneous reference to their local evaluation times. And in virtue of the temporal abstract required by would, the local evaluation time of the most deeply embedded past tense (was) is later than that of would or decided.

The parts of Abusch’s proposal that I have discussed here, assuming the clarifications I have added, seem to work very well in that they distinguish when a tense should be interpreted as relative and when absolute. On the other hand, the tense relation inheritance mechanism, though it correctly predicts semantic/morphological mismatches, assumes an interpretive system that is exclusive to her proposal. This is not per se a bad thing, and in fact it is imaginable how this might be implemented in a unification based
syntactic framework such as HPSG. But this part of her proposal poses some difficulty for making more general use of her analysis.

On the other hand, if we look at her proposal from a different angle, it is also clear that under the same conditions that Abusch assumes the feature inheritance mechanism, we could alternatively posit a sequence of tense rule in one of two ways. Following Ogihara, we would want to optionally delete the semantic content of the past tenses when they are governed by a past tense. This is in essence what Abusch’s system does. On the other hand, we could assume a system similar to Ladusaw’s that allowed simultaneous tenses, in addition to past and present, which were then obligatorily morphologically marked as past when governed by a past tense. However, this must be with the caveat that a simultaneous tense is not the same thing as a present tense, though a simultaneous tense when not governed by the past tense would show up on the surface as morphologically identical to a present tense. Before discussing this issue any further, I will now present an alternative to any of these sequence of tense type mechanisms.

6.3. An alternative to Sequence of Tense

Gennari 2003 proposes to do away with sequence of tense altogether by exploiting the potential of event overlap, facilitated by aspectual properties in interaction with tense reference. In this section I will present some of the main points of her argument, including treating the past tense as a strict relative tense in § 5.3.1., as well as her counter proposal (Gennari 1999a) to Ogihara’s and Abusch’s treatments of de re tense reference and double access readings in § 5.3.2. In the former case, I will also show that her treatment of tense incorrectly rules out certain embedded pretérito and past
subjunctive readings. On the other hand, in the case of her double access proposal, I will argue to adopt her basic line of reasoning.

6.3.1. Relative Tenses and Overlap

Gennari 2003 assumes a treatment of tense most similar to Ogihara’s, in which the past tense is taken to always be a relative tense. According to this approach, it is predicted that the tense of a subordinate clause will always be prior to the tense of the matrix. While this proposal seems like it would lead to an incorrect predication that there could be no simultaneous readings of a past subordinate clause under a past matrix, Gennari argues that it does not if additional temporal information is taken into account.

Gennari asserts that in Spanish, a simultaneous past reading is possible only if the imperfecto is used in the subordinate clause, while the pretérito embedded under a past matrix will always yield a backshifted (relative) reading. Assuming that this is in fact the case, she proposes to base the difference solely on the aspectual difference between the pretérito and the imperfecto in the following way. As I have reiterated many times throughout this dissertation, the imperfecto is temporally upward compatible, making it the form of choice to describe events which continue on beyond the time of evaluation. And in fact, Gennari argues that the imperfecto (like states in general) generates a continuation implicature.

In light of this inherent potential, Gennari argues that the simultaneous reading is produced when an event is evaluated at a time prior to the local matrix tense (as required by her tense rules), but then understood to continue up through that time of the matrix tense. In this way, examples like (35) are ambiguous between a backshifted and
simultaneous reading, depending on whether or not the event denoted by the subordinate clause is understood to continue up through the matrix time or not.

35. Juan dijo que María estaba enferma.

*Juan said that María was-IMP sick.*

36. Juan dijo que María estuvo enferma.

*Juan said that María was-PRET sick.*

This contrasts with examples like (36) in which the use of the pretérito in the subordinate clause rules out the simultaneous reading precisely because the pretérito cancels any continuation implicature that might be generated by the stative event of being sick.

This approach is further corroborated by an observation that I made in Chapter 2 that in cases like (35), the imperfecto event is consistently understood to already hold by the time of evaluation. That is, Gennari’s proposal and my proposal are mirror images of each other in that I have argued that the event begins *before* a simultaneous evaluation time while she has argued that the event continues *after* a prior evaluation time. To determine which of these perspectives is more adequate, we will some empirical data.

The test I have in mind has to do with the assumption that an embedded past tense always denotes an interval which is prior to the matrix. Since the pretérito is assumed to not favor or allow continuation readings, then a simultaneous embedded pretérito would provide a counterexample to her proposal that simultaneity is strictly a product of aspect. That is, it would show that something other than aspect was responsible for the simultaneity.
All the examples that Gennari uses, and most of the examples found in the literature, have to do with past “attitude” verbs. These cover a large family of verbs that denote some sort of believing or saying. As a general rule, I think it safe to say that speech act verbs presuppose that the object of the attitude must hold before (or at least by) the time of saying, and regardless of continuation after that time. This by itself could be responsible for a requirement of anteriority/overlap that would rule out forward-shifted readings in complement clauses. In addition to these, there are a few verbs which allow strict simultaneity with the subordinate tense, some of which are discussed by Cipria 2002 having to do with sensory perception.

Two verbs which fit this bill that I have been able to find independently are *gustar* (*please/like*) and *parecer* (*seem*). In the former case, I am imagining a reading where some event produces a certain emotional effect on someone *as it occurs*, as in (37) and (38). The relevant sentence for present purposes is (37), but with the meaning most similar to (38). In (37) the subjunctive is generally required by the matrix verb, and as normally expected within a past context, we have the past subjunctive. While Gennari’s analysis does not make any particular claim about the past subjunctive, I will assume that in terms of tense it is not different from other past tense forms.

37. No me gustó que la película terminara así.

*It did not please-PRET me that the movie ended-PAST SUBJ like that.*

38. No me gustó cuando la película terminó así.

*It did not please-PRET me when the movie ended-PRET like that.*
One could argue that (37) could also describe a situation in which the speaker decided on an opinion about the end of the movie after having seen it, but I don’t think this is the only possible understanding of this sentence. If my understanding is correct, then (37) provides a case where a subordinate past tense form with a perfective (completed) interpretation is simultaneous. And not only does it overlaps with the matrix tense, it is strictly equivalent to the matrix tense.

