

**PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO GRANDE DO SUL
FACULDADE DE LETRAS
PROGRAMA DE PÓS-GRADUAÇÃO EM LETRAS**

KARINA VERONICA MOLSING

**THE PRESENT PERFECT: AN EXERCISE IN
THE STUDY OF EVENTS, PLURALITY AND
ASPECT**

Porto Alegre
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Tese de Doutorado apresentada ao Programa de Pós-graduação em Letras/Linguística Aplicada, da Pontifícia Universidade Católica do Rio Grande do Sul, como parte dos requisitos necessários à obtenção do título de Doutora em Letras.

Orientadora: Prof.(a) Dr.(a) Ana Maria Tramunt Ibaños

PORTO ALEGRE

2010

KARINA VERONICA MOLSING

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para obtenção do grau de Doutor,
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da Pontifícia Universidade Católica
do Rio Grande do Sul.

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Resumo

A presente tese visa um duplo objetivo. O objetivo geral é contribuir para o entendimento de um método de investigação que enfatiza as relações interdisciplinares e intradisciplinares nas análises de fundamentos, teóricas e empíricas. O objetivo específico é aplicar este método ao tópico de fenômenos tempo-aspectuais nas línguas naturais. Para obter um entendimento melhor do significado associado à estrutura do pretérito perfeito composto (PPC) no português brasileiro, esta tese assume uma abordagem que envolve a construção de interfaces em todos os níveis de análise. O problema excepcional que o PPC apresenta é o seu significado muitas vezes obrigatório de repetição, mesmo que sem modificação adverbial, e apesar da sua estrutura morfológica, *ter*+particípio passado, que se espelha nas de outras línguas românicas e germânicas. A abordagem assumida neste estudo envolve quatro etapas: i) uma investigação de fundamentos filosóficos de plurais e eventos; ii) uma investigação dos fundamentos lingüísticos de plurais e eventos; iii) uma análise de como as primeiras duas etapas modelam a concepção de teorias de aspecto lexical e aspecto gramatical; iv) uma análise composicional do PPC, levando em consideração as primeiras três etapas.

Abstract

The objective of this dissertation is two-fold. The general objective is to contribute to the understanding of a method of investigation that emphasizes interdisciplinary and intradisciplinary relations in guiding foundational, theoretical and empirical analyses. The specific objective is to apply this method to the topic of temporal-aspectual phenomena in natural languages. To achieve a better understanding of the meaning associated to the present perfect structure in Brazilian Portuguese, known as the “pretérito perfeito composto” (PPC), this dissertation takes an approach that involves constructing interfaces at every level of analysis. The unique problem the PPC presents is its often obligatory meaning of repetition, even in the absence of adverbial modification and despite its morphological structure, *ter*+past participle, mirroring those of other Romance and Germanic languages. The approach taken in this study involves four stages: i) an investigation of the philosophical foundations of plurals and events; ii) an investigation of the linguistic foundations of plurals and events; iii) an examination of how the first two stages influence the conception of theories of lexical aspect and grammatical aspect; iv) a compositional analysis of the PPC, taking into consideration the previous three stages.

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List of Abbreviations

Ag	agent
Arg	argument
AspP ₁	higher aspectual projection
AspP ₂	lower aspectual projection
BP	Brazilian Portuguese
Cul	culmination
DP	determiner phrase
E	event interval; location time
EP	existential perfect
FREQ	frequentative pluractionality (Laca 2006)
ILP	individual-level predicate
INCR	incrementality (Rothstein 2004)
INCR	incremental pluractionality (Laca 2006)
Imp	imperfective
IMP	imperfect
MSOL	monadic second-order logic
NE-PPC	Northeastern <i>préterito perfeito composto</i> (Cabredo-Hofherr et al. 2008)
NK	Nishiyama and Koenig
NP	noun phrase
Pat	patient
Perf	perfective
PL	plural
PPC	<i>préterito perfeito composto</i> (present perfect structure)
PROG	progressive
PrP	English present perfect
PTS	Perfect Time Span theory
R	reference time; topic time
s	perfect state (Nishiyama and Koenig 2004)
S	sentence
S	speech time
SL	singular
SLP	stage-level predicate
V	verb
vP	event structure phrase
VP	verb phrase
T	tense
TP	tense phrase
UP	universal perfect
XN	Extended Now theory

List of Symbols

A, B, C, ...	nonlogical predicates and relations
e	eventuality
n	now; speech time
s	state
FREQ	frequentative pluractional operator (Laca 2006)
Gn	generic/habitual operator (Lenci and Bertinetto 2000)
INCR	incremental function (Rothstein 2004)
INCR	incremental pluractional operator (Laca 2006)
Imp	imperfective operator
PART	partitive operator
x, y, z, ...	first-order variables
xx, yy, zz, ...	second-order variables (Boolos 1984)
X, Y, Z, ...	second-order variables
X(s)	lexical inference (Nishiyama and Koenig 2004)
\exists	existential operator
\forall	universal operator
\mathcal{D}	distributive operator (Link 1983)
\oplus	material fusion (Link 1983)
$\alpha, \beta, \gamma, \dots$	formulas
Φ, Π, Ψ, \dots	formulas (Schein 1993)
σ	plural definite description
ι	singular definite description
λ	lambda operator
*	pluralization operator; cumulativity
\sqcup	sum operation (Rothstein 2004)
\neg	negation
\subseteq	improper inclusion
\subset	proper inclusion
$<$	temporal ordering relation
\leq_o	ordered overlap
$<$	is-one-of (Boolos 1984)
\in	is an element of
\notin	is not an element of
\leq	part-of relation; partial ordering relation
\wedge	and
$\&$	and
τ	running time
\circ	overlap relation

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Introduction

The objective of this dissertation is two-fold. The general objective is to contribute to the understanding of a method of investigation that emphasizes interdisciplinary and intradisciplinary relations in guiding foundational, theoretical and empirical analyses. The specific objective is to apply this method to the topic of temporal-aspectual phenomena in natural languages.

With respect to the specific objective, the focus of this investigation is the present perfect structure in Portuguese and English. The Portuguese present perfect, known as the ‘pretérito perfeito composto’, refers to the *ter*+past participle morphology in the Brazilian¹ variety and will be abbreviated as ‘PPC’. The English present perfect refers to the *have*+past participle morphology in the American variety and will be abbreviated as ‘PrP’ throughout this dissertation. Unless otherwise mentioned, no other varieties of Portuguese and English will be referred to in these terms. The problem posed by these two structures is that they appear to present diverging meanings, despite having the same morphological structure, as illustrated in (1) and (2).

- | | | | |
|-----|---------------------------|---|--|
| (1) | João tem chegado atrasado | } | todos os dias.
*ontem.
*uma vez.
*três vezes. |
| (2) | John has arrived late | } | every day.
*yesterday.
once.
three times. |

The PPC appears to express obligatory and indefinite, non-countable repetition such that it is only compatible with adverbs of vague frequency. The PrP, on the other hand, can express singular eventualities, as well as definite and indefinite repetition. Both are

¹ The European variety of the PPC, which has the same morphological structure, is for the most part semantically equivalent to that of standard Brazilian Portuguese, but I will only make claims about the latter variety.

incompatible with past time adverbs. On the other hand, both are also capable of expressing durative situations, as in (3).

- (3) a. João tem estado doente desde fevereiro.
 b. John has been sick since February.

The pursuit of an adequate description and explanation of these data will be explored according to a framework to be formulated along the lines determined by the general objective. The purpose of comparing the semantics of the PPC with that of the PrP is not solely for descriptive purposes. While some believe the differences in the data are sufficient to abandon the goal of a unified treatment or at least consider it irrelevant, my purpose in pursuing this goal is to provide insight into where exactly in the syntax-semantics-pragmatics apparatus the two structures diverge. This is motivated by the fact that the two structures once shared similar meanings in recent history (Boléo 1936, Suter 1984). Since this study is synchronic in nature and not diachronic, the comparison between the PPC and PrP seems relevant.

With respect to the general objective, the present dissertation follows Campos' (2007) metatheory of interfaces. This metatheory highlights the interdisciplinary nature of linguistics in which language is assumed to be an inherently multidimensional object, and the study of which is compatible with a variety of perspectives. Assuming this perspectivism, we admit first an interdisciplinary interface, e.g. Linguistics/Natural Sciences, Linguistics/Formal Sciences, or Linguistics/Social Sciences. A further intradisciplinary interface is then chosen among the subdomains of Linguistics, e.g. syntax, semantics, pragmatics, phonology, morphology. So, a metatheoretical approach is not so much a theory in itself, nor does it have to do with comparing theories to see which one is better. It is more of a mode of operation, a methodological approach, in which the construction of the interface determines each level of analysis². More than a mere approximation of two areas, the interface itself represents a third entity such that what certain theoretical elements may take on differing degrees of relevance according to that which motivated the construction of the interface. The present study is situated at the interdisciplinary interface of Linguistics/Formal Science with an intradisciplinary

² From this point on, I will use the term “foundational” in the place of “metatheoretical” as the former is more straightforward and less susceptible to diverging preconceived notions than the latter. I may also refer to the metatheoretical approach as the “interface method” due to the importance given to the construction of interfaces.

focus on semantics, syntax and pragmatics. However, due to the complexity of considering all three sub-areas comprehensively, the primary focus is on semantics.

This dissertation is organized according to foundational, theoretical and empirical motivations. After reviewing the standard theories on the present perfect in chapter one, my intention is to lead the reader through four different levels of investigation, which also reflects the organization of this dissertation. At the foundational level, plurals and events will be investigated with respect to the interfaces of the Philosophy of Language and the Philosophy of Logic, with a focus on metaphysical and ontological issues. The metatheoretical approach permits a perspective that can reveal how certain levels of study can be collapsed, resulting in inconsistent observations and analyses. For example, there are philosophical studies which focus on the division of labor between metaphysics and semantics, while bypassing linguistic assumptions. Two main perspectives are discerned with respect to approaches to plurals and events. There is the singularist view that defends that plurals can be treated as objects similarly to singular objects using a mereological framework to model the two. Moreover, they assume that objects and events can be treated on a par, such that they share the same kind of mereological structure. On the other hand, the pluralist view argues that plurals are not objects, citing identity and individuation criteria that lead to Russell's Paradox. This will be discussed in the first half of chapter two. While 'singularism' and 'pluralism' are philosophical terms for the positions discussed, I will use them throughout the dissertation to represent the respective philosophical assumptions of subsequent theoretical and empirical analyses.

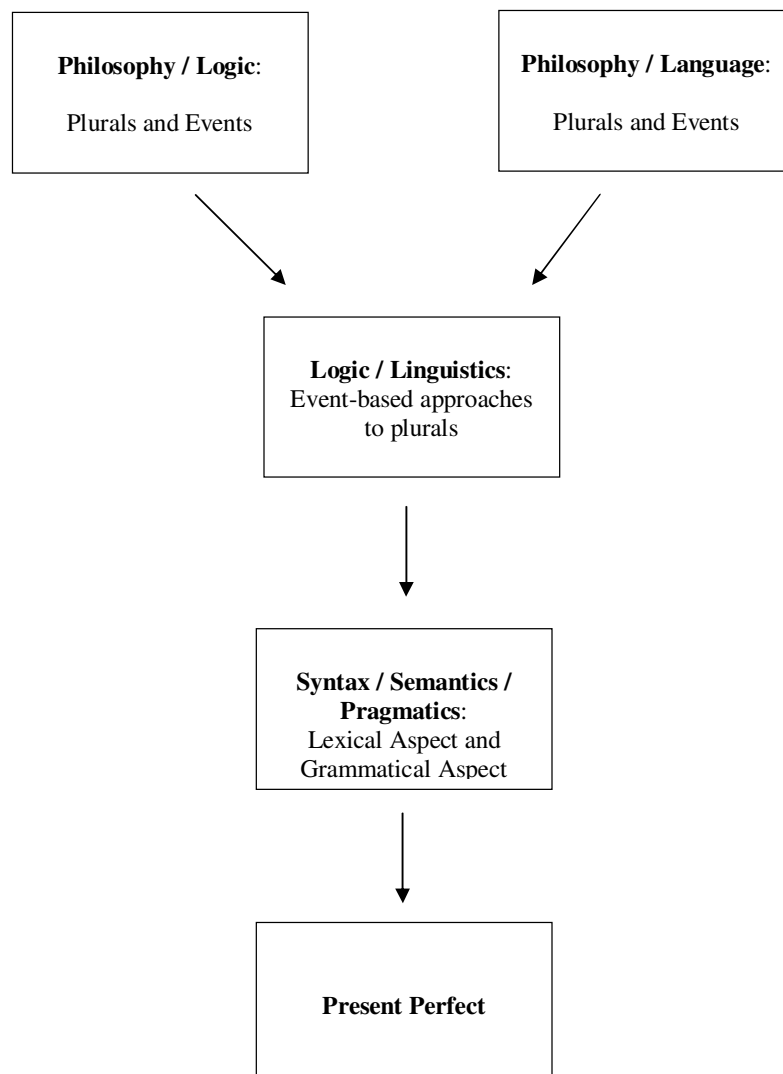
At the theoretical level, plurals and events will be discussed at the Linguistics and Logic interface, focusing on inferential patterns. The singularist/pluralist opposition is discussed with respect to the treatment of the different readings that arise with plurals within an event-based semantics, including distributivity, collectivity and cumulativity. Though the singularist assumption of plural objects continues to apply, the pluralist view defends that plurals be treated as predicates. While these perspectives diverge with respect to the assumption of an object mereology, there are some elements of an event-based approach to plurals that is common to both. These are: i) the assumption of an event mereology; ii) the assumption of a Neo-Davidsonian event semantics; and iii) the idea that basic predicates are always compatible with a plural interpretation. This will be discussed in the second half of chapter two.

At the empirical level, analyses of lexical and grammatical aspect will be derived from the theoretical and metatheoretical foundations of plurals and events. Here, the focus is primarily on the semantic elements involved in composing specific linguistic structures. A variety of different aspectual structures are discussed only for illustrative purposes, including the perfective-imperfective opposition and their subtypes as well as some aspectual periphrases. These topics are the focus of chapter three.