Similar examples can be constructed with parecer (seem). I have tried to stay away from the transitive variant of this verb (e.g., me parece que… / it seems to me that…) since it also implies some sort of cognitive process in arriving at a judgment, and therefore that some time passes between the witnessed event and the arrival at a conclusion. In the impersonal (intransitive) form, it is more clear that the appearance of the event was what was witnessed as the event took place, again reinforcing the simultaneous interpretation. This can be seen in a case like (39).

39. Pareció que Juan murió en el accidente.

*It seemed-IMP that John died-IMP in the accident.*

Cipria 2002 mentions a few very convincing examples as well, such as (40-41) (= her (1b) and (17b)) involving the sensory perception of events. Again, these imply that the event itself serves as a stimulus which invokes a certain response at the time that it takes place.

40. Vi que pasaron.

*I saw that they passed.*
41. Oí que Claudia escribió en la computadora.

*I heard that Claudia wrote on the computer.*

Cipria also points out that (41) has a reading where the complement clause is taken to be hearsay and therefore denotes an earlier event of writing, but this is in addition to the possibility of the speaker actually hearing the sound of typing as it takes place. Taken together, the witnessing or sensory perception of an event provides a solid counter example to Gennari’s generalization that simultaneity of tenses is produced solely by overlap.

6.3.2. The *De Re* Analysis of Present-Under-Past Sentences

Despite the problems with Gennari’s attempt to simplify the rather complex puzzle of embedded tenses, Gennari 1999a makes a strong case against the rather baroque *de re* treatment of present under past cases that Abusch and Ogihara each propose. After studying the issues, I had come to conclusions that I subsequently found almost verbatim in Gennari 1999a. The types of examples under debate here are represented by (42).

42. Marta dijo que Juan está listo.

*Marta said that Juan is ready.*

As I mentioned briefly in § 5.2., the intuition behind the *de re* analyses of present under past tense posits that the subject of the attitude verb holds a belief that may or may not be true about a state the really exists in the world. This analysis requires that there be an actual state in the world (the *res*) such that the subject of the attitude verb must first be acquainted with that state at some past time. In the case of (42), assume that Juan had just put his shoes on. Seeing this, Martha believes that he is ready and says so, even if Juan in
fact had only tried them on to see how they would look with his pants and had decided that they clashed and so was looking for his other pair of shoes. This situation is represented in (43).

43. State: Juan is dressed and wearing shoes.

Be that as it may, five minutes later Sally reports what Martha had previously said. Intuitively, (42) should not be acceptable if Juan has taken his shoes back off and is trying on different pants. This implies that for (42) to be felicitous, the state which Martha had been acquainted with five minutes before (dressed and wearing shoes) must continue to the present.

It is this sort of evidence about the continuation of a state into the present, regardless of how that state of affairs is interpreted, that Ogihara and Abusch use to defend treating these cases as a *de re* analysis. And yet, as Gennari 1999a points out, it is possible to find acceptable cases where either there is no *res* at all, or where that *res* has since ceased in the real world. Though Gennari provides many interesting examples, I will discuss my own examples here that I have independently considered and which I think are even more convincing in some ways, though my conclusions are not different.
I will discuss three types of examples, a) cases where the *res* does not actually continue up through the time of the belief report but where the sentence is still felicitous, b) cases where the *res* actually does continue, but the corresponding belief report is not felicitous, and c) cases where there is no *res* whatsoever, and yet present under past is felicitous.

6.3.2.1. *De Re* Discontinuity

To begin, consider a case where there is a *res*, but unbeknownst to the reporter, it ceases in the real world before the time of the report. Consider for example that María is sitting on the front porch waiting for her boyfriend Tony to come. Ángela has seen María waiting there and steps out the backdoor for a moment. Just then Martín approaches and asks where María is. Ángela tells him that she is on the porch, and in fact she still is, so Ángela’s assertion is actually true at that time. In the meantime, after Ángela talks to Martín, María realizes she has forgotten her purse and runs back upstairs to look for it. Just then, as Martín is heading around to the front of the house, he runs into Tony, who asks Martín where María is. Assuming that she is still on the front porch where Ángela had just seen her and told him, Martín utters (44) in response to Tony.

44. Ángela dijo que María está en el porche.

Ángela said that María is on the porch.

In such a case, we cannot say that the felicitousness of the sentence depends on the *res* state continuing until the present, since it ultimately does not. Such a state of affairs apparently has no negative effect on the interpretation or felicitousness of a
sentence. That is, the felicitousness depends on the fact that Tony assumes that what Ángela has said is still true when he reports about it.

6.3.2.2. De Re Continuity

Second, imagine a scenario where at 4:55 Tony is watching TV and hears María’s footsteps going up the stairs, the fan-light turn on, and the bathroom door closing. Five minutes later, Ángela asks Tony where María is (at 5:00), and he casually replies that she is in the bathroom. She then tells Tony to tell María that she will be out back studying, and that she can come down and talk to her whenever she feels like it. Unfortunately, Tony remembers that he was meeting with some friends that night and leaves at 5:05. Meanwhile, unbeknownst to Tony, María is deathly ill with the stomach flu and has set up shop on the floor of the bathroom and falls asleep there. At 8:00, Martín comes to join Ángela in studying and asks her where María is. And without any evidence to the contrary, Ángela utters (45) in response.

45. Tony dijo que María está en el baño.

Tony said that María is in the bathroom.

I must say first that I find Ángela’s response quite odd. What is surprising in this scenario is that the de re analysis should in fact licensed (45), as far as I can see, but this answer is odd despite the fact that the state in question actually still holds. That is, there is a state of María being in the bathroom that Tony was acquainted with and which in fact continues until the present. This suggests that it is not the actual fact that the state should continue to the present that makes or breaks the present under past, it is whether or not the person reporting the belief has reason to believe that it is still continuing.
In both (44) and (45) what is at stake is not the status of the res at the time of the report, but the implied expectation that said state should or should not continue to the time of the report. In (44) it is clear that Martín assumed that María would still be there, while in (45) Ángela’s response is uncalled for because no one under normal circumstances would assume that anyone was going to stay in the bathroom for 3 hours.