Still at the empirical level, one particular structure, the present perfect, is the focus of a deeper semantic analysis, motivated by the question of how the PPC gets its unique plural reading without adverbial modifiers and whether this divergence from the PrP meaning precludes a unified semantic framework.

Below is a schema illustrating the methodological approach that guides the development of chapters two through four.

Figure 1. Schema of the Interface Method of Investigation



The reasoning behind this manner of organizing the research is that it is possible that considering different philosophical positions may occasion different specific analyses in such a way that linguistic phenomena are handled differently. And this, in turn, may lead to theories that are capable of accounting for broader ranges of linguistic issues. More than a linguistic study with a philosophical detour, this is an exercise in foundational consistency, involving plurals, events and aspect. This way, along the course of this dissertation, occurrences of foundational inconsistency in the relevant literature will be made evident and the consequences examined. I am not familiar with any research so far that has (at least explicitly) taken this route with the ultimate objective of dealing with the temporal-aspectual semantics of particular linguistic structures.

While some may take the reasoning behind this approach to be trivial, allow me to illustrate anecdotally how the choice of interfaces at each level can alter one's understanding of particular linguistic phenomena and therefore, the course of a particular investigation. As a Master's student, it was once suggested to me in passing by a professor that the present perfect should be treated like the present progressive since their meanings are equivalent. I didn't quite know how to respond or even what to make of the suggestion until I was informed afterwards that the professor was a sociolinguist. Having assumed the Linguistics/Social Science interface, meaning is understood as that which is relevant for communicative purposes. In this case, there is no reason why the present progressive and present perfect could not be seen as equivalent, if they occur in the same contexts. The misunderstanding was due to the fact that I was assuming a Linguistics/Formal Science interface, in which meaning is understood as that which is relevant for logical-inferential purposes. In this case, the equivalence of the two structures depends on the syntactic-semantic-pragmatic configuration and the resulting logical inferences. Clearly, we each had two different kinds of meaning in mind.

Moreover, my intention is that involving the different levels of research illustrated in Figure 1 not only favors theoretical consistency, but may result in repercussions at all four levels. It is common to find studies that deal with only one or two of the levels discussed here, specifically the linguistic and/or empirical. Likewise, it is also common to find studies that deal only with pairs of topics, e.g. plurals and events, plurals and lexical aspect, or plurals and grammatical aspect. These choices do not mean that these studies are incomplete or faulty in some way, since theoretical

delimitations are often necessary for the sake of technical detail or theoretical focus, for example. Conversely, the present study may lack in technical detail with respect to the wide variety of phenomena that are discussed throughout, in favor of the overall methodological objective. Ultimately, this is a methodological choice whose motivation is theoretical consistency and interdisciplinary relevance.

Chapter 1

Standard Approaches to the Present Perfect

1.1 Introduction

The purpose of this chapter is to provide a critical review of contemporary analyses of the present perfect. The theories discussed here will be presented using data from the English Present Perfect (PrP) as a backdrop, though they have been utilized in the current literature to account for the corresponding structures in languages such as French, Spanish, Dutch and Greek, among others. Then, it will be shown how these approaches can be applied to data on the Brazilian Portuguese “pretérito perfeito composto” (PPC).

Linguistic theories on the present perfect in a variety of languages generally focus on a specific range of issues, which will be discussed over the course of this chapter. First of all, the present perfect is often considered a semantic minimal pair of the simple past. In the English example in (1.1),

- (1.1) a. John has eaten dinner.
b. John ate dinner.

The two sentences appear to have the same truth conditions with respect to the temporal location of the event of eating dinner. They both occurred in the past, before the speaker utters the sentence. However, there seems to be something more in the meaning of the present perfect, aside from just taking place in the past. This is more evident in an example such as (1.2).

- (1.3) a. Mary has lived in New York for 5 years.
b. Mary lived in New York for 5 years.

The salient reading of (1.3a) suggests that Mary still lives in New York, while the salient reading of (1.3b) suggests that she no longer does. Many theorists have attributed this distinction to the so-called notion of “current relevance”, introduced by Comrie

(1976). This means there is something that links the past situation to the present time.³ While intuitive, it is not clear what the nature of this current relevance should be and how it composes with the other elements of the present perfect. Current relevance has often been treated as a pragmatic felicity condition, or a presupposition of some kind (Inoue 1979, Smith 1997). Though the present perfect is often understood as referring to a one-time, past occurrence, a closer analysis of current relevance suggests that, not only should the past action be relevant to the present, but the action should be able to occur again up until or at present time. In other words, there is some element of repetition that guides the felicitous use of the present perfect in languages like English. This explains the classic examples in (1.4) and (1.5).

- (1.4) a. ??Einstein has visited Princeton.
 b. Princeton has been visited by Einstein.
- (1.5) Have you visited the Monet exhibit?

Example (1.4a) is unacceptable because Einstein is dead and is therefore no longer capable of visiting Princeton again. However, (1.4b) is more acceptable if we are talking about Nobel Prize winners who have visited Princeton (though many still consider it odd). Furthermore, it is only appropriate to ask a question like (1.5) if the following conditions hold: (i) the museum exhibit is still open, so that one can still possibly visit it; and (ii) it must be practically possible for the person being asked the question to still visit the museum exhibit. Hence, the event in question must be repeatable and the referents of the noun phrase must exist at the speech time (Smith 1997). However, this does not mean that the event must actually repeat at present or any time in the future, as shown by (1.6). So, while the eventualities need not repeat, or continue to repeat, the possibility must be there at speech time.

- (1.6) I have visited my parents, but I won't anymore.

³ On the other hand, there are languages such as French and Spanish in which the present perfect structure is used primarily to express perfective actions, occurring in the past with no semantic relation to the present (Howe and Schwenter 2003). In this case, if there is any notion of current relevance involved that distinguishes the present perfect form from the simple past, it is in terms of distance in the past or its position in the larger discourse structure, which is determined pragmatically.

The result of this is that even though the default understanding of the English PrP is that the situation happened only once, a condition for uttering it is that of repeatability, in the sense of a possibility of repetition.

The issue of current relevance can also be reflected in the present perfect structure's incompatibility with certain adverbs, such as those that mark a past time, as shown in (1.7).

(1.7) *John has arrived yesterday.

This incompatibility, known as the “present perfect puzzle” (Klein 1994), gives support to the notion of current relevance in that the past action denoted by the present perfect structure is not a true past in languages like English. Consequently, it is plausible that an explanation for this incompatibility can serve as an explanation of the current relevance notion as well.

Another point of contention for contemporary present perfect theories regards the types of readings that the present perfect can have. As shown in the examples below, there are at least four different types of interpretations.

- (1.8) a. Experiential: John has visited Paris. (once/before)
 b. Resultative: John has arrived. (and is here)
 c. Recent past: I have just graduated from college.
 d. Persistent situation: John has lived in New York for 4 years.

The main readings for the PrP are experiential, resultative, recent past and persistent situation (Comrie 1976). Notice that the recent past reading can be understood as either a kind of resultative or experiential and the resultative, in turn, can be seen as a kind of experiential. These subtle differences are usually due to adverb modification, such that without adverbs, the four readings can be reduced to two. Many contemporary theories on the present perfect have assumed this two-way distinction, referring to the first three readings as “existential” and the fourth as “universal” (McCawley 1971). The difference in readings appears to depend on the type of verb used, with (1.8a-1.8c) involving action type verbs while (1.8d) involves a stative verb. However, some theorists have noted that examples such as (1.8d) can give rise to an ambiguity between

universal and existential interpretations (Rathert 2003, Pancheva 2003, Iatridou et al. 2003).

The more salient universal interpretation is that John still lives in New York at the time the sentence was uttered. However, there is also an existential interpretation which means that at some point in the past John lived in New York and that lasted for five years. Theories differ as to whether this ambiguity should be treated as semantic or pragmatic in nature.

Summing up, the issues discussed above are the main elements that contemporary theories of the present perfect often focus on: i) the simple past versus present perfect distinction; ii) the notion of current relevance; iii) the “present perfect puzzle”; and iv) the universal-existential ambiguity. As suggested by the discussion above, an explanation for the first three topics can plausibly be derived from a single source, while the fourth issue is often treated separately. Each of these topics will be discussed in turn when reviewing the main present perfect theories in this chapter. But before doing so, I will first review the basic data of the present perfect in Brazilian Portuguese (BP), the PPC.

Differently from English, the simple past and present perfect structures cannot be said to be a minimal pair in BP. While (1.9a) describes a past action, the same cannot be said of (1.9b).

- (1.9) a. João jantou.
b. João tem jantado.

The reading in (1.9b) is that there was a repeated past action of having dinner. However, similarly to the English PrP, there is also a sense in which the action must be able to occur at speech time to be used in the PPC structure. The requirement of repetition makes the BP counterpart of examples (1.4) and (1.5) emphasize this intuition.

- (1.10) a. ??Einstein tem visitado Princeton.
b. Princeton tem sido visitado por Einstein⁴.

- (1.11) Você tem visitado a exibição de Monet?

⁴ Some informants consider both of these sentences equally bad, though (1.10b) may be slightly improved in a list context, such as “Princeton tem sido visitado por Nobéis como Einstein, Wilson, Morrison,…”

In addition to the fact that Einstein cannot visit Princeton anymore, (1.10a) suggests that he has recently been visiting the university, indicating that, in addition to iterativity, recency may play a part in the meaning of the PPC. This way, it appears that the PPC is not capable of expressing Comrie's experiential perfect, as exemplified in (1.8a). Moreover, the notion of repetition implies the lack of a resultative type perfect as well. On the other hand, similarly to English, the actual continuation of the repeated action is not necessary and can be canceled, as shown in (1.12).

(1.12) Eu tenho visitado os meus pais, mas não vou mais.

In this sense, it can be said that if there is some notion of current relevance at work here, it is more explicit than in the English counterpart, given the iterativity of the action in question. Instead of a pragmatic felicity condition of repeatability, as in English, the repeatability in the PPC appears stronger, suggesting perhaps a semantic requirement. The iterativity of the PPC makes the incompatibility with past-time adverbs more striking, as shown in (1.13).

(1.13) *João tem chegado ontem.

Though it can be said that the PPC also presents the so-called present perfect puzzle, it remains to be seen whether its source is the same as that in the English PrP. There is another puzzle regarding the PPC that does not arise in English, which is its incompatibility with cardinal modifications.

(1.14) João tem beijado Maria *uma vez / *três vezes.

Some theorists have claimed that this is because the PPC cannot refer to an event that happens only one time and so must have a meaning that requires some kind of 'at least two or more' meaning (Amaral and Howe 2005), but in fact the PPC cannot be modified by any definite number, as shown in (1.14) above. I call this the "frequency puzzle". It can only be avoided if accommodated in a habitual context, with a continuation such as 'per week' or 'every day'.

It is clear that the main peculiarity of the PPC is the meaning of iterativity it conveys with event type predicates. However, it is also capable of durative readings with stative predicates, as shown in (1.15).

(1.15) *Maria tem estado doente.*

But, as noted above, if the PPC is in fact incapable of expressing something similar to the experiential and resultative type existential perfects, then there must be no ambiguity between existential and universal readings. However, it is possible that there is some kind of ambiguity in the example above. It is plausible to understand (1.15) in the sense that there is a single instance of Maria being sick and she is still sick at the time the sentence was uttered. It can also be true that there have been repeated instances of Maria being sick recently, but it is not necessarily true that she is sick at the time of utterance or that she will continue to be sick. Again, like the universal-existential ambiguity in English, the ambiguity of the PPC may be of either a semantic or pragmatic nature. This will be discussed with respect to the standard present perfect theories over the course of this chapter.

The iterative property of the PPC with event predicates distinguishes it from most present perfect meanings in other languages. This is further illustrated by its frequent translation into the present perfect progressive in English. Giorgi and Pianesi (1997) have proposed a covert generic habitual operator to account for this notion of repetition. The immediate problem is the fact that iterativity is not always obligatory, as shown in (1.15) above with a stative predicate. Moreover, Giorgi and Pianesi are forced to stipulate not only a present perfect structure distinct from the rest of the perfect system, but that there are two types of ‘ter’ (‘have’): a main verb and an auxiliary. Schmitt’s (2001) proposal suffers from a similar drawback when she claims that the present tense morphology in Portuguese selects for states, explaining why it is only in conjunction with the present that the perfect is forced into iterative readings. And since the perfect outputs a non-homogeneous predicate, coercion takes place to account for the mismatch, resulting in iteration. Again, the fact that durative readings are possible with stative predicates is not accounted for.

In the face of the possibility of iterative as well as durative readings, some theorists have assumed that there are properties of imperfectivity lurking in the PPC meaning. Travaglia (1994) and Squartini and Bertinetto (2000), among others, describe

the PPC as a structure expressing imperfectivity in the sense that the situation is iterative, unfinished and often compatible with the notion of habituality. Travaglia admits the possibility of a durative reading. However, none of these authors have made an attempt to explain how this property of imperfectivity comes into play or how it relates to the more traditional perfective-imperfective morphological distinction. This imperfective characteristic of the PPC has further led to claims that it expresses only a universal reading (Brugger 1997, Squartini and Bertinetto 2000, Pancheva 2003).

Given the frequent translation of the PPC into the present perfect progressive in English, together with the suggestion by some authors that the PPC is a kind of imperfective, it may be beneficial to investigate the semantics of those structures in BP that directly express imperfectivity or progressive meaning. This endeavor includes the consideration of other periphrastic structures such as *vir+gerund*, *andar+gerund* and *ir+gerund*⁵.

After considering some basic data of the present perfect in English and BP, we can see that there are some similarities and some differences. BP does not present the simple past / present perfect opposition in the way that English does, though the action denoted by the present perfect in both languages has a connection to the moment of utterance. While the present perfect puzzle is present in both languages, only BP has restrictions regarding frequency, prohibiting modification by a cardinal adverb unless in a habitual context. Both languages present ambiguities with respect to the possible present perfect readings, though they are apparently of differing natures. Finally, the distinctive characteristic of the PPC that distinguishes it from not only English but most other languages in the contemporary literature on the present perfect is the apparent obligatory iterativity with eventive predicates and a possible iterativity with stative predicates as well. Can the similarities between the PrP and the PPC be derived from the same sources? Will the differences ultimately require diverging semantic treatments? These are the main questions that guide the present dissertation.