The problem that Ogihara and Abusch see with present under past sentences is that the original holder of the belief is not making a prediction about some later time, i.e., the time of the report, as if (44-45) had the meanings in (46-47). For one thing, (46-47) do not require the state to hold at the time of the belief, and for another, the speakers in (44-45) do not actually make a forecast about the time of the report.

46. Ángela dijo que María estaría en el porche ahora.

Ángela said that María would be on the porch now.

47. Tony dijo que María estaría en el baño ahora.

Tony said that María would be in the bathroom now.

On the other hand, the de re approach fails to consider the fact that at the time one states their belief about a state, it is already assumed that that state will or could continue beyond the time that the belief is expressed. This is exactly what Gennari 1999a notices and poses a particular line of reasoning which should license present under past.

### 6.3.2.3. A presuppositional account

Gennari assumes the following semantics for the present tense. (48) asserts that the event time of the present will always both overlap with the local evaluation time, as well as not be properly prior to the time of utterance. This implies that if the local
evaluation time is in the past, the event time will necessarily overlap the present time. In this way, it is both a relative tense (in that it will overlap whatever the local evaluation time) and an absolute tense (in that it is always sensitive to the time of utterance as well).

48. \( \lambda Q_{s.t} \rightarrow \lambda i' \exists i' [i' \circ i \& \neg (i' < s^*) \& Q(i')] \)

With this proposal in place, the rest of Gennari’s assumptions follow naturally. She discusses how her proposal applies to the standard present-under-past example (49). Her reasoning is presented in (50) (= her example (14)).

49. John believed that Mary is pregnant.

50. a. John believed that Mary was pregnant at \( t \).
   
   b. John’s belief worlds are coherent.
   
   c. John believed that Mary had a normal pregnancy.
   
   d. John knew that pregnancies typically last for an interval \( i \) including \( t \).
   
   e. \( i \) includes a future time \( t' \) (the ST from the speaker’s perspective).

   \( \rightarrow \) John believed that Mary is pregnant at \( i \) including \( t \) and \( t' \).

According to (50), present-under-past does not constitute an infraction of the ULC (i.e., that a tense refer to a time later than the local evaluation time), but instead represents a sort of loop hole in it. The state in John’s belief worlds is not actually later than the time at which his belief is evaluated because the time of the present tense is able to overlap that past time.

Turning again to example (45), it is clear that Ángela is misrepresenting Tony’s presuppositions and consequently part of the content of his assertion. If Ángela had been asked this and answered this way at 5:10, it would probably be felicitous. But not three
hours later, when Tony would not have suspected that María was still miserably lying on the tile floor.

The virtue of this reasoning is that it avoids attributing any particular prediction on the part of the subject of the original belief since the presupposition of continuation is already implicit in the belief. That is, when Tony says, “Mary is in the bathroom”, he doesn’t need to add, “and I expect she will continue being there for at least a moment longer than it takes me to say this sentence”. This is implicit. In fact, it would be impossible for him to imply that by the time he finishes saying it, she would be out, despite the fact that this might in fact happen and his statement would not be any more or less true for it. So the question is never if the believer is making a prediction, but whether or not the reporter of the belief assumes that the continuation of the belief, which is already implicit, is long enough to include the time of the report about the belief.

6.3.2.4. De Dicto Present-Under-Past

Shifting gears somewhat now, it should be noted that the present under past phenomenon as argued by Ogihara and Abusch always implies belief reports. However, this is not the only type of case where this comes up. For example, in (13), repeated here as (51), there is overtly no acquaintance relation between Marisol and the person she was looking for nor any state associated with that person. In fact, this proposition is completely compatible with there not being such a person in the world.

51. Marisol estaba buscando a alguien que hable francés.

Marisol was looking for someone who speaks French.
The verb *buscar* (look for) implies a very different sort of modality than belief. To account for the present-under-past in (51), we would have to say that the people in Marisol’s “seeking worlds” who speak French are such that, at the time of the report, they could be presumed to still know French. So in this case, there is no *res* that continues, but rather a description within Marisol’s seeking worlds that is presumed valid at the time of the report.

### 6.3.2.5. Imperfectivity Restrictions on Present-Under-Past

One final contribution I would like to offer to the discussion of present-under-past sentences is the fact that in Spanish, if the matrix belief predicate is in the simple *imperfecto*, an embedded present sounds odd. This is demonstrated in (52).

52. a. ?Juan creía que María está embarazada.

   *Juan believed-IMP that María is pregnant.*

b. Juan (le) creyó que María está embarazada.

   *Juan believed-PRET (him) that María is pregnant.*

I have the intuition that in English as well, the natural reading of sentences like (49) assume a perfective reading of *believed*, implying an inchoative interpretation, as in (52b). This can be understood as Juan accepting someone else’s assertion that María is pregnant (and hence the dative pronoun) and that assertion is understood to still be valid at the time of the report, or that Juan came to this conclusion himself, and still holds that opinion at present.

The problem with (52a), then, might be that both the simple *imperfecto* and the present tense are imperfective and consequently both are compatible with continuation.
While it must be admitted that the imperfecto is compatible with continuation through the present, the fact that it is morphologically a past form, it is generally associated with an implicature that an imperfecto state does not continue until the present.

However, it is possible to modify (52a) so that both clauses are in the imperfecto, without suggesting that Juan has for sure stopped believing that María is pregnant at present. The person reporting on Juan’s beliefs might not have known whether he still believed that or not and so limited the report to the past. However, if it is presumed that María would still be pregnant in Juan’s belief worlds at present, the present tense may be licensed as already discussed. But then it must be presumed that his belief continues until the present, which would again call for the present tense in the matrix. In other words, the use of the imperfecto in the matrix would represent a vacuous contrast with the use of the present in the complement. On the other hand, in cases like (52b), where there is some inchoative “belief act”, the resulting belief state may continue one to the present without creating any conflict.