This chapter examines the potential of three mainstream theories widely used to account for present perfect phenomena in a broad range of languages to only describe but explain the data presented in this introduction. All three theories assume the basic three-point tense-aspect framework introduced by Reichenbach (1947). These points

⁵ One such study by Cabredo-Hofherr et al. (2008) will be discussed only in chapter four. This is because discussing the relevant notions involved in their account depends on theoretical issues to be presented in chapters two and three.

include the event time, ‘E’, which refers to the running time of the action or situation in question, the speech time, ‘S’, which refers to the moment the sentence is uttered and finally, the reference time, ‘R’, which is a contextually determined point in time. This last point can also be considered an evaluation time, the time at which the event in question is evaluated (‘topic time’ in Klein’s (1994) terms). The reference time is not always explicit in the simple tenses – past, present and future – since it coincides with either the speech time or the event time, which is why some authors leave it out (Kamp and Reyle 1993, Bertinetto 1994). However, it can be most easily illustrated in sentences with the pluperfect structure. In (1.16), for example, the votes were counted in the past, but not with respect to the speech time, rather with respect to midnight, the reference time.

(1.16) By midnight, all the votes had already been counted.

In Reichenbach’s framework, the position of reference time relative to speech time expresses tense while the position of event time relative to reference time expresses grammatical aspect. This can be summarized in the table below.

Table 1.1 Reichenbach (1947) Tense-Aspect Schema

Past: E,R_S	Present Perfect: E_R,S
Present: S,R,E	Past Perfect: E_R_S
Future: S,R_E	Future Perfect: S_E_R

For the most part, contemporary theories of the present perfect assume a Vendlerian classification of lexical aspect (Vendler 1967). Lexical aspect refers to the semantic information inherent in the verb, such as events and states, but Vendler distinguishes four aspectual classes:

- **States:** homogeneous situations which persist for a determined interval of time. (e.g. ‘to love’, ‘to know’, ‘to be a hero’)
- **Activities:** durative homogeneous events with no inherent terminal point. (e.g. ‘to rain’, ‘to laugh’, ‘to dance’)
- **Accomplishments:** events which develop towards a terminal point, with focus on the development. (e.g. ‘build a house’, ‘walk a kilometer’, ‘eat a sandwich’)

- **Achievements:** events which develop towards a terminal point, with focus on the instantaneous terminal point. (e.g. ‘to fall’, ‘to reach the top’, ‘to win the race’)

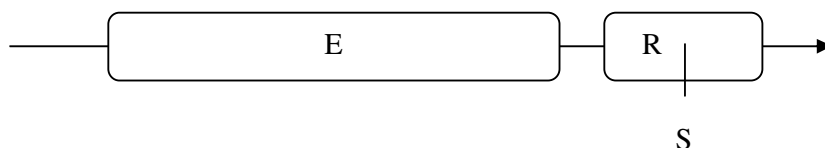
A cover term for these classes is ‘eventuality’, provided by Bach (1986), and can refer to any type of verb class.

The first theory to be discussed, in section 1.2, takes the above schema for the present perfect in the most straightforward way in treating it similarly to the simple past, with the only difference being the pragmatic restrictions imposed by the reference point. This type of theory is known as the “Priorian Past” theory since it basically treats the present perfect as a tense operator in the style of Prior (1967). The second type of present perfect theory, in section 1.3, is similar to the first in its method though the temporal-aspectual descriptions diverge slightly. This is because, in this second perspective, the present perfect is understood as primarily an aspect in that it introduces stative descriptions. I will call this the “Stative Perfect” theory. A discussion of adverbs for the first two theories is more or less the same and is discussed in 1.4. The third type of theory, in section 1.5, known as “Extended Now” (McCoard 1978) or as “Perfect Time Span” in more recent formulations (Iatridou et al. 2003), treats the perfect as introducing a time span that includes speech time or reference time, in the respective versions. The universal-existential ambiguity and adverbs are also considered. Each theory is discussed in turn below.

1.2 Priorian Past Theories

In this section, I will discuss a type of Priorian Past theory that assumes anteriority to be the main characteristic of the present perfect (Klein 1992, 1994). This type of theory claims that there is an interval located before speech time, within which the eventuality is located. The reference time (Klein’s ‘topic time’) is often claimed to include or be equal to the speech time. See the diagram below where the time intervals are embedded in a time line.

(1.17) R = reference time; E = event time; S = speech time



In Klein's version of the theory, the reference time is given a more explicit role as topic time. While the event and speech times remain virtually the same (Klein's 'situation time' and 'utterance time', respectively), the topic time refers to the time for which the claim is made. The notion of topic time can be most easily demonstrated by a question/answer scenario, in which the question sets the topic time. In (1.18), it is possible that the man is still lying on the ground at speech time, but the question limits the answer to the topic time set by the underlined portion.

(1.18) Q: What did you see when you walked in the room?

A: A man was lying on the ground.

The tense relation is given by topic time and speech time while the aspect relation is given by event time and topic time. In the present perfect, the topic time is always fixed at the present, thus including speech time. One immediate result of this conception of topic time is how it accounts for "current relevance", which is often considered to be the notion that distinguishes the present perfect from the simple past. While the situation being described by the present perfect occurred in the past, the speaker is making a claim at a time which includes the moment of speech. Current relevance, situated in the time after the time of the situation, is thusly represented by topic time, which starts prior to, includes and possibly surpasses the moment of speech. This relation does not deny that the situation may still occur, at speech time or in the future, but this is not a requirement for the use of the present perfect. Often, the idea of current relevance can be resolved by the previous establishment of the topic time as shown in (1.19) and (1.20) (example by Ana Ibaños).

(1.19) A: Why are you in prison?

B: I've killed my husband.

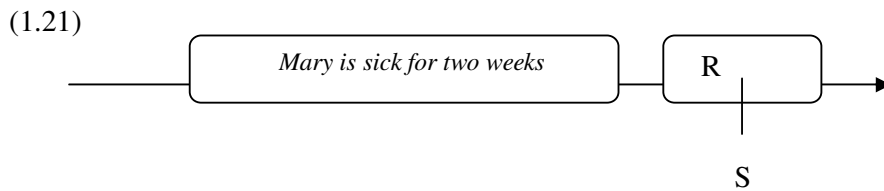
(1.20) A: Why were you in prison?

B: *I've killed my husband. / I killed my husband.

In (1.19), speaker A establishes the topic time for the present, such that s/he is asking what past occurrence has led to speaker B's present state. In (1.20), the killing situation is relevant to Speaker B's time spent in prison and not to her present state of being out of prison. So, upon leaving prison, Speaker B would no longer use the present perfect to

express the past relevance of the killing situation. Thus, topic time is truly a relevance time in that it sets up the time for which the situation is relevant.

Another interesting byproduct of the present perfect definition given above is that it says nothing about the distance between the eventuality and speech time, nor does it say anything about the frequency of intervals. It is Klein's topic time that distinguishes the present perfect from the simple past and the rest of the perfect system. It also means that the ambiguity between the universal and existential readings must be resolved at the level of pragmatics. However, in an example like (1.21), there is some ambiguity.



For a sentence like 'Mary has been sick for two weeks', there is sense that Mary is still sick and there is also a possible sense that in some time in the past there was an interval of Mary being sick for two weeks. The more salient reading, that Mary is still sick at speech time, is a matter of implicature, since information regarding the location and duration of the eventuality are left unspecified.

If this approach is correct, it suggests that readings involving repetition such as those expressed by the PPC can only be derived pragmatically. However, it is not immediately clear what kind of pragmatic theory, if one exists, is capable of dealing with the variety of interpretations possible for languages like English and BP. This perspective also has consequences for how the Priorian Past type of theory deals with the adverb puzzles in the PPC, discussed in section 1.4.

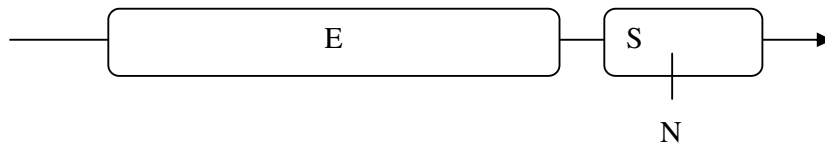
The universal-existential ambiguity will be discussed in more depth in section 1.5 on the Extended Now theory. The adverb puzzles will be discussed in section 1.4 as their treatment can be extended to both Priorian Past and Stative Perfect type theories.

1.3 Stative Perfect Theories

The Stative Perfect type theory treats the perfect as an operator that introduces a state (Kamp and Reyle 1993; de Swart 1998; Nishiyama and Koenig 2004). There are different ways of conceptualizing how the perfect introduces the consequent state, but

they are conceptually similar to the idea of the event's interval preceding speech time, as in the Priorian Past theory. The relation between the prior event and the ensuing state have been understood in the literature in one of three ways: as one of abutment (Kamp and Reyle 1993; de Swart 1998), causation (Moens and Steedman 1988; Smith 1997), or as introducing a permanent state (ter Meulen 1995).

(1.22) N = now; speech time S = perfect state E = event time



As Nishiyama and Koenig (2004, from here on, NK) attest, all three of these types of stative approaches run into problems when the different types of possible inferences are taken into account. NK's examples below show how a stative approach must account for all of these possible inferences (*s* = perfect state).

(1.23) Ken has broken his leg.

- a. His leg is broken (*s*)
- b. Ken is behind in his work (*s*)
- c. #Susan is married (*s*)

(1.24) I have seen the key in this room.

- a. The key is in this room (*s*)

(1.25) I've been in London since last week.

- a. I am in London (*s*)

(1.23a) and (1.23b) show that we must account for two types of resultant relations: those entailed lexically and those entailed conversationally. We must also be able to exclude those states which have no causal relation, as in (1.23c), which would not be excluded in a stative theory with abutment. Also, we must allow for inferences which are not necessarily causal as in (1.24a) and (1.25a). NK account for these facts by including a free property variable in the semantics of the perfect meaning whose value is determined at the level of pragmatics, guided primarily by Levinson's I-principle of informativeness (Levinson 2000).

In a sense, Klein's approach discussed in the previous section could be seen as a type of perfect state theory, such that the topic time serves as a “posttime” or “poststate” of the eventuality in question. This topic time takes over the role of reference time. In NK's analysis, the corresponding structure to Klein's topic time would be the perfect state. However, in NK's definition for the perfect, the original reference time remains, being that the perfect state is introduced specifically by the perfect. The perfect can take any type of eventuality and map it onto the consequent state, which overlaps speech time and thus, reference time. The category of the consequent state is determined pragmatically. This gives the prior eventuality a sense of current relevance via inference processes. How we get the relation between the prior eventuality and the consequent state is what makes the difference between NK's analysis and other treatments of the perfects as stativizers. It is not a relation of abutment, causality or that which entails permanent consequences. It is a relation of inference that motivates the semantic-pragmatic interface. (1.26a) through (1.26c) are paraphrased from NK (2004, p. 107-8) and show that the perfect state has a semantic and a pragmatic function.

- (1.26) a. Semantic part: the free variable X is a semantic constraint imposed by the perfect form.
 b. Pragmatic part: the value of the free variable X is determined by pragmatic inferences.
 c. Constraint on X: it is an epistemic variable such that it is inferable from the prior eventuality.

The corresponding logical form is as in (1.27), which means that there is some eventuality e and some free property variable s such that e is located before speech time and s overlaps with speech time.

$$(1.27) \exists e \exists s [\phi(e) \wedge X(s) \wedge \tau(e) < n \wedge \tau(s) \circ n]$$

How X is determined is guided by Levinson's I-principle of informativeness.

- (1.28) I-principle:
 1. Maxim of minimization: the speaker always chooses the least informative utterance.

2. The hearer enriches the less informative utterance into the most specific interpretation, using world knowledge.

In the following, I adapt NK's analysis for Portuguese data⁶. To be clear, the problems that need to be accounted for are: (i) how to systematize the different readings that arise and (ii) how to understand the variable adverb compatibility in English and Portuguese.

How we get the readings from the present perfect meaning works like this. The eventuality described in the *e* interval introduces a consequent state *s*, which overlaps speech time *n*, and whose category is determined at the level of pragmatics. So, going back to example (1.23), an inferable consequent state to Ken's leg being broken are those listed in (1.23a) and (1.23b), but not (1.23c), since it is not inferable from the prior eventuality. Likewise, (1.24a) and (1.25a) are appropriate inferences for (1.24) and (1.25), respectively. Now, take a stative predicate as in (1.29). An appropriate inference is that Bill is still in London at speech time. This means that when the prior eventuality is a state, it may introduce a consequent state of the same nature. This is how we get continuous readings. But this inference is not always necessary with stative predicates since other inferences are possible.

(1.29) Bill has been in London since last week.

- a. X(s): Bill is in London.
- b. X(s): Bill is not too familiar with the tube system.
- c. X(s): Bill got coverage of the McDonald's bombing.

For example, the first inference above is of a lexical nature and the second of a conversational nature. The third inference feasibly cancels the continuative nature of the prior eventuality. In this situation, it could be understood that Bill is a field news reporter based in New York. The bombing of a McDonald's in London occurred a week prior to the utterance and some time between the bombing and the utterance, Bill went to London to get coverage of it and has already left. (1.29) can be uttered felicitously by someone in London⁷. Turning to examples in Portuguese, let us see how the typical readings relate to aspectual class.

⁶ See Molsing (2006) for more details.

⁷To be uttered felicitously by someone not in London, the sentence would have to read 'Bill has been **to** London since last week'.

- (1.30) *Lúcia tem chegado tarde ao escritório.* (repeating events)
 (1.31) *Paulo tem pintado a casa.* (repeating subevents)

Achievements and accomplishments give rise to a repetition of events. In (1.30), there are various events of *Lúcia* arriving late to the office, whereas (1.31) would be infelicitous at first, unless we understand the paintings as subevents such that the entire house has not been painted yet. *Paulo* has painted parts of the house. It could also be understood that, being a fickle exterior designer, *Paulo* has repeatedly painted the same house, perhaps with different colors each time. Activities in the PPC also result in a repetition of events and in the case of (1.32), the interpretation can be of various events of running or a single durative running event, with subevents of the same nature.

- (1.32) *Ana tem corrido muito.* (repeating events or subevents)

(1.32) can be understood as repeating subevents in a context where *Ana* is running a marathon and it is not over yet. Then it would be understood similarly to the first interpretation of (1.31). Otherwise, the more salient reading is that of iterative events of running. For stative predicates, *Amaral and Howe (2005)* distinguish stage-level and individual level predicates since they behave slightly differently with respect to iterativity and continuity⁸.

- (1.33) *João tem sido inteligente.*

The individual-level predicate (ILP) in the sentence above means that *João* has demonstrated his intelligence on various occasions. With a stage-level predicate (SLP), as in the example below, we can understand either a single, continuous situation of *Maria* being sick or possibly a reading where there are several non-overlapping situations of *Maria* being sick lately.

- (1.34) *Maria tem estado doente.*

⁸ *Carlson (1977)* introduced this distinction due to their diverging behavior with respect to sentences with ‘there’-insertion and bare plurals.

The iterative reading is made more salient with overt adverbial modification (Amaral and Howe 2005), as in (1.35).

(1.35) Maria tem estado doente muitas vezes ultimamente.

What is not clearly explained in the stativizer approach is the nature of the state that the perfect operator introduces. The perfect state is composed of both semantic and pragmatic elements, meaning its content may change according to the variations in the context. But this kind of state must be distinguished from states as they are understood in the event ontology, the latter of which do not change their inherent nature according to any context.

1.4 Adverbs in the Priorian Past and Stative Perfect Theories

The Stative Perfect framework, which, one could argue is a variation of the Priorian Past framework, does not provide an approach on adverbs in order to deal with the universal-existential ambiguity since this ambiguity is explained by pragmatic elements. The discussion on adverbs here is aimed at how one would explain, assuming these kinds of theories, the restrictions that arise between the present perfect structure and certain types of adverbs.

The “present perfect puzzle” as dubbed by Klein (1992, 1994) refers to the incompatibility of the present perfect with past time adverbs. This puzzle is shared by the present perfect structures in both English and Portuguese, as shown by the examples below.

- (1.36) a. *John tem chegado ontem.
 b. *John has arrived yesterday.

Adverbs that mark a temporal position can modify either the reference time or the event time for any kind of eventuality. This is more easily demonstrated with the pluperfect, as in (1.37).

- (1.37) a. John had left **yesterday**. (reference time)
 b. John wasn't in his hotel room this morning. He **had left** yesterday. (event time)

When ‘yesterday’ modifies the reference time, it denotes a time that is somehow related to, but not equivalent to, John’s leaving. When modifying the event time, in (1.37b), ‘yesterday’ then denotes the time of leaving. Modification of one or the other time interval depends on lexical specification and context. If the positional adverb is indefinite, it is compatible with the present perfect. In the examples below, the adverbs refer to a kind of habitual context where there were repeated events of working at the time specified by the adverb.

- (1.38) a. John has worked at 9 o'clock.
 b. John tem trabalhado às 9 horas.
- (1.39) a. John has worked on Sundays.
 b. John tem trabalhado nos domingos.

The incompatibility of the present perfect with definite positional adverbs in the past results from the reference time already being modified in terms of position, by speech time in the present tense. So, positional adverbs cannot modify both the reference time and the eventuality time simultaneously, unless there is some reason to do so. The puzzle thus disappears once we distinguish definite from indefinite positional adverbs.

Another puzzle that arises with the PPC is its incompatibility with cardinalized time adverbs. It is not false to use the PPC to describe an eventuality that in fact occurred only three times. However, it is infelicitous to specify the three times in the same clause. Many theorists agree that the English PrP outputs a state regardless of the type of eventuality described by the perfect (Dowty 1979; Kamp and Reyle 1993; Michaelis 1998; de Swart 1998). Let us assume for now that the BP perfect outputs a state as well. Since the rest of the perfect system behaves similarly in both languages, this is not such an implausible idea to entertain.

There are many ways languages can encode aspect and, taking a hint from Klein (1994), one can expect that some languages focus on certain parts of events while other languages focus on other parts of events. Encoding aspect has to do particularly with complex telic events and how grammatical structures encode the two inherent elements that compose them, namely, the development and the endpoint (which Klein refers to as the source state and the target state, respectively). This means that the grammatical encoding of these lexical elements will have a result in the structure’s interpretation. For

example, with accomplishments and achievements, speakers of English tend to focus on the target state such that the lexical properties of this state are projected into the “posttime” (Klein 1994). In the case of the PrP, the posttime is the perfect state. So, for a sentence like ‘Mary has entered the room’, the immediate lexical inference is that she is in the room. Now, given the fact that the PPC has often been characterized as an imperfective, or a perfective with imperfective properties (Squartini and Bertinetto 2000), we can say that BP focuses on the source state. This way, the lexical properties to be projected into the “posttime”, or the perfect state, are those of continuation.

Therefore, we can maintain that both perfects output a state, but the difference is in the kind of state that is introduced. In English, the perfect most likely introduces some resulting state of the prior eventuality. In BP, the perfect most likely introduces the beginning of a state of continuation, and in the case of eventives, iterativity⁹. More specifically, the lexical inferences that can be derived from the prior eventuality will corroborate the idea that English outputs a resultant state and BP outputs an iterative state. While conversational inferences, discourse cues and context can give us an array of other inferences, we are concerned only with the lexical for now. Let us look at some examples. Table 1.3 displays the BP examples and perfect state inferences, which are direct translations of the English examples and inferences in Table 1.2 (from Molsing 2006).

Table 1.2 English PrP Lexical Inferences

Aspectual Class	Eventuality	Lexical X(s)
Achievement	John has arrived late to work.	John is here and is late. #John arrives late
Accomplishment	John has painted his house.	The house is painted/complete. #John paints his house.
Activity	John has run.	John is disposed to run. #John runs
Individual-level	John has been smart.	??John is smart. John is not always smart.

⁹The notion of the PPC introducing the beginning of an iterative state was first suggested to me informally in a personal communication with Telmo Mória (2005).

Aspectual Class	Eventuality	Lexical X(s)
Stage-level	John has been sick.	John is sick. John is not sick.

Table 1.3 Portuguese PPC Lexical Inferences

Aspectual Class	Eventuality	Lexical X(s)
Achievement	O João tem chegado tarde.	#O João está aqui e está atrasado. O João chega tarde.
Accomplishment	O João tem pintado a sua casa.	#A casa está pintada/completa. O João pinta a sua casa.
Activity	O João tem corrido.	O João está disposto a correr. O João corre.
Individual-level	O João tem sido inteligente.	??O João é inteligente. O João nem sempre é inteligente.
Stage-level	O João tem estado doente.	O João está doente O João não está doente.

The right hand column in both tables shows the lexical inferences which can and cannot be derived from the prior eventuality. Comparing achievements and accomplishments in both languages, the opposite kinds of perfect states are inferable from the prior eventuality. In English, the perfect state inferences reflect resultant states and do not allow for a generic or habitual reading, while BP does. With activities, one can infer in English about the general disposition of the agent while in BP, one can infer, again a generic or habitual reading as well as disposition. The inferences in individual-level and stage level predicates are the same. In BP, the generic or habitual inference is always cancelable with ‘mas não vai mais’, to show that the iterative state put out by the perfect does not necessarily have to hold at speech time or after. What must still be met, though, is the felicity condition regarding a possibility of repetition at speech time, as mentioned earlier. This appears to be true of both languages. In order to confirm whether the consequent state continues or not, it must be possible for it to continue.

English and BP behave similarly with statives because the result of a state and the continuation of a state are the same.

Both English and BP perfects are compatible with resultative and continuative inferences, but in English the resultative property of the target state in eventive predicates is encoded lexically while continuation is not, and in BP, the continuative property of the initial state of events is encoded lexically, while the resultative is not. The PrP introduces the end of a perfect state and the PPC introduces the beginning of an iterative state.

So, while (1.40) may refer to three particular instances, it was not the speaker's intention to assert this when using the PPC. Likewise, if the eventuality only refers to one occurrence, it would be inappropriate to use the PPC since an iterative state is always introduced by eventive predicates. Definite frequency adverbs are acceptable when in contexts of indefinite repetition, as in (1.41). In fact, indeterminacy or indefiniteness of repetition appears to be a condition for the felicitous use of the PPC.

(1.40) a. Maria tem beijado Paulo.

b. *Maria tem beijado Paulo três vezes.

(1.41) Eles têm nos visitado três vezes por semana.

(1.42) a. Mary has kissed Paul.

b. Mary has kissed Paul three times.

In the English counterparts, (1.42a) has an '(at least) once' reading, given that the lexical property to be projected into the perfect state is that of Mary being in the poststate of kissing Paulo. The nature of the perfect state as a resultative is what allows for modification of frequency as in (1.42b). This way, the restriction on frequency in a Priorian Past or Stative Perfect theory can be attributed to the fact that the present perfect in each language introduces states of different categories.

Summing up the previous three sections, two types of present perfect theories were discussed: the Priorian Past theory and the Stative Perfect theory. Finally, I presented a discussion on how adverbial incompatibilities could be explained in these types of theories.

The main characteristic of the present perfect structure in the Priorian Past type theory is focused on the past eventuality while current relevance is explained by this eventuality's relation to the reference time, which overlaps speech time. The different

readings are meant to be derived pragmatically, which means their intended interpretations should be cancelable in favor of some other reading. In BP, this means, for example, that the repetition should be cancelable, but it is not.

(1.43) a. **Maria tem jantado fora, mas foi só uma vez.*

b. #*João tem trabalhado tarde. Na verdade, ele ainda não voltou.*

The repetition in (1.43a) cannot be canceled in favor of a one-time past reading just as the repetition in (1.43b) cannot be canceled in favor of a single durative reading that overlaps with speech time. Moreover, the Priorian Past theory explains the present perfect puzzle regarding positional adverbs, but not why only the PPC is incompatible with cardinal adverbs.

Theories that treat the present perfect as a stative focus on its aspectual rather than temporal nature. In this case, current relevance is given by the fact that the perfect state itself overlaps with reference time, which overlaps with speech time. The different readings are derived lexically according to the nature of the eventuality and the consequent nature of the poststate. The derivations differed in each language according to the differences in how lexical information is encoded. What is not clear is what determines how languages encode lexical information and how this should be reflected in semantic representations. Without a proper method to achieve these basic representations, the additional phenomena of adverb compatibility are also left without a description.

Furthermore, while the tendencies laid out in the two tables above are interesting, given their role in providing the content of the free variables, they do not explain the corresponding compatibilities of the present perfect structures with respect to adverbs. In other words, acceptance of a Stative Perfect theory requires that so-called perfect states be compatible with certain kinds of adverbs as opposed to others and this compatibility varies across languages. The vague notion that languages encode lexical information in different ways is not sufficient to explain such variability in the nature of perfect states, their resulting compatibilities with other grammatical elements, and their difference from basic stative predicates.

The theoretical problems summarized here are not specifically due to the data of different languages such as English and Portuguese, but reveal a deeper weakness regarding the very nature of the theoretical elements that come into play. The theoretical

foundations of these approaches and their respective descriptive procedures are unclear, meaning they are faced with more of a methodological problem. This, in my opinion, is more serious than a theory-internal problem, which may not necessarily require extensive modifications. This explains the apparent lack of explanatory power of the two theories presented above, despite the potential of their descriptive capabilities.

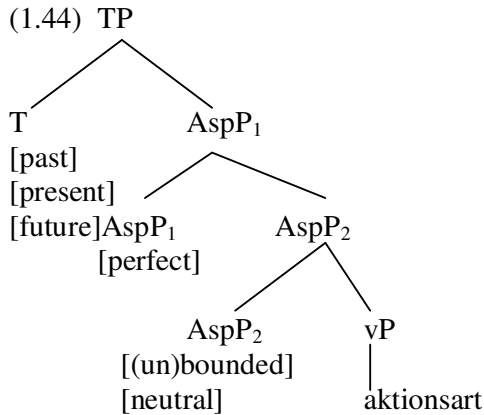
Let us move on now to the third and final type of present perfect theory to be discussed in this chapter, the Extended Now theory, more recently known as the Perfect Time Span theory.

1.5 Extended Now and Perfect Time Span theories

Extended Now (XN) approaches have been favored in more recent debates due to their versatility in dealing with different types of present perfects (including those with ‘be’ or ‘have’ auxiliaries) in a variety of languages such as English, German, Russian, Greek, Bulgarian and Arabic (Alexiadou et al. 2003). The XN perspective claims that the perfect introduces an interval that begins with a prior situation or eventuality and extends up to and necessarily includes speech time.

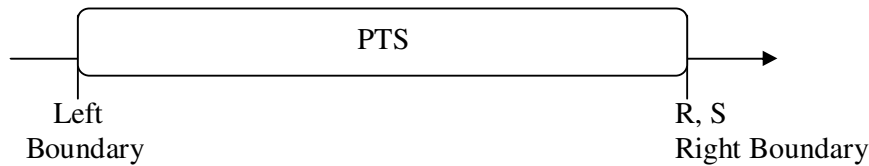
Pancheva (2003) proposes that the perfect is structurally more complex than the (im)perfective and is syntactically higher than viewpoint aspect¹⁰. The perfect is thus conceived of as an embedded tense in this type of theory. The different readings of the present perfect are composed of some elements shared by both levels of aspect and some that are specific to each. Consider the figure in (1.44) which illustrates the syntactic components of the perfect. There is a uniform meaning for all types of perfects at AspP₁, where the Perfect Time Span (PTS) is introduced. The PTS takes the place of what was previously known as the XN interval. There is a common syntax for all perfects which is associated with a common meaning, the denotations of the heads.

¹⁰ The term “viewpoint” aspect comes from Smith (1991) and refers to the perfective-imperfective distinction and is distinguished from phasal aspect which, in the present case, is represented by the perfect.



As reflected in the syntactic structure, the PTS interval, introduced by AspP₁, and the prior situation/eventuality are not necessarily equivalent. Iatridou et al. (2003) propose that the PTS interval extends up to and necessarily includes the reference time, instead of the speech time, distinguishing it from the XN interval. This substitution allows for a more general analysis for dealing with the entire perfect system (including the pluperfect and the future perfect). See the illustration in (1.45).