6.4. Synthesis

In this final section, I will propose a synthesis of the various proposals I have discussed to this point. My proposal will have to account for at least the following four phenomena.

a. simultaneous vs. backshifted past-under-past sentences, with both pretérito and imperfecto

b. the lack of a forward shifted past-under-past readings in complement clauses

c. past forms with reference to a time later than speech time

d. present-under-past in complement clauses, both de dicto and de re
I will divide the discussion of my proposal into four parts, namely the semantic details in §5.4.1., the semantics-syntax interface in §5.4.2., and the syntax-morphology interface in §5.4.3. Appendix A contains more details on the morphology-phonology interface.

6.4.1. The Semantics of Tense

In this section I will provide definitions for the past, present, and future tenses. While the scope of this dissertation does not include all the facets of the present and future tenses, these interact in important ways with past tenses. I will also propose a simultaneous tense which differs from the present and which will be the only tense subject to SOT.

6.4.1.1. Past Tense Definition

I will adopt here the hybrid past tense definition (23) I proposed in my earlier discussion, repeated as (53).

$$53. \text{PAST} \Rightarrow \lambda Q_{\langle i, r \rangle} \ \lambda t_1 \ \lambda t_2 [t_2 < t_1 & Q(t_2)]$$

With it I will also adopt what clarifications I have proposed relative to Abusch’s 1997 proposal. That is, the local evaluation time of a tense is supplied with an unbound variable, but will be assigned the value of the time of utterance in default cases. I provide a default tense rule in (54).

$$54. \text{Default Tense Interpretation of TP: } \llbracket T(t, t_n, \phi) \rrbracket^u_{g} = 1 \text{ iff for all variable assignments } g \text{ such that there is some } g' \llbracket T(t, t_n, \phi) \rrbracket^u_{g'} = 1$$

In addition, a temporal abstract, when needed, will abstract the local evaluation time of a predicate or proposition. I will discuss the application of this rule in more detail below.
55. Temporal Abstraction Rule:

For all unbound temporal variables, \( t_0 \ldots t_n \), in \( \phi \) and all variable assignments \( g \), \( TA(\phi) = \lambda i \left[ [\phi]^{i(t_0 \ldots t_n)} \right] \)

On the other hand, as regards the referential status of the event time of a tense, while it gives the right result in (56), it does not seem to be the right analysis considering cases like (57-58), in which the tense is denotes a different time for each person.

56. I didn’t turn off the stove. (= Partee 1973, example (3))

_\text{No apagué la estufa.}_

57. Everyone in my family graduated from high school.

_\text{Todos en mi familia se graduaron de la escuela secundaria.}_

58. Todos los alumnos hablaron con el profesor en su despacho (uno por uno).

_\text{All the students spoke with the professor in his office (one by one).}_

However, if we treat the event time argument of TP like a Montague style Term Phrase, then it could be represented as in (59a) or (59b)

59. a. \( \lambda T_{<it>} [\exists t (T(t))] \)

b. \( \lambda T_{<it>} [T(f)] \)

where \( f \) is a temporal constant (referential expression) or unbound temporal variable.

Whether tense is treated as a simple individual temporal expression or as a expression of type \(<<it>_t>\) is really inconsequential, since either way the right denotation will come out in the end by functional application. The benefit of allowing temporal arguments of type \(<<it>_t>\) comes in providing a means for inserting an
existential quantification over times as needed. In this way, the existential quantification over times in not *per se* a part of the tense, but a part of the event time argument.

The way the past tense is defined, the type of arguments in may take are an Aspect Phrase, such as those headed by IMP and PERF as described in Chapters 3 and 4. It may also take a future tense, as defined below. In this way, the past tense is an independent relation that interfaces with other sorts of temporal relations in a compositional manner.

**6.4.1.2. Future Tense Definition**

The future tense in Spanish which historically was represented by an unbound morpheme as it is still in English, is now represented in a single synthetic verb form. However, it manifests the same sort of tense behavior as its English counterpart, as illustrated in the previous discussion. For example, both morphologically and semantically, it has both non-past and past forms, which may be respectively interpreted with a non-past or past local evaluation time (e.g., in a relative clause in an extensional environment).

This observation leads to the natural conclusion that the future is a different sort of tense than the past or present. On the other hand, I do not think it warrants calling the future a modal *per se*, though some have found it convenient to do so\(^\text{10}\). I will simply assume that the future, like the past and present, is just another tense relation which, 

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\(^{10}\) Abusch 1997 treats the future as if it were in some sense intensional because it groups with intensional predicates in her analysis. Harris 1998 also finds reason to treat the future as a modal because of its close morphological interaction with the subjunctive and imperatives. This logic is not foolproof either, though, in light of the Old Spanish and modern Portuguese future subjunctive. It seems that whatever we call it will simply be a convenient label and that the future will continue to just be in its own league.
unlike the past and present, may be semantically and morphologically doubled up with these.

I will propose a definition modeled in some ways after the one given in Abusch 1997. However, I will offer some significant modifications. Recall that in Chapters 3 and 4, a VP was treated as an expression of type \(<s, t>^{11}\), or a proposition minus its event argument. The *imperfecto* and *pretérito* were defined to take arguments of type \(<s, t>\) to yield an expression of type \(<i, t>\), such that \(i\) will be bound by the event time of the tense via functional application.

Similarly, the future tense would need to take VPs (expressions of type \(<s, t>\)) and relate them with the local tense. However, as Abusch points out, the fact that the future may also shift the local evaluation time of lower tenses, it must take a temporal abstract as its argument. In order to satisfy both of these requirements, I will assume that the future must select an argument of type \(<i, <s, t>>\), or a temporal abstract of a VP.

As discussed previously, since an event argument may also carry a subscript that denotes its temporal extension (in a given world), it is this temporal argument that will be bound by the temporal abstractor in addition to the local evaluation time of any embedded clauses. This process creates the effect assumed by Abusch that the future event time binds both the event time of the VP as well as the evaluation time of more deeply embedded clauses.