(1.45) Perfect Time Span

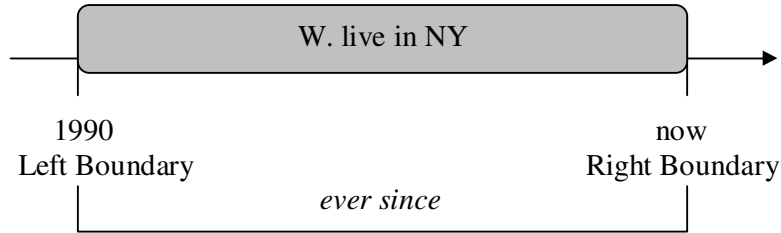


For the languages mentioned at the beginning of this section, the main readings of the present perfect dealt with in the PTS framework include the universal and existential. The readings arise from a combination of the basic meaning of the PTS with other elements such as grammatical perspective, lexical aspect and adverbs.

Universal Perfects (UP) are those in which the underlying eventuality holds throughout the entire PTS interval, necessarily including both endpoints. The underlying eventuality should be a stative verb, a stative adjective or have progressive morphology. UPs require an unbounded perspective, which represents homogeneous predicates, adhering to the subinterval property¹¹. Some claim that the universal reading is not possible without an explicit adverb (Iatridou et al. 2003). In fact, it is the function of the adverb to guarantee the inclusion of the right boundary. Consider (1.46).

¹¹ The subinterval property is true of a predicate iff the eventuality that holds in that interval also holds of every subinterval of that interval (Dowty 1979).

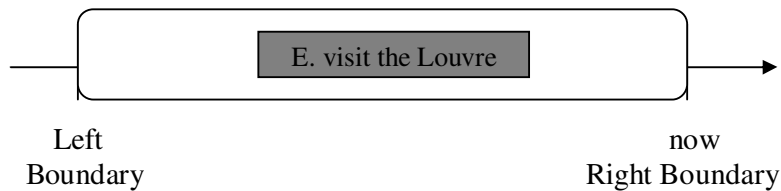
(1.46) William has lived in New York *ever since* 1990.



In the above example, 'ever since' marks the left boundary at 1990. While the right boundary is always marked by the reference time, which in the present coincides with speech time, the adverb asserts that the state of living in New York includes this boundary. That is, William continues living in New York now, at speech time.

Existential Perfects (EPs) are those in which the underlying eventuality holds within the PTS interval and does not include the right boundary, speech time. These kinds of perfects are compatible with any kind of eventuality and are generally associated with a bounded perspective, such that the target state is reached in accomplishments and achievements, while states and activities simply end. A typical EP is illustrated in (1.47).

(1.47) Ethan has visited the Louvre.



In the example above, there is at least one visit to the Louvre carried out by Ethan which is included in the PTS. The inclusion of the right boundary is not affirmed and nothing is said about the position of the left boundary. Some perfect sentences are ambiguous between an EP and UP, shown by the example in (1.48).

(1.48) Luciano has been sick since 1990.

In this example, we have the durative adverb 'since', which at first seems to be compatible with an unbounded perspective, leading to a universal interpretation.

However, it can also be read as a time located within the interval between 1990 and now in which Luciano was sick. The sentence can be followed by something like ‘He was sick for three months in the winter of 1993’, an interpretation that would not be available in BP. This way, in English, a bounded perspective is employed. Examples such as (1.48) reflect the previously discussed universal-existential ambiguity, which will be discussed in more detail in section 1.5.1

Neutral perspectives are also possible with EPs. In this case, the eventuality is affirmed to have started within the PTS, but nothing is said about when the event ends. Therefore, there is no assertion about whether the eventuality’s running time includes speech time. There are languages, like Greek and Bulgarian, which mark (im)perfectivity on the participle, which in turn determines if the universal reading is possible or not. In the absence of (im)perfective or progressive morphology, a neutral perspective is available. Sentences with a bounded perspective assert to have reached the terminus, while the neutral perspective asserts nothing, just like the imperfective. In this sense, neutral perspectives are capable of producing UPs even though they do not assert this, and so have an unbounded quality to them. See (1.49).

(1.49) Luciano has been sick (lately).

Essentially, those sentences that seem like UPs and which can cancel the inclusion of the right boundary (with a continuation such as ‘but now he is better’) are not in fact UPs, but are EPs with neutral perspectives. The next section will examine the universal-existential ambiguity more closely.

1.5.1 The Universal-Existential Ambiguity

This section will discuss the nature of the distinction between the universal and existential readings in the PTS framework and how they are derived. Moreover, the role of adverbs will be investigated as well. The consideration of these issues will then be extended to the data presented by the PPC in an attempt to describe and explain the iterative versus durative readings and a possible ambiguity.

If we assume the PTS approach for the moment, it could be argued that the PPC in fact does present both UP and EP interpretations as well as the U/E ambiguity, although it is slightly different from the ambiguity displayed in English. The difference

comes from the inability of the PPC to express single, perfective eventualities. This means that (1.50) must express many times and never a single time.

(1.50) João tem jantado fora.

This claim can be extended further in that the PPC cannot express any specific number of bounded events, with adverbs like ‘three times’, for example. If this turns out to be correct, the possibility of an EP interpretation for the PPC would contradict claims that it only has a UP (Brugger 1997, Squartini & Bertinetto 2000, Pancheva 2003).

When the U/E distinction is conceived of as pragmatic in nature, as in the Priorian Past approach, the UP is seen as a limiting case of the EP (Inoue 1978, McCoard 1978, Klein 1992, 1994). The UP arises from vagueness with respect to the actual duration of the underlying stative predicate while other contextual elements determine which reading is understood, like adverbs or previously established discourse topics. So for an example like ‘John has lived in New York for four years’, the eventuality being talked about is the living for 4 years, leaving open whether the living continues until speech time or not. The semantic contribution of the perfect is simply “before reference time”, while the location and duration of the eventuality remains unspecified. This means that there is a uniform semantic meaning for the present perfect, with the U/E differences derived from contextual elements.

Some arguments for semantic ambiguity include sequence of tense data as in (1.51) (Iatridou et al. 2003).

- (1.51) a. Since Christmas, John has claimed on several occasions that Mary was sick.
 b. Since Christmas, John has been claiming on several occasions that Mary was sick.
 c. John has always claimed that Mary was sick.

EPs, as in (1.51a), allow for simultaneous and shifted readings such that Mary could have been sick at the time of John’s claiming as well as before that time. On the other hand, UPs do not allow for simultaneous readings as shown in (1.51b-c) which only have a prior sickness reading since the claiming eventuality continues up until and necessarily includes speech time. This way, UPs are semantically like a present tense (Iatridou et al. 2003).

Another argument for semantic ambiguity comes from parallelism tests, or conjunction tests, in which both conjuncts must be of the same nature. That is, both conjuncts must be either UPs or EPs and not one of each, as (1.52) shows. If parallelism were not necessary, the ambiguity would be pragmatic in nature (Iatridou et al. 2003).

(1.52) John has been sick since 1990 and Mary has too.

(*John is still sick, but Mary is better already.)

There are different ways to implement the semantic distinction. One way is for ambiguous adverbs to be built into the present perfect meaning. According to Dowty (1979), a sentence-final *for*, as in (1.53a), is ambiguous between U/E readings while a preposed-*for*, in (1.53b), gives only a UP.

(1.53) a. John has been ill for three years. (but he's better now)

b. For three years, John has been ill. (?but he's better now)

This view has been debated by some, although I will not go into the details of their particular analyses here (see Rathert 2003, Abusch & Roots 1990).

Another method for implementing the semantic distinction is through the lexical aspect of the verb. For example, with UPs, speech time inclusion is not asserted but inferred, since stative predicates usually overflow their location time. This is illustrated by B's possible responses to A in (1.54), where either is appropriate and the first does not necessarily entail the second. Moreover, Gricean principles would prefer the present tense if the speaker has knowledge of continuation at speech time (Mittwoch 1988).

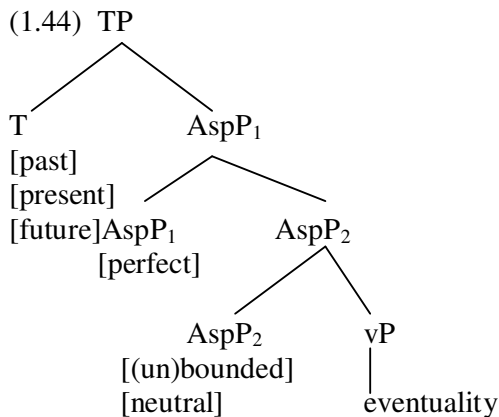
(1.54) A: I haven't seen John lately.

B: He's been ill / He is ill.

Lexical aspect and adverbs contribute to the U/E perfect meanings as well as to the UP's assertion of speech time inclusion. Assuming one has accounted for all morphosyntactic elements, such as grammatical/lexical aspect, adverbs, etc., any remaining ambiguities ultimately depend on context for interpretation. However, languages such as Greek and Bulgarian can also rely on the (im)perfective morphology of the participle (see Iatridou et al. 2003, Pancheva 2003).

1.5.2 Universal-Existential ambiguities in English and BP

In this section, I will apply the PTS framework to present perfect data from English and Portuguese. Recall the syntactic structure corresponding to the perfect system, repeated here in (1.44).



The PTS, introduced at AspP₁, combines with one of the three viewpoints, introduced at AspP₂ and the eventuality at vP resulting in either a UP or an EP. I will first discuss data from English. For [UNBOUNDED] viewpoints, a nonprogressive state plus an adverb is necessary for a UP reading.

(1.55) [UNBOUNDED] + state (nonprogressive) + adverb = UP

‘Since’ alone is not sufficient for a UP and can lead to ambiguity. A UP under the circumstances in (1.56) is possible with the use of ‘always’ or ‘ever since’.

(1.56) I’ve (always) been sick (ever since last week).

[UNBOUNDED] progressive nonstates can give a UP reading with an adverb. However, eventualities described in perfect progressives do not necessarily include the right boundary, even with a perfect-level adverb. The subject does not have to be cooking at speech time (the right boundary) for the sentence in (1.57) to be true. This counters the claim in the framework put forth by Pancheva (2003) and Iatridou et al. (2003) in which not only the PTS interval, but also the underlying eventuality necessarily includes the left and right boundaries.

(1.57) a. [UNBOUNDED] + nonstate (progressive) + adverb = UP

b. I've been cooking at home (ever since I lost my job).

In the example above, the person does not need to be cooking at speech time for the sentence to be true, but only that the PTS interval include speech time. This way, it is the habit that is asserted to be true up to and including speech time and not necessarily an act of cooking.

For neutral viewpoints, nonprogressive states can give rise to an EP reading. Under these circumstances, no assertion is made about the inclusion of the right boundary. Examples like (1.58) are compatible with continuous readings that include speech time, but this is a matter of inference and not an assertion of the neutral EP.

(1.58) a. [NEUTRAL] + state (nonprogressive) = EP

b. I've been sick lately (but now I'm better).

EPs arise as well with [NEUTRAL] viewpoints and progressive nonstates. They are compatible with readings of repetition as in (1.60).

(1.59) a. [NEUTRAL] + nonstate (progressive) = EP

b. I've been cooking at home lately (but I want to eat out from now on).

Finally, [BOUNDED] viewpoints with any kind of nonprogressive eventuality will give rise to an EP, as seen in (1.60).

(1.60) a. [BOUNDED] + any (nonprogressive) = EP

b. I've been sick before

c. I've run/ built a house/ arrived late before

Below is a table summary of the data discussed above, taken from Pancheva (2003).

Table 1.4 English PrP Readings (Pancheva 2003)

Perfect Type	Viewpoint Aspect Semantics	Morphology	Lexical Aspect
Universal	[UNBOUNDED]	non-progressive progressive	State Activity, telic
Existential	[NEUTRAL]	non-progressive progressive	State Activity, telic
	[BOUNDED]	non-progressive progressive	Any

Now, let us turn to Brazilian Portuguese and see how this data will work in the assumed framework¹². As (1.61) shows, unbounded perspectives combine with states and adverbs to give a universal reading.

- (1.61) a. [UNBOUNDED] + state + adverb = UP
 b. Eu tenho estado doente (desde a semana passada).

This example accounts for the durative reading of the PPC. Under these circumstances, there is no possibility of an existential reading similar to those examples found in English in (1.60). Also, as will be shown later on, not only durative adverbs, but stative adjectives are also sufficient to have a UP. In Portuguese, there is no (im)perfective marking on the participle, so [UNBOUNDED] perspectives are not available in the case of events. In this case, it is neutral perspectives that combine with events and adverbs. For events, even though the corresponding morphology is not progressive, it still produces a plural reading, illustrated in (1.62b-1.62e). The meaning expressed is similar to that of the perfect progressive in English, the structure that is most often used in translating the PPC with events, though repetition is possible with the PrP as well^{13,14}. Similar to the

¹² See Molsing (2006, 2007) for more details.

¹³ Though repetition is not a necessary element of the PrP meaning, it is understood given an adequate context, as in ‘John has worked really hard to achieve his current success’ (‘João tem trabalho duro para

perfect progressive in English, the eventuality's inclusion of the right boundary in the PPC sentences with events is cancelable with something like 'mas não vai mais', independently of the adverb, confirming its status as a neutral EP. That is, while the PTS interval should include the right boundary so that the eventuality **can** occur at speech time, the eventuality itself does not need to overlap speech time¹⁵. See the examples in (1.62b-1.62e).

(1.62) a. [NEUTRAL] + event + adverb = Existential Perfect

- b. Eu tenho corrido aqui (desde a semana passada) / (ultimamente) / (mas não vou mais)
- c. Eu tenho chegado tarde (desde a semana passada) / (ultimamente) / (mas não vou mais)
- d. Eu tenho percebido que está mais magro. (ultimamente)
- e. Eu tenho pintado um quadro (desde a semana passada)

Consequently, the PPC must have a neutral perspective because the [UNBOUNDED] and durative readings are possible, but the underlying eventuality's inclusion of the right boundary is not obligatory, resulting in a neutral interpretation. Compatibility with 'ultimamente' is a good informal diagnostic for verifying if a PPC construction is acceptable and therefore underspecified with respect to inclusion of speech time. Both 'desde' and 'ultimamente' are slightly strange with accomplishments as in (1.62e), where partial paintings are considered or repeated paintings of the same picture¹⁶.

alcançar o seu sucesso atual'). It is more natural to understand repeated or successive events of working that led to John's success instead of a single working situation. The differences in the types of repetition in the PrP versus PPC will be discussed in more detail in chapters two through four.