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11 In my dissertation I have used \(s\) to denote an expression of type *event* or *situation*. Because \(e\) is traditional used as the type for an individual, I have chosen instead to use \(s\) as a mnemonic for *situation*. This also creates a clash with tradition, however, since \(s\) usually refers to the *sense* of an expression, or a *world* abstract. Since I am not using this more traditional meaning of \(s\), I have decided to give it a new meaning in the present work.
The abstraction is illustrated in (60), and a translation for the future is given in (61).

60. a. VP: \( <s, t> \) or \( \lambda e \ Q(e) \)
   
b. TA(VP): \( <i, <s, t>> \) or \( \lambda t \ 1 \lambda e \ \[ \tau(e) = t \ 1 \ Q(e) \] \)

61. \( \text{FUT} \Rightarrow \lambda Q_{<i, <s, t>>} \ 1 \lambda t_1 \ 1 \lambda t_2 \ [t_2 > t_1 \ 1 \ \exists e \ (\tau(e) = t_2 \ 1 \ Q(e))] \)

As defined here, the future tense is not compatible with an Aspect Phrase. This seems to be the right generalization because the future tense has no particular aspectual interpretation. It is fully dependent on the Aktionsart of its nuclear proposition, as illustrated in (62-63).

62. Estaremos dormidos cuando nos llames esta noche.
   
   (We) will-be asleep when us (you) call-SUBJ this night.
   
   ‘We will be asleep when you call us tonight.’

63. Saldremos juntos cuando vengas.

   (We) will-leave together when (you) come-SUBJ.

The obvious contrast between these is that in (62) the phone call will come in the middle of the state of the speaker’s sleep, while in (63), the leaving will be properly after the coming. The presupposition that I proposed in Chapter 2 to account for the reference time of the verb being a non-initial proper subinterval of its event time holds here as well, under the same conditions. This is independently corroborates that proposal, since the same phenomenon occurs in the future with stative and progressive predicates.
The provision that the future may select a temporal abstract which shifts the evaluation time for embedded tenses is verified in the following example which has a past relative clause embedded under an existential future matrix.

64. Mañana hablarás con muchas personas que ya leyeron tu propuesta.

*Tomorrow you will speak with many people that already read your proposal.*

This sentence has two readings. One is such that the past embedded in the future gives the sense of the perspective that the subject *will* have. If the past is interpreted relative to the speaker’s perspective, it implies that a lot of people have already read the proposal. This could be accomplished if the lower NP raised at LF to take wide scope. Assuming a wide scope NP, in order to achieve the same truth conditions as the first reading of (64), the future perfect will have to be used, as in (65).

65. Mañana hablarás con muchas personas que ya habrán leído tu propuesta.

*Tomorrow you will speak with many people that will have already read your proposal.*

More evidence for the fact that the future takes a temporal abstract can be seen in present under future examples as well, but these are not the really within the focus of this work. However, in addition to this, I would argue that as a general rule, predicates that require a sentential complement also require a temporal abstract, at least those dealing with belief, cognition, and perception. This would broaden Abusch’s claim that these are limited to intensional verbs.
As discussed in §5.3. and as a counter example to Gennari’s 2003 hypothesis that the *pretérito* always yields a backshifted reading when embedded under the past, it was shown that verbs of perception allow simultaneous *pretérito* complements. According to Abusch’s proposal, this would only be possible if they also required a temporal abstract. This is illustrated in (40-41), repeated here as (66-67).

66. Vi que pasaron.

*I saw that they passed.*

67. Oí que Claudia escribió en la computadora.

*I heard that Claudia wrote on the computer.*

As part of showing that the *pretérito* may have a simultaneous reading, these show more generally that a stative or progressive is not required to achieve simultaneity. Thus, in the future these same verbs, and others, may again license a fully simultaneous embedded perfective event. This fact will become relevant in the conclusion when I put everything together.

68. Si prestas mucha atención, verás que cruzan el río a las 9:05 AM.

*If you pay close attention, you will see that they cross the river at 9:05 AM.*

69. Habrá muchas personas que cruzan esta calle mañana sin pensar que uno de ellos tal vez no llegará al otro lado.

*There will be many people that cross this street tomorrow without thinking that one of them might not get to the other side.*
6.4.1.3. Present Tense Definition

In §5.3, I discussed in some detail Gennari’s (1999a) definition for the present, given in (48). I will propose two possible modifications of it which I will discuss a little later on. The primary modification that I would offer is to replace the overlap relation with an inclusion relation given that the latter is a more strict relation than the former and seems to match my intuitions in this case more precisely.

\[ 70. \quad \lambda Q_{i, t} \exists i' \left[ i \subseteq i' \land \neg (i' < s^*) \land Q(i') \right] \]

Other important details about (70) are that the present tense event time covers both the local evaluation time as well as the utterance time. For this reason, the present tense does not require an event time argument since the even time of the tense is always determined as a function of the other two times. According to Gennari’s solution, and slight modification in (70a), if the local evaluation time of the present tense is past or present, then its event time will automatically include the time of utterance. However, if the local evaluation time is future (i.e., if it occurs within the scope of a future) it will not be required to overlap the time of utterance, though this is not ruled out either. This contrasts with (70b) which will always guarantee overlap with speech time. And finally, as discussed in §5.3, this sort of present tense definition can account for present under past examples without recourse to a *de re* analysis.

6.4.1.4. Simultaneous Tense Definition

In addition to the traditional tenses, I propose an unmarked simultaneous tense which isn’t really a tense at all. Instead, it is just a temporal abstract of a tenseless clause.
In this sense, it will not be an independently viable tense, but will be licensed only if some higher predicate selects a temporal abstract. I will have more to say about this in §5.4.2.

6.4.2. The Syntax/Semantics Interface

I have already described the structure of the tense phrase or TP. And I have also already discussed the possibility that relative clauses may be interpreted with wide scope over their matrix tense by raising the NP at LF. Therefore, I would only like to reiterate here that this leaves open a sort of tense escape hatch, so that relative clauses are often immune to whatever other processes we can devise for tense interactions.