¹⁴ As mentioned in the introduction of this chapter, possible semantic parallels between the PPC and other aspectual periphrases in BP will be investigated at length in chapter four.

¹⁵ This way, cancellations are only acceptable starting at speech time and not beforehand. Therefore, it does not make sense to test the non-requirement of the eventuality overlapping speech time with cancellations such as "...mas desde ontem, não fiz mais" since this conflicts with the meaning of the PTS interval. Proper use of the PPC involves assertion of the PTS interval, while the relation between the PTS and the underlying eventuality can vary according to lexical information, adjuncts, context, etc. If one wanted to assert the eventuality's inclusion of speech time, another structure would be used, such as the present progressive or present tense. In other words, using the PPC means **not** making assertions regarding the definiteness of repetition or duration of the underlying eventuality.

¹⁶ Take the true case of Peter Dreher, an artist from Wittnau, Germany, who paints the same drinking glass in the same position, day after day. One could say in BP, "Peter tem pintado um quadro de um copo todos os dias desde 1997". In cases such as these, the object can be understood as a kind or type of object as opposed to a specific token (Carlson 1977). This way, the painting is not a single portrait upon which Peter paints every day. The painting can be a different one each day, as can the glass, but the eventuality type is the same.

Neutral perspectives with states produce EPs particularly in a context with ‘ultimamente’, as illustrated by (1.63).

- (1.63) a. [NEUTRAL] + state = Existential Perfect
 b. Eu tenho estado doente ultimamente (mas já estou melhor)
 c. Eu tenho ficado no quarto ultimamente
 d. Eu tenho sido feliz ultimamente

As expected, given the restriction regarding the possibility of marking past events, discussed in the previous sections, [BOUNDED] perspectives are not possible with the PPC independent of the type of eventuality used. This becomes more salient with adverbs like ‘antes’ or ‘anteriormente’, exemplified in (1.64) below.

- (1.64) a. [BOUNDED] + any eventuality = \emptyset
 b. *Eu tenho estado doente antes / anteriormente
 c. *Eu tenho corrido aqui antes
 d. *Eu tenho construído uma casa antes
 e. *Eu tenho achado os meus óculos aqui antes

This restriction is also a symptom of the fact that the PPC cannot express a specific number of bounded events, whether one or three occurrences. This behavior is similar to what is expected from other aspectual periphrases involving a gerund, which are not compatible with cardinalized modifiers. This and other similarities will be explored in chapter four. Table 1.5 summarizes the data in Portuguese.

Table 1.5 Portuguese PPC Readings

Perfect Type	Viewpoint Aspect		Lexical Aspect
	Semantics	Morphology	
Universal	[UNBOUNDED]	non-progressive	All
Existential	[NEUTRAL]	non-progressive	All
	[BOUNDED]	non-progressive	\emptyset

Since, in this theory, adverbs are a part of the logical meaning of the basic PTS, but are not asserted at this level, it is plausible that the relevant perspective for this underspecified perfect is always neutral and that the durative adverbs and stative adjectives can compose to derive UPs. If this is correct, then UPs can be derived from both neutral and unbounded viewpoints, since it is up to other elements to determine a truly universal reading. Without these other “universalizing” elements, the reading remains an existential neutral.

Though the PPC does not allow composition with a [BOUNDED] perspective, it is compatible with [UNBOUNDED] or [NEUTRAL] perspectives, and not only with [UNBOUNDED] perspectives as claimed in previous works (Brugger 1978, Squartini & Bertinetto 2000).

Given the importance of the role of adverbs in composing the meaning of the perfect, the next section will deal with how the PTS framework accounts for the contribution of adverbs.

1.5.3 The Role of Adverbs in the PTS framework

The main claims about the UP in the PTS framework include the stipulation that it never occurs without an explicit adverb (Iatridou et al. 2003). Given this definition for UPs, by elimination, covert adverbs (if there are any) can only occur with EPs. Another major claim is that the underlying eventuality in a UP must include its endpoints. The main claim about the EP in the PTS is that it can occur without an explicit adverb. However, if an adverb is not recoverable from the context, it occurs with a covert ‘(at least) once’. Since this covert adverb is only compatible with [BOUNDED] EPs, for those with [NEUTRAL] perspectives, Molsing (2006) proposed that the covert adverb is ‘lately’.

Those adverbs that make the universal reading possible, but not necessary, include ‘since’ and ‘for 5 days’ and this is where the U/E ambiguity comes about. Adverbs that make the universal reading obligatory include ‘at least since’, ‘ever since’, ‘always’, ‘for five days now’.

There are two levels of adverbs: perfect-level and eventuality-level, as illustrated in the schema below (de Swart 1998).

(1.65) [Adverb [Perfect [Viewpoint [Adverb [vP]]]]]

With durative perfect-level adverbs, the eventuality must hold of every subinterval of the PTS, including right and left boundaries. With inclusive perfect-level adverbs, the eventuality is properly included in the PTS. The argument of ‘since’ sets up the left boundary of the PTS. This adverb is ambiguous between a durational (UP) and an inclusive (EP) reading. ‘Since’ by itself is not enough to elicit a UP reading so it can be said that this adverb is neither durational nor inclusive, but a default perfect-level adverb. This means that it only sets up a left boundary and all readings are permitted (von Stechow 2001 apud Iatridou et al. 2003). If one were to accept this last suggestion, it would then conflict with the assumption that UPs only arise with adverbs and that right boundary inclusion of the underlying eventuality is a main assertion of this kind of perfect. The U/E ambiguity with ‘since’ ultimately means that the stative predicate either holds throughout the interval or occurs at least once within the interval. See (1.66).

- (1.66) a. John has been in New York (once) since Monday
 b. João tem estado em Nova York (*uma vez) desde segunda-feira.

‘Desde’ does not select for the perfect in Portuguese, so a UP that necessarily includes speech time would be made using the simple present, as in ‘Eu estou doente desde a semana passada’.¹⁷ While speech time inclusion of an eventuality in the PPC can be canceled ([NEUTRAL]), a durative UP reading is the most salient while a [BOUNDED] existential reading is infelicitous.

The adverbs ‘for’/‘por’ can be either perfect-level or eventuality-level; that is, they do not require the perfect. The universal or existential readings are a result of whether the adverb is understood as perfect-level or eventuality-level. How we know which one it is depends on context, modifiers, etc. This would be an argument against the claim that the basic UP meaning must express obligatory inclusion of the endpoints of the eventuality in the PTS interval, since we are depending on other elements like context for the final interpretation. The U/E ambiguity with ‘for’ means that the stative predicate holds throughout whatever interval that is marked by ‘for’. This interval is

¹⁷ A “true” universal interpretation, with the eventuality including speech time, would be expressed using the present simple in BP, which is compatible with adverbs such as ‘desde’ and ‘faz’ (roughly understood as ‘it has been’ when sentence-initial or ‘for’ when sentence-final). Since the simple present in English is not compatible with such adverbs, the PrP must be used. This distinction will prove to be critical in understanding the differences between the PPC and the PrP and will be discussed in chapter four.

equivalent either to the PTS interval (perfect-level) or equivalent to the duration of the eventuality only (eventuality-level). This latter meaning is not possible in Portuguese, again, due to the restrictions against the [BOUNDED] perspective. This is illustrated in (1.67).

(1.67) a. John has been sick for two weeks (before).

b. João tem estado doente por duas semanas (*antes).

(1.68) a. The child has stayed in the “Punishment Corner” for two minutes. (before)

b. A criança tem ficado no “Canto de Castigo” por dois minutos. (*antes)

However, when the ambiguity is between an [UNBOUNDED] universal reading and a [NEUTRAL] existential reading, then BP allows it. Regarding the adverbs ‘since’ and ‘for’, the PrP is ambiguous between an [UNBOUNDED] UP reading and a [BOUNDED] EP reading. The PrP is also ambiguous between an [UNBOUNDED] UP reading and a [NEUTRAL] EP reading. The PPC is only ambiguous between an [UNBOUNDED] UP reading and a [NEUTRAL] EP reading. So, while both languages present a U/E ambiguity, it is more restricted in BP (Molsing 2006).

As already mentioned, assuming a strict definition for UPs, such that they always have an explicit adverb, means that if there is to be any covert adverb involved in the meaning of the present perfect, then it would only be with EPs. This is a convenient assumption, because otherwise, we would have a problem with what covert adverb to choose and when. On the other hand, it could be argued that a perfect interpretation is possible without adverbs, so that there is no need for covert adverbs at all. In line with this, universal readings are possible only as a matter of inference, and not assertion, when a [NEUTRAL] viewpoint is involved. A continuous interpretation of an eventuality, i.e. one that overlaps speech time, is compatible with the present perfect meaning, but this is not a necessary part of the assertion (Iatridou et al. 2003, Pancheva 2003). However, considering the pervasive use of adverbs with the present perfect and that an adverb is always recoverable from the context if not made explicit, it is plausible that covert adverbs have a place in the logical form of the present perfect meaning after all.

‘(At least) once’ is the natural choice for the covert adverb of PrP EPs, given the existential logical operator’s meaning of ‘(at least) once’. However, there are some problems to consider. See (1.69).

(1.69) Paul has read “War and Peace” five times

A problem for Portuguese is that the PPC is infelicitous with not only ‘(at least) once’, but with ‘once’, ‘twice’ and all other cardinal adverbs (see (1.70)), unless it is embedded under a frequency adverb, like ‘five times a week’.

(1.70) Paulo tem lido “War and Peace” *uma vez / * cinco vezes.

Although (1.69) and (1.70) both involve EPs, the discrepancy is due to the different viewpoints embedded under the perfect. The covert adverb ‘once’ is only compatible with a [BOUNDED] EP and not a [NEUTRAL] EP, since only bounded eventualities can be quantified over. [NEUTRAL] EPs only assert that the eventuality began within the PTS interval and nothing about the status of the eventuality at the right boundary. So, ‘(at least) once’ as a covert adverb is not compatible with English EPs with a [NEUTRAL] viewpoint either. This explains the variable adverb compatibility between languages. If we distinguish between frequency (‘regularly’, ‘often’, ‘usually’, ‘three times a week’) and iterative adverbs (‘many times’, ‘once’, ‘three times’) and furthermore between definite (‘once’, ‘three times’) and indefinite (‘many times’) iterative adverbs, we can see a distribution across the viewpoints. Since BP does not have a [BOUNDED] viewpoint, the PPC cannot be modified by definite iterative adverbs. Indefinite iterative adverbs are acceptable since they are compatible with [NEUTRAL] aspects in that no claim is made about the right boundary(-ies) of the eventuality(-ies). So, what is the covert adverb for [NEUTRAL] EPs?

First proposed in Molsing (2006), ‘lately’ requires perfect morphology (perfect-level) in English and does not form a UP. ‘Lately’ requires the nonprogressive on statives and the progressive on nonstatives, and gives a habitual-like reading. Perfects with ‘lately’ are not UPs because they do not necessarily assert that the habit continues until speech time, although a continuous reading is compatible by inference. While ‘lately’ would be compatible with some [BOUNDED] EPs, it is not preferable to ‘(at least) once’ since with these latter perfects, there is no claim of recency or habituality, while the [NEUTRAL] EP allows for this interpretation. As mentioned earlier, ‘ultimamente’ is often considered a diagnostic for whether certain eventualities are compatible with the PPC structure, another argument against the idea that Portuguese

only has a UP. These arguments favor the consideration of ‘lately’/‘ultimamente’ as the covert adverb of [NEUTRAL] EPs. See again the examples above in (1.62)-(1.63).

Despite the discussion up until now, we can just as easily argue against covert adverbs altogether. For example, there are UPs in Portuguese that do not have an explicit adverb, but whose inclusion of speech time cannot be canceled, exemplified by (1.71).

(1.71) Paulo tem vivido feliz em Nova York, ??mas não mais.

If the speaker knew now, at speech time, that Paulo is no longer living happily in New York, he would have used the simple past, ‘Paulo viveu feliz’, or the imperfect, ‘Paulo vivia feliz’. The stative adjective together with the stative verb seem to be sufficient to produce a universal interpretation, which complicates the attempted cancellation. Now consider (1.72).

(1.72) Maria tem sido feliz na sua vida (ultimamente).

In (1.72), ‘ultimamente’ is an appropriate adverb for what would be considered a neutral EP in the PTS analysis. However, if we remove ‘ultimamente’, Maria’s happiness seems to extend over her entire life, resulting in a universal reading, contrary to the recent interval implied by ‘ultimamente’. In other words, ‘ultimamente’ adds a restriction to the interval of the perfect sentence instead of reflecting its underspecified semantics.

The requirement of a covert ‘(at least) once’ for bound EPs in English excludes an ambiguity that should be maintained for the purpose of combining with other kinds of adverbs. See (1.73).

(1.73) Since 1990, I have been sick for 5 days.

The reading in this example is analyzed as an interval of being sick for five days, independent of whether these days were continuous or five separate situations, each of which lasted for one day. However, this interpretation excludes the logical possibility of multiple situations of being sick, **each one** lasting five days. This possibility is made explicit with the addition of an iterative adverb like ‘three times’. Basically, the covert

adverb ‘(at least) once’ for [BOUNDED] EPs seems more like a logical inference of the basic meaning of the PTS, and not part of the assertion made by the EP. Given the considerations made above, it is possible that we would need more covert adverbs to deal with all of the possible interpretations that do not adhere to the perfects strictly defined as universal and existential. Moreover, to generalize this analysis to the entire perfect system (one of the main motivations of the PTS theory), we would also have to provide adequate adverbs (covert or overt) for the pluperfect and the future perfect meanings. On the other hand, we can simplify the initial representation of the perfect without giving up adverbs in the logical form.

It is clear that the adverb contributes to the information of the situation that necessarily includes speech time for UPs. For EPs, ‘(at least) once’ and ‘lately’ are not always appropriate when considering other possible interpretations. In this case, it is possible that there is an initial underspecified representation for the perfect before accounting for adverbs. This is an alternate way in which the meaning of the perfect and adverbs can be accounted for. The idea that there is always an adverb involved in the interpretation of a particular reading of the perfect is strong enough to discard the possibility of a truly unmodified perfect. An adverb can always be recovered from the greater discursive context or from world knowledge. However, this intuition does not need to be translated into specific overt (or covert) adverbs already embedded in the logical forms of the different readings. There is sufficient evidence to sustain the idea that adverbs should somehow be introduced in the meaning of the perfect, but that the values of these adverbs should be filled at the level of the sentence or discourse. Summing up, adverbs are part of the logical form of the present perfect meaning. Consider (1.74).

- (1.74) a. [Adverb [Perfect [Viewpoint [Adverb [vP]]]]]
 b. Since 1990, John has read *The Great Gatsby* 5 times.
 c. Desde 1990, John tem lido *O Grande Gatsby* regularmente.

The first adverb position is perfect-level and the second adverb position is eventuality-level. One or both positions can be filled as shown in (1.74b-c). When there is no overt adverb, one must be recovered from other elements, like context. The adverb must be compatible with the values of the other elements of the perfect meaning like viewpoint and lexical aspect, for example. If a sentence is in an isolated context and the adverb

cannot be recovered, then the meaning of the perfect remains underspecified, as expected. This way, covert adverbs are no longer necessary.

1.6 Chapter Summary

This chapter presented a critical review of three mainstream theories all of which are widely used to account for present perfect structures across a broad range of languages. They are the Priorian Past theory, the Stative Perfect theory and the PTS theory. Each theory focuses on a different characteristic of the apparent meaning of the present perfect, either as a tense or an aspect. The main topics each theory attempts to provide an account for include: i) the different interpretations of the present perfect structure; ii) the notion of current relevance; iii) ambiguities between readings; and iv) adverb compatibility. The PPC in Brazilian Portuguese complicated the theoretical picture with its reading that elicits a repetition of events. This is in addition to the possibility of a durative reading. All theories are ill-equipped for expressing repetition, whether obligatory by an unmodified PPC structure, or by the PrP structure modified by a frequency adverb or placed in a context of frequency. However, this is not to say that the theories described in this chapter should be scrapped altogether. On the contrary, their apparent lack of explanatory power is the result of the need for more robust theoretical foundations. Perhaps with a more thorough foundational investigation of the basic elements involved in composing the present perfect structure and its corresponding interpretation, one or more of these theories can be recovered and reformulated in order to fill in the theoretical gaps left in the explanations.

An important advantage of the PTS theory is its ability to generalize to the entire perfect system. This theory defends that the perfect introduces an interval that overlaps with reference time. In the case of the present perfect, this interval overlaps with speech time, which explains current relevance. The different readings are determined by the composition of a variety of syntactic-semantic factors. Most importantly, the derivation of the readings depends on the availability of bounded, unbounded or neutral viewpoints, but also on adverbs. However, a major question left unanswered in this type of framework is why some languages are compatible with some perspectives and not others, particularly with those languages that have no morphological marking on the participle. Though the theory is capable of accommodating the data of each language descriptively, it fails to explain the data and the variability in meaning distributions across languages. Adverbs are also a critical part of the present perfect meaning in this

theory, which includes obligatory overt and covert adverbs to derive universal and existential readings, respectively. However, in order to maintain the effort of generalizing to the entire perfect system, it was suggested that there should be a kind of underspecified meaning for the basic present perfect that does not include adverbs. Again, repetitions of events are not properly represented nor are adverbs of frequency.

An analysis of the Priorian Past theory showed that distinguishing the present perfect readings pragmatically is inadequate as certain readings simply cannot be canceled in favor of any other type of reading, particularly those involving repetition in the PPC. We have also learned that treating the perfect as a stative, in the Stative Perfect type theories, is problematic given the issue of distinguishing perfect states from regular stative predicates. An explanation must be given for why perfect states can behave like verbs under certain circumstances, with respect to adverbs, for example, while others cannot.

The unique problem presented by the PPC is its reading of repetition, but I emphasize that repetition is a possibility for the PrP as well, given the right context, which includes the treatment of frequency adverbs. Without a proper approach to the readings, we cannot distinguish between different types of repetition and why the PPC is restricted with respect to it. The phenomena surrounding the notion of current relevance and adverb compatibilities also remain without explanation as they depend on a robust representation of the different readings possible. This is true for the treatment of the present perfect in any language.

These problems reveal flaws in the theoretical foundations of these approaches and for this reason cannot be amended with minor modifications. The main devices used by each theory to derive present perfect readings are afflicted with problems of a foundational nature. That is, there is no means for explaining **why** the theories provide the semantic interpretations that they do or why they do not allow others.

A promising suggestion comes from Ilari (2001) in which he highlights the plural nature of the iterative readings in PPC. He proposes that they can be treated along the lines of the “principle of cumulative reference” such that:

- (1.75) a. If a is water and b is water, then the sum of a and b is water.
 b. If the animals in this camp are horses and the animals in that camp are horses, then the animals in both camps are horses. (Ilari 2001: 150)

This principle and the resulting analogy were first presented in Link (1983). Mass nouns are thus assimilated to plurals and, assuming the analogies between the temporal-nominal domains, predicates described in the PPC can be said to express a plurality of events in a similar manner. It is suggested in Ilari's (2001) paper that one semantic rule should be responsible for the main PPC structure, and applying stative versus nonstative predicates would allow for the derivation of the durative versus iterative readings, respectively. Roughly speaking, the mass-plural (eventive predicate) analogy would take care of the iterative reading, while the mass-singular (stative predicate) analogy would take care of the durative reading. Consider the example in (1.76).

(1.76) A biblioteca tem ficado fechada. (nos últimos dias / nos últimos domingos)

The predicate 'ficar' ('stay') is stative, but (1.76) could mean either a single, durative closing or intermittent closings with an understood set of time intervals being referred to, like 'on Sundays'. Thus, it would seem that more information is needed aside from just the aspectual nature of the predicate to derive the different readings from the single semantic rule. However, as hinted in Ilari's article, the mass-count reference is not necessarily a characteristic limited to the lexical items as it is of the whole sentential context in which they occur. The idea that more syntactic elements need to be taken into account for a proper compositional analysis of different readings of the present perfect will be investigated along the course of this study.

The above suggestion motivates the inclusion of plurality as one of the topics to be included in the foundational discussion upon which some present perfect theory should be based. In addition to plurality there are other theoretical elements whose foundations need to be considered. These elements are what compose the present perfect meaning and the different interpretations available, though each theory incorporated them in different ways. They include: i) times (tenses); ii) lexical aspect; iii) grammatical aspect; iv) events; and, as suggested by Ilari for the PPC, v) plurality. Plurality plays a role in understanding the PrP as well, given the condition of repeatability embedded in the notion of current relevance and the role of frequency adverbs in deriving iterative readings. Despite this, the question still remains of whether it will ultimately be possible to provide the same semantic framework for accounting for the present perfect structures in each language and whether this treatment can be generalized to the rest of the perfect system. The objective here is that some kind of

generalizability will come out of a foundational investigation of the theoretical elements listed above. This generalizability hopefully translates into explanatory power for whatever theory comes out of this investigation.

For example, it is clear that we will need a basic theory of tense and aspect. This type of theory is derived from some more general theory of language which, in turn, has assumptions drawn from specific discussions on the philosophy of language. This methodological perspective is guided by Campos' (2007) metatheory of interfaces, as discussed in the introduction. We can work our way back regarding the ultimate semantic nature of the PPC and the PrP by asking relevant questions about the nature of their semantic characteristics. For example, what do we mean when we talk about a plurality of events? And what exactly is it that is repeating? For example, in (1.77) and (1.78),

(1.77) a. João tem alugado um carro nos últimos meses.

b. John has rented a car for the past few months.

(1.78) a. Os executivos têm alugado um carro nos últimos meses.

b. The executives have rented a car for the past few months.

It seems, in (1.77), that the repetition is in the present perfect structure itself which occurs within the interval marked by the sentence-final temporal modification. But in (1.78), the repetition is different. It could be that a single group of executives has been renting a car repeatedly or it could be that there are some executives and each one has rented a car at some time in the past few months. The plurality of the subject NP appears to contribute to the nature of the repetition, in that it allows for there to be two types of readings with respect to the repetition. This brings us to more general discussions on plurality. The plurality of events appears to have at least two triggers according to the examples above: the tense-aspect structure itself, i.e. verbal morphology, and NP plurality. So it would be helpful to consider natural language theories of plurals in general. In order to talk about the nature of pluralities, we must talk about the nature of what they are plurals of, individuals and events. From this we can derive particular views on lexical aspect and grammatical aspect that incorporate intuitions on plurals and events. Based on this analysis, we are then in a position to attempt a more profound study of specific temporal and aspectual relations.

Chapter 2

Plurals and Events

2.1 Introduction

In chapter one, it was shown that the three main linguistic approaches to the present perfect had crucial limitations not only with respect to the data from the Brazilian present perfect, the PPC, but also with respect to the data from English, the more frequently studied language. Instead of making additional modifications to existing theoretical models in order to account just for the particular language(s) studied, the alternative is to re-evaluate the foundations upon which these models are based in the pursuit of a more general theory. The basic elements involved in all present perfect theories include events, tense and lexical and grammatical aspect. Given the unique iterative nature of the PPC and its apparent semantic compatibility with other verbal periphrases involving gerunds, plurality will also be considered. It has been noted that the English PrP also contains within its meaning a condition of repeatability, so the analysis of plurality will also be relevant for English.

Given the topics of plurality, events and aspect¹⁸, all find their foundations in philosophy. The nature of individuals¹⁹ and events have been at the center of philosophical debates since at least Aristotle's *Metaphysics* and have contributed greatly to the philosophy of language (van Inwagen 2008).

Figure 2.1 Schema of Stage I of the Investigation: Philosophical Foundations



This first stage of investigation represents the foundational level of analysis, in which plurals and events, discussed in sections 2.2 and 2.3, respectively, are considered in terms of the metaphysical intuitions that motivate ontological commitments, identity and individuation criteria. It is not meant to be an exhaustive review of all the different

¹⁸ Temporal reference will be discussed together with grammatical aspect.

¹⁹ 'Individuals' and 'objects' will be used interchangeably as the singular counterparts upon which plurals are based.

perspectives involved, but a selective analysis of those aspects that are directly involved in shaping theories of plurals and events in natural language. This section is concerned with laying down the philosophical foundations of plurals and events focusing on those elements that will ultimately be relevant for the analysis of tense-aspect structures.

The second stage of investigation, which represents the theoretical level of analysis, deals with the formal linguistic theories which have, to varying degrees, assumed concepts, debates or intuitions from the philosophical foundations²⁰. Section 2.4 presents theories that understand events as an important contribution to the investigation of the semantics of natural languages, including the treatment of plurals. Plurals and events have often been submitted to similar ontological scrutiny which, in turn, has led to discussions about their similarities and differences. This tendency has spilled over to the linguistic level, where plurals are increasingly treated in an event-based semantics. The linguistic theories examined in section 2.4 all assume some kind of event-based semantics in order to describe and explain the behavior of plurals. At this stage, however, we are no longer concerned with metaphysical intuitions, but linguistic ones. With respect to the kinds of inferences that can be drawn from sentences with plurals, this section will focus on three main interpretations: collective, distributive and cumulative.

2.2 Philosophical Approaches to Plurals

Philosophical approaches to plurals are usually divided into two parts, the metaphysics and the corresponding semantics. The former corresponds to those entities that are believed to be in the ontological repertory and the latter to how ontological intuitions can be worked into a logical-semantic representation. After presenting the different viewpoints regarding plurals, the nature of the debate will be questioned and a restructuring of the relevant topics will be suggested.

Philosophers often illustrate the problem that plurals present by testing their “firstorderizability”, that is, the extent to which they can be represented in first-order logic (Boolos 1984, Yi 2005, Rayo 2007, Linnebo 2009). First, let us talk about how singular individuals are represented in first-order logic. See (2.1).

²⁰ However, despite some overlap regarding philosophical and linguistic assumptions of plurals and events, they are not taken at face value. This is because each respective interface has its own motivations and purposes, as discussed in the introduction, which may result in contrasting definitions for apparently the same concept. Consequently, the nature of plurals and events at the Philosophy/Logic interface may not be the same at the Linguistics/Logic interface. While this may appear to be an obvious claim, it has not always been so in the literature, and this chapter represents an attempt at making this distinction clear.

- (2.1) a. The dog is brown.
 b. $\exists x(D(x) \ \& \ B(x))$

First-order logic would paraphrase this sentence as “there is some thing that is a dog and is brown”. Now consider (2.2).

- (2.2) a. All dogs are mammals.
 b. $\forall x(D(x) \rightarrow M(x))$

This sentence appears to include a plural, but in fact it would be paraphrased into a singular reading in a conditional structure and can be read off as meaning “if x is a dog, x is a mammal”. But not all plurals can be reduced to singular paraphrases, as shown in (2.3).

- (2.3) a. The dogs formed a circle.
 b. $??\forall x(D(x) \rightarrow \text{form.a.circle}(x))$

The paraphrase, “if x is a dog, then it formed a circle”, is incorrect as a single dog can only form part of the circle. The Geach-Kaplan sentence is often cited as a typical example of nonfirstorderizability (Boolos 1984).

- (2.4) Some critics admire only one another.

It is examples like these which illustrate the representational limitations that plurals present and which divide philosophers regarding the design of their ontology as well as their logic.

There are two main perspectives regarding how plurals are perceived. The pluralist perspective assumes that plurals cannot be paraphrased into any singular language (Bennett 1972, Boolos 1984, 1985). For example, ‘the dogs’ in (2.3) should not be paraphrased as ‘the set of dogs’. The logic that deals with plurals should include the possibility of making plural reference to many objects instead of reducing the terms to singular reference to a plural object. This amounts to representing plural expressions

directly either in first-order or monadic second-order logic²¹, with plural variables and plural quantifiers, resulting in plural quantification.

Alternatively, the method of using singular reference to a plural entity is considered the singularist view of plurals. This means, in an example like (2.3), ‘the dogs’ is in fact represented by ‘the set of dogs’. While the singularist has the support of natural language evidence such as collective nouns, e.g. ‘the pack of dogs formed a circle’, the view also commits us to abstract entities like sets in our ontology. Boolos’ (1984, 1985) work has been among the most influential in forwarding the pluralist view and so will be considered here as its chief representative. Aside from advocating plural quantification, Boolos also details the main objections to appealing to set theory.