As far as how tense is represented in the syntax proper, I propose a system of interpretable tense features similar to Ogihara’s (1996). I will assume two tense features, [±past] and [±present]. The future is not per se a tense and is not represented in the Tense Phrase, as already discussed. Since the past tense proper is a precedence relation, it will be marked [+past, -present]. The present tense, on the other hand, as defined above always includes the time of utterance and never denotes precedence, though its event time may also include a past evaluation time. Therefore, I think it justified to mark it as [-past, +present]. And finally, the “simultaneous tense” will be represented in the Tense Phrase as unmarked for both past and present, [-past, -present]. At LF these will translate into the relations I have already discussed.
6.4.3. The Syntax/Morphology Interface (or Sequence of Tense Revisited)

6.4.3.1. Some Background to Distributed Morphology

The perspective that I take on the relation between semantics, syntax, and morphology is perhaps best represented in the stance taken by practitioners of Distributed Morphology (Halle and Marantz 1993). In DM the notion of morphemes is somewhat altered from the traditional version. While morphemes are often treated as sound/meaning units that increment both the form of the word and its semantic/syntactic value, this relation is completely severed in DM. Instead, the syntax is only responsible for building and manipulating structures that are populated by features. The phonology is “inserted” later as features and feature bundles are spelled out. So ultimately it might still be argued that the traditional notion of morpheme is in some sense preserved, but now as the correspondence between a bundle of features and a particular phonological realization.

However, unlike traditional theories, which assume that morphemes have an independent and unitary status in underlying structures, DM assumes that only features have any underlying status, and that it is the work of the overt syntax and the morphological module to group these features into bundles as well as add to or subtract from these sets of features. It is only after all these processes have taken place that the notion of morpheme has any relevance in DM.

Harris 1998 proposes a straightforward interface of DM within the general assumptions of the Minimalist Program. Stepping back one step, Halle and Marantz 1993 explain that the surface structure of a sentence (or the output of the overt syntax Σ) consists only of features or feature bundles on hierarchically organized nodes (tree...
structures), and that they have no phonological content whatsoever. After SS (i.e., at Spell-Out), Chomsky assumes that $\Sigma$ is mapped to two different modules of the grammar to generate its phonological form ($\pi$) on the one hand and its logical form (£) on the other.

Harris 1998 clarifies how DM fits in with this model, explaining that as part of the process of deriving $\pi$, $\Sigma$ will continue to be modified within the morphological module (Halle and Marantz 1993 refer to the output of this module as MS or Morphological Structure). At the beginning of the morpho-phonological derivation, a number of restructuring procedures may be carried out, ultimately modifying the input features and hierarchy in preparation to be properly realized by the ensuing morpho-phonological processes, referred to in DM as “Lexical Insertion”.

This additional morphological module, where features may be manipulated outside of the overt syntactic derivation and independent of the sentence’s logical interpretation, gives DM an additional theoretical “workspace” to account for discrepancies between a sentence’s meaning and the morphological form of the words that compose that sentence. Within such a module, one can account for morphological realities that have no direct connection to the set of grammatical features which presumably serve as input to word formation.

One such reality is the existence of special stem classes, such as West Germanic dental stems and Latin –TO stems\textsuperscript{12}. Furthermore, because this morphological

\textsuperscript{12} Blevins 2003 discusses, for example, the existence of a unified dental stem in Western Germanic languages that is not associated with any uniform set of features, but underlies preterit, perfective, and passive forms. Presumably, these grammatical features would be mapped to a specific morphological
“workspace” assumes a fully specified syntactic tree structure, it is also an appropriate place to capture construction specific morphological discrepancies, as in Harris’s treatment of the effect of syntax on the imperative/subjunctive contrast (Harris 1998). It is this additional “workspace” provided by the mechanisms assumed to take place within this morphological module that I would like to exploit to account for the sequence of tense phenomenon as well.

6.4.3.2. Tenseless Clauses in the Syntax and Semantics

The analysis I will propose is most closely related to Ladusaw’s 1977 proposal, though within more current assumptions about the interfaces between syntax, semantics, and morphology. In this way I will be able to account for SOT as a purely morphological reality that has no direct bearing on the interpretive module of the grammar.

To review just a bit, Ladusaw proposes that the target of the SOT rule is a present/simultaneous tense governed by a past tense and the rule rewrites its target as a feature [dent] (Blevins’s index for dental stems) which is what ultimately is realized. In English [past], [perf], and [pass] have no independent realization in regular paradigms (e.g., I mowed the lawn, I have mowed the lawn, The lawn has been mowed). He also mentions the related phenomena of Latin perfect passive participles and future active participles, which have completely distinct grammatical features, but both are built on the same stem (the supine), which Anderson 1894 refers to as the –TO stem in PIE.

13 One of the rules that is crucial to his analysis overtly “impoverishes” the set of features corresponding to the verb and is sensitive to the position of the verb in the syntactic tree. Harris 1998 claims that the feature [+subjunctive] is deleted when accompanied by [2pers], but only when these are found at C (i.e., when the verb has been raised to C by the syntax). In the absence of the [+subjunctive] feature, an unmarked form is generated. The realization of 2nd person agreement is also sensitive to syntactic position, such that it has a zero realization at C. These rules are reproduced in (i-ii) and examples provided in (iii-iv). Harris discusses additional considerations to account for plural forms and dialectal differences.

i. [+subjunctive] → ∅ / [2pers]_C
ii. Agr, ↝ ∅ / [-future] / [2pers]_C
iii. No lo comas. [subjunctive form with imperative meaning; negation blocks raising to C] Don’t eat it.
iv. Cómelo. [non-subjunctive form with imperative meaning; enclisis implies raising to C] Eat it.
past morpheme. For Ogihara, the target is a past tense governed by a past tense at LF and the rule deletes its target so that it becomes tenseless. And Abusch assumes that the precedence relation of a past tense embedded under a past intensional predicate may be satisfied by its matrix past. This intuitively has the same effect as making the lower past semantically tenseless. On the other hand, Ladusaw’s rule was compulsory, while Ogihara’s and Abusch’s are optional.

However, from a DM perspective, it is quite natural and frequent that a form not stand in complete correspondence with the actual features it represents. That is, the input into the morphological module is not word forms, but rather only those syntactic and semantic features which a sentence actually represents in a particular case. The morphological module is then responsible for mapping this set of features to the most appropriate word forms. From this perspective, if a past form is semantically vacuous, it would be assumed that it had not been present during the derivation and that it had been marked as past only within the morphology. Or stated differently, LF is not the place to be deleting morphemes, since the output of the overt syntax does not contain morphemes at all.

In this sense, the apparent deletion of past tense morphemes at LF has more to do with the morpho-syntactic parsing necessary for arriving at what the appropriate interpretation will be on the basis not of an underlying form, but on the basis of a morpho-phonological surface form. From this perspective, then, it is necessary to delete

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14 Abusch argues, however, that such a purportedly vacuous past form may serve to guarantee that a higher NP will be interpreted with a past reference. Mary’s desire to marry a man who was like her… In this case the embedded past tense also guarantees that desire receive a past interpretation.
the past feature in some cases before interpreting, but this deletion will take place as the morpho-syntactic rules are used to parse rather than to generate word forms.

This having been said, I will assume that the tenseless clauses that Ladusaw, Ogihara, and Abusch ultimately must cope with are exactly that in the underlying form of the sentence. This also makes intuitive sense if the underlying form is built up on the basis of a subset of semantic-syntactic notions, such as thematic relations and argument structure. Since tense is a relation with arguments, these should be accurately represented in the underlying form. If such a relation is absent, it should not be represented.

6.4.3.3. **Sequence of Tense**

Both Ogihara and Abusch make allowances for an NP with a past denotation to trigger sequence of tense in their respective systems. I am not so concerned with this possibility, but it is relevant that Ogihara asserts that for an NP to trigger sequence of tense, it must asymmetrically c-command its target, as opposed to a more general notion of command, as between a matrix tense and the tense of a sentential subject. This fact rules out the possibility that an NP that is raised at LF would trigger sequence of tense in any clause besides its own relative clause. Therefore, it seems that sequence of tense will always occur within those configurations that are present in the surface form of the sentence.

This is important for sequence of tense to occur in a morphological module instead. Also, it is relevant that Abusch asserts that sequence of tense occurs only when a temporal abstract is required. On the flipside of this fact is that a tenseless Tense Phrase is only licensed in such a case as well. This implies that the target of sequence of tense
may only be a tenseless TP, i.e., [-past, -present]. This predicts that sequence of tense will not occur in the TP is already marked [+past] or [+present]. And finally, sequence of tense must be triggered by a governing [+past] feature, as generally agreed. As just stated, this will be a c-commanding [+past] noun or the local matrix [+past] TP.

With all of this, here is my proposal for a sequence of tense rule, which will occur within the morphological module, after the surface syntax and independent of the interpretive module.

71. \([-\text{past}] \rightarrow [+\text{past}] / [T \ [\text{--}, -\text{present}]],

where \(T\) is locally governed\(^{15}\) by [+past]

In case a tenseless clause is not governed by a past feature, the resulting verb form will be identical with the present tense. This may be accomplished in two ways. The first is to assume that only [+past] is associated with any phonological realization, for which there is fairly good evidence in Spanish. But in case there is any substantive objection to this, the following rule may be responsible for this apparent syncretism.

72. \([-\text{present}] \rightarrow [+\text{present}] / [T [-\text{past, --}]]

6.5. Results

Earlier, I simply assumed that the semantics of verbs like \(\text{decir (say)}\) would bind the reference time of a subordinate clause. I will make that explicit in the following tentative translation for \(\text{decir}\). While there are many repercussion that follow from this translation, I will not explore them all on this occasion.

\(^{15}\) I will assume for convenience the governing relations assumed by Ogihara 1996 and cited in example (18), footnote 4.
73. \( decir \Rightarrow \lambda Q_{s_i, t}, \lambda x \lambda e [\exists t (\tau (e) = t \& decir' (e, x, ^\lambda Q(t)])] \)

This translation stipulates that \( decir \) will take a sentential complement which lacks an evaluation time argument, and it will provide its complement with just such an argument, which will be equal to its own the event time.

Assuming the tense and aspect definitions and the sequence of tense mechanism previously discussed, we may now provide an account of various tense/aspect interactions between matrix and embedded clauses. I will limit my discussion to past/past interactions. These will be divided up into groups according to the actual chronological ordering between the tenses, and in terms of being a complement or relative clause.

74. **past complement under pretérito**

a. **embedded past prior to matrix past**

Dijo hoy que estuvo / estaba enferma ayer.

_He said today that she was sick yesterday._

b. **past simultaneous with past**

Dijo que (#estuvo) estaba enferma en ese momento.

_He said that she was sick at that time._

c. **embedded past later than matrix past**

*Dijo la semana pasada que estuvo / estaba enferma ayer.*

*He said last week that she was sick yesterday.*

In (74a), the embedded past is interpreted to be prior to the matrix event time. Due to the pragmatic contrast between the pretérito and imperfecto, only the imperfecto will be felicitous with the assumption that the sickness might continue through the time
of saying, though the explicit adverb makes this reading unlikely. This contrasts with (b),
in which the complement clause will be analyzed as being underlying tenseless, such that
the past form is only a surface agreement with the matrix past tense which governs it.

The *pretérito*, which as discussed above must not always be ruled out of
complement clauses with a simultaneous interpretation, is ruled out in this context for the
following reason. The matrix verb *dijo* (*said*) presupposes that the eventuality expressed
by its sentential complement already obtains prior to the time of saying, despite the fact
that the reference time of the embedded tense itself will be simultaneous (i.e., not prior).
This ensures that the reference time of the embedded clause will necessarily exclude the
initial subinterval of the event time, and so only the *imperfecto* will be felicitous in this
context.

Finally, (c) is ruled out because it assumes contradictory requirements. The
semantics of *decir* require that the local evaluation time of the complement be equal to
the time of saying. In the case that the complement is interpreted as having an underlying
past tense relation, this will imply that its reference time will be prior. The alternative is
that the embedded clause is tenseless, in which case its reference time is simultaneous
with the time of saying. Either way, the adverb is later than the event time, which would
contradict either possibility.

In a relative clause things are a bit different. Recall that it was the semantics of
*decir* which required a temporal abstract that necessarily bound that evaluation time of
the embedded tense. In (75) it is clear that the tenses may be interpreted independently. In
traditional analyses (e.g., Ladusaw 1977 and Ogihara 1996) this is accomplished by
raising the complement NP to a position higher than the matrix tense. However, in virtue of the assumptions made here, that is not necessary, though of course it is still possible. That is, nothing in the semantics of the (75a-c) provides a mechanism for the local evaluation time of the embedded tense to be bound by anything besides the time of utterance, in accordance with its default interpretation (cf. (54) above).

75. past relative clause under pretérito
   a. embedded past prior to matrix past
      Habló hoy con alguien que estuvo / estaba enferma ayer.
      He spoke today with someone who was sick yesterday.
   b. past simultaneous with past
      Habló con alguien que (?estuvo) estaba enferma en ese momento.
      He spoke with someone who was sick at that time
   c. embedded past later than matrix past
      Habló con alguien que más tarde estuvo / estaba enferma.
      He spoke with someone who (later) was sick.

The only comment that needs to be made here is why (75b) with the pretérito is anomalous. It should be obvious by now that the pragmatics of the pretérito/imperfecto contrast makes the imperfecto the felicitous alternative in virtue of interpreting the state of being sick as unbounded. The use of the pretérito, if anything, might suggest that the person with whom he spoke had a sudden bout of illness at that moment, but this is not likely. An overtly inchoative expression would be preferred, such as …alguien que se
enfermó en ese momento (someone who got sick at that time). I will leave it to the reader to test all other tense interactions.
CHAPTER 7

CONCLUSION

In this dissertation I have explored in detail several facets of meaning of the imperfecto, both with regard to its aspectual and modal interpretation as well as its tense properties. I have argued for a compositional definition of the imperfecto such that its meaning is composed of a tense relation and as aspectual relation.

In Chapter 2, I have argued that the evaluation time (or reference time) of the nuclear sentence associated with the imperfecto must be included somewhere within the total time of the eventuality (event time) in question. Due to the contrast between the imperfecto and pretérito, it is assumed that the evaluation time associated with the imperfecto is a properly internal subinterval of the event time. However, based on discourse assumptions or lexical entailments, the reference time of the imperfecto may be aligned with the final subinterval of the event time.

On the other hand, even in this context the reference time will still be considered a proper subinterval which excludes the initial subinterval of the event time. Only when the pretérito (including the pretérito progresivo) is not seen as an alternative to the imperfecto is it possible that the reference time associated with the imperfecto be equated with the total event time, as seen in cases of habitual imperfecto sentences with a durative
adverb. This explains the incompatibility of the *imperfecto* with durative adverbs on its other readings, namely stative and progressive.

In Chapter 3, I have followed Cipria and Roberts 2000 in defining imperfectivity in terms of atelicity or the subinterval property. This implies that the *imperfecto* may be evaluated equally at any or all subintervals of the eventuality described in its nuclear scope. This provides a base case for defining stativity.

I have also proposed a number of additional operations in Chapter 4 which map any non-stative eventuality into one that is fully atelic, and is therefore compatible with the atelicity requirement of the *imperfecto*. To the extent that each of these operations yields an atelic eventuality, it might be argued that these are stative, though this is only justifiable as a technical definition of stativity. A detailed discussion of the progressive relation provides a basis not only for proposing the progressive and future relations of the *imperfecto* in Chapter 4, but also for a comparison between the *imperfecto* and the periphrastic *progresivo* in Chapter 5.

One important innovation in Chapters 2 and 4 is the formalization of the ‘perfective’ interpretation of the *imperfecto*, which has loomed as a counterexample to the atelicity approach to the *imperfecto* until now. I have attempted to formalize the intuitions found in more traditional grammars that in such cases the *imperfecto* describes an interval in terms of that unique event which is most memorable or salient for that interval. In this way, the subinterval property is maintained in that every subinterval of the evaluation time is equally a member of the same interval for which a particular event is most salient.
In Chapter 5, I have sketched a needed formal comparison between the *imperfecto* and the *progresivo*, as well as between the *imperfecto progresivo* and the *pretérito progresivo*. In this discussion I have argued that despite the commonly assumed restriction that the evaluation time of the progressive must be a non-final subinterval of a complete event, this restriction may be violated in the case of the *pretérito progresivo* combined with a durative adverb. In such cases, the duration associated with the evaluation time of the *pretérito progresivo* also coincides with the duration of the full eventuality. Therefore, it must be assumed that only with overtly imperfective forms (i.e., the present and the *imperfecto*) will the evaluation time be inferred to be a non-final subinterval.

Finally, in Chapter 6, I have proposed a means for accounting for the semantic/morphological mismatches implied by the notion of sequence of tense. In reviewing a number of alternative approaches, I have argued that some sort of sequence of tense mechanism is necessary in Spanish, and I have proposed that it be a mechanism that is properly included within an independent morphological module of the grammar. This proposal assumes that clauses may be tenseless in their underlying form, but only as complements of particular types of matrix verbs. The logical form is then only responsible for interpreting the feature bundle [-past, -present] as tenseless, while this feature bundle is converted in the morphological module as [+past, -present] when properly governed by a past tense.

It is also explained in Chapter 6 that the apparent semantic deletion in the logical form is due to parsing surface morphological forms back to the output of the overt syntax,
so that the appropriate form may serve as input to the interpretive module. However, the actual mechanism that accomplishes this is now proposed to be exclusively morphosyntactic, not semantic.

The overall contribution of this dissertation is to offer a more detailed look at several formal properties of the *imperfecto*, which has received relatively very little attention in the formal semantic literature. This includes both its tense and aspectual properties. Beyond the relevance of this dissertation in the field of Hispanic linguistics, the formalism has clear relevance to the field of formal semantics in general.


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