However, the singularist view encompasses other approaches besides just set theory, and can be subdivided into various theories depending on the nature of the plural entity that is used to substitute the plural term, e.g. sets, collections, groups, sums, etc. Set theory is considered the standard view, and is often argued against by pluralists as well as some singularists who attempt to avoid commitment to sets. As a representative of the singularist view, Link’s (1983, 1998) mereological approach to plurals will be discussed as well as the means by which he attempts to overcome the typical objections to the set approach. Mereology will also be discussed in the next section on the philosophical approaches to events.

The focus of both perspectives is on answering the following questions, the answers to which illustrate their ontological commitments, which in turn, will be reflected in their semantics²²:

1. What are plurals?
2. What are their identity and individuation criteria?

Many philosophers discuss their answers in terms of two metaphysical principles: (i) *ontological innocence*, which refers to the idea that theories are not committed to anything more than what is asserted. That is, when we say things like (2.4) above, we are only committed to critics and nothing else. Formally, this means that no extra commitments should be made beyond those already assumed in first-order logic; and (ii) *logicality*, which refers to the idea that the principles, axioms and inferences governing plural first-order languages are logically valid. This means we do not have to

²¹ Boolos (1984, 1985) claims that these logics are equivalent.

²² However, it is often not clear in the philosophical literature whether it is the metaphysics that should determine the semantics or vice versa. This suggests the division that will be discussed later on.

introduce new principles aside from the ones that already exist in singular first-order languages, e.g. introduction and elimination of plural quantifiers. Taken together, these principles define what can be considered a “pure logic”, an ideal among some philosophers²³.

The pluralist commitment to plural quantification and was brought about by Boolos’ questioning of the ability of first-order logic to account for all the inferences involved in quantificational and referential structures. Boolos (1984, 1985) proposed that formulas of monadic second-order logic (MSOL) can be translated into first-order plural logics, motivated by the fact that MSOL is a pure logic. It is argued that this could not be done with set theory, since first-order equivalents of their corresponding second-order formulas reveal a deeper problem. A sentence such as (2.5)

(2.5) There are some sets which are all and only the non-self-membered sets.

The problem with this sentence, according to Boolos, is that it posits the existence of a set which is a member of itself if and only if it is not a member of itself, a contradiction known as Russell’s Paradox. If we were to conceive of an entity that is too large to be a set itself, then we commit ourselves not only to sets but to other set-like entities, like “classes”, for example. This is not desirable since set theory is meant to be about all set-like entities. Boolos finds this to be sufficient evidence to abandon the idea of understanding plurals as set-like entities, which includes other terms like “classes”, “totalities”, “collections”, etc. As Boolos claims, “It is haywire to think that when you have some Cheerios, you are eating a *set* – what you’re doing is: eating THE CHEERIOS,” (Boolos 1984, p. 448). He concludes that using plurals or second-order logic does not commit us to the existence of anything beyond that which we are already committed. “Ontological commitment is carried by our *first-order* quantifiers” (1984, p. 449)²⁴.

²³ Though it is not always clear what it means to be a “pure logic”, Linnebo (2008) suggests that it include features like “absolute generality”, “formality” and “cognitive primacy”, the definitions of which may still not clarify the concept on a theoretical level.

²⁴ Despite the problem that Russell’s Paradox appears to raise, avoiding sets in our ontology may only solve our immediate problems at best, if at all. This is because the paradox goes beyond sets, afflicting predicates and properties as well. That is, Russell’s Paradox is just a symptom of a greater plague of paradoxes in metaphysics. So, Boolos’ interpretation of the paradox is a superficial example of a deeper, more widespread problem. Given this important detail and given the fact that the present work has no intention of tackling the broader paradoxes let alone the “superficial” Russellian one, we will simply ride out the singularist-pluralist debate, with the eventual focus being on setting the foundations relevant for linguistic theories of plurals and events.

With regard to the Geach-Kaplan sentence, a second-order paraphrase would read as in (2.6) (Boolos 1985).

(2.6) There are some critics, none of whom admires himself, and each of whom admires someone only if that person is one of those critics.

Which can also be paraphrased as (2.6').

(2.6') There is a non-empty class of critics, each of whose members admires someone only if that person is someone else in the class.

Both paraphrases would have the following second-order symbolization (Boolos 1984).

(2.6'') $\exists X(\exists x\exists y[Xx \ \& \ Xy \ \& \ x \neq y] \ \& \ \forall x[Xx \ \rightarrow \ \forall y(Axy \leftrightarrow \{Xy \ \& \ y \neq x\})])$

This paraphrase appears to commit us to classes, an assumption which is undesirable for a theory aspiring to be ontologically innocent. Boolos seems to disagree with the routine of verifying the ontological commitments of a theory by testing the first-order symbolizability of certain sentences.

“Our problem arises from the thought that if we wish to assess the commitment of a theory, we must first put it into first-order notation as well as we can (sometimes this will not be possible) and then determine what the variables must be assumed to range over. [...] what does translation into a first-order language have to do with ‘ontological commitment?’ ‘There are some critics etc.’ doesn’t, it seems, commit us, in any ordinary sense of the word ‘commit,’ to the existence of a class of critics; what it commits us to, one would have thought, is, as we have noted, some critics none of whom etc.” (1985, p. 332)

Essentially, Boolos is saying that the sentence itself makes no reference to classes and so that is what should determine our ontological commitment, as opposed to leaving it as a consequence of one’s choice of set-theoretic notation. Said this way, it appears that he is suggesting that it is language that determines ontology and not logical or metaphysical assumptions. If this is true, then the concern about how we are to

understand the nature of ‘things that are many’ should be shifted from metaphysics to linguistics. We will return to this point later on in this section. Boolos’ solution for the problem of classes is the proposal that sentences of a monadic second-order logic can be paraphrased as sentences of a plural first-order language with the plural predicate ‘<’ which means ‘is one of’²⁵, where there is a singular variable on the left of the predicate and a plural variable on the right. This way, plurals are directly represented in the logic and not paraphrased away by making singular reference to plural entities, as reflected in the following paraphrase.

(2.7) There are some critics each of whom admires a person only if that person is one of them and none of whom admires himself.

The corresponding plural logic symbolization of the Geach-Kaplan sentence already benefits from the extension of regular first-order logic with the addition of plural variables, plural predicates and plural quantifiers that bind plural variables, as shown in (2.7’) (Boolos 1984, 1985). Thus, we have $\exists xx$ which means, “there are some things x such that” and $\forall xx$, which means “for all things x ”. ‘Ayz’ means ‘ y admires z ’.

(2.7’) $\exists xx \forall y \forall z [(y < xx \wedge Ayz) \rightarrow (y \neq z \wedge z < xx)]$

However, it is not necessarily clear that (2.7’) does not involve any reference to classes or collections. Some authors believe that the phrase ‘one of them’ refers explicitly to collections (Resnik 1988, Linnebo 2003). Resnik inquires, “How else are we to understand the phrase ‘one of them’ other than as referring to some collection and as saying that the referent of ‘one’ belongs to it?” (Resnik 1988, p. 77). It appears that these ontological questions are heavily dependent on one’s intuitions, differing from others with respect to whether the intuition is of a linguistic or an epistemic nature. This distinction is not always clear in the discussion of ontological innocence, but appears to lead to differences in opinion that are unlikely to be resolved if fundamentally different points of view are being employed to answer the same question.

Summing up the pluralist perspective, we can conclude that plurals are considered to be many things, as opposed to a plural object or entity. Pluralists claim

²⁵ This is usually considered the plural counterpart of the singular identity relation, ‘=’.

that this conception requires no extra ontological commitment to things other than those that are assumed in regular first-order logic, though this innocence may be difficult to maintain once an attempt is made at formalization. Plural logics are built out of the basic first-order logic with the addition of plural variables and plural quantifiers, while inheriting the same logically valid principles from the first-order language. These principles can also be translated into monadic second-order logic without losing its status as a “pure” logic (Boolos 1984, 1985). The identity criterion of plurals is represented by the ‘is-one-of’ relation and can be illustrated by the formula in (2.8) where ‘ xX ’ means ‘ x is one of X ’ (Hossack 2000).

$$(2.8) \quad X = Y \text{ iff } (\forall x)(xX \leftrightarrow xY)$$

And can be paraphrased as

(2.8’) Some things X and some things Y are identical if and only if every x that is one of X is the same as every x that is one of Y .

Other pluralist approaches are basically variations or extensions of Boole and will not be discussed here²⁶. More recent works from a pluralist perspective include those which have a greater focus on the analysis of plurals in natural language, like Schein (1993) and Pietroski (2005). Both assume a second-order logic adapted to a version of event-based semantics motivated by the possibility of a broader treatment of plurals in a greater number of contexts and without resorting to either sets or fusions. While these approaches, to be discussed in more detail in section 2.4, are more concerned with linguistic phenomena they also claim to have philosophical as well as logical repercussions.

Now we shall turn to singularist perspectives and how they conceive of the nature of plurals and their identity criteria. Differently from pluralism, there are different versions of singularism. They all share the basic strategy of substituting plural terms with another plural entity, but differ as to the ontological and semantic nature of this entity. Given the vulnerability of set theory to Russell’s Paradox, those singularists concerned with ontological commitments also appear to want to distance themselves

²⁶ See, for example, Yi 1999, 1999a, Linnebo and Nicolas 2008, Oliver and Smiley 2001 and Rayo 2002, among others.

from this approach by proposing different plural entities that ultimately would not succumb to the same logical pitfalls as sets. The various singularist theories appeal to such plural entities as wholes, groups, collections, aggregates, groups and mereological fusions. I will focus on the last as a representative of the singularist view since it is the one most widely represented among singularist perspectives as well as the one most widely applied to the linguistic phenomena to be discussed along the course of this work.

Despite the array of plural entities to choose from, pluralists often treat these different theories as superficial variations, claiming that giving different names to their plural entities does not change the nature of the approach nor the metaphysical and theoretical problems that they incur. Link's (1983, 1998) algebraic approach to plurals, which incorporates classic mereology, was basically motivated by pluralist criticisms of set theory. Nevertheless, these questions continue to be the focus of current philosophical debates on plurals as there is no clear consensus.

Motivated by the structural analogies observed between mass terms and plural expressions, Link (1983) claims that neither denotes a new kind of object independently of those singular objects to which we are already committed. They both possess the cumulative reference property, a characteristic of mass terms that can be imitated by plurals. See (2.9).

$$(2.9) \quad \begin{aligned} \text{water}(a) + \text{water}(b) &= \text{water}(a+b) \\ \text{horses}(a) + \text{horses}(b) &= \text{horses}(a+b) \end{aligned}$$

With this analogy, plurals are seen as belonging to a lattice structure, which is "inherent in mereological predicate logic" (Link 1983, p. 303). Link (1983) departs from the main philosophical line of reasoning by declaring that it is linguistics that defines ontology and not philosophy. The idea that ontology may have more to do with language than metaphysics, as suggested by Boolos, becomes much more prevalent in the singularist view. With respect to the ontological innocence of the lattice structure, he believes that "its possible use in the present context has perhaps been obscured by reductionist ontological considerations which are, in my opinion, quite alien to the purpose of

logically analyzing the inference structures of natural language.” (1983, p. 303)²⁷. However, despite this claim, Link still appears concerned with the issue of ontological innocence as he invests quite a bit of his defense of mereology with arguments of a metaphysical nature, attempting to distance this approach from that of set theory, widely considered as not ontologically innocent.

Plural expressions, in this view, denote sums of concrete objects, as opposed to sets, which are abstract entities that would entail an extra ontological commitment. Plural objects, on the other hand, are of the same logical type as singular objects, which supposedly result in no extra commitment. The concept of mereology as part of an algebraic approach to the semantics of plurals has the consequence of a domain of individuals with internal structure. So, the commitment is only to a more complex structure of our already existing objects as opposed to an addition of new objects. Using Link’s (1998, p. 16) example, if we consider two rings, ‘a’ and ‘b’, made out of the same Egyptian gold, ‘a+b’ constitutes the gold which continues to be a singular object. This process of joining two portions of mass objects is called a “material fusion”. ‘a⊕b’ refers to the rings which, according to Link, continue to be two objects and their joining is an example of an “individual sum”. A material fusion can constitute an individual sum, but they are not identical. This way, we can say that the gold is old, but the rings are new.

This kind of plural quantification is built into a first-order language with the addition of plural connectives like ‘⊕’, plural predicates like ‘≤’, which indicates the part-of relation, a plural counterpart, ‘σ’, to the individual definite descriptor, ‘ι’, and finally, a plural operator, ‘*’, on one-place predicates²⁸. When pluralities of individuals are conceived as mereological fusions of regular first-order individuals, it is claimed that extra ontological commitments are avoided simply because the plurals and their singular counterparts have the same ontological status. Along these same lines, Lewis (1991) proposes the Principle of Unrestricted Composition and the Thesis of Composition as Identity. The former claims that any kind of things can have a fusion, as illustrated in his quote below.

²⁷ Perhaps a distinction should be made between metaphysical ontology, which is concerned with innocence and logicity, and natural language metaphysics, which is concerned with linguistic semantic inferences (Bach 1986, Borges Neto 2007).

²⁸ The definite description of a plural NP is represented as ‘σxPx’. So, ‘the boys’ is represented as ‘σx*BOYS(x)’.

[...] whenever there are some things, they have a fusion. *Whenever!* It doesn't matter whether they are all and only the satisfiers of some description. It doesn't matter whether there is any set, or even any class, of them. ... There is still a fusion. So I am committed to all manner of unheard-of things: trout-turkeys, fusions of individuals and classes, all the world's styrofoam, and many, many more. We are not accustomed to speak or think about such things. How is it done? Do we really have to?

It is done with the greatest of ease. It is no problem to describe an unheard-of fusion. It is nothing over and above its parts, so to describe it you need only describe its parts. Describe the character of the parts, describe their interrelation, and you have ipso facto described their fusion. The trout-turkey in no way defies description. It is neither fish nor fowl, but it is nothing else: it is part fish and part fowl. It is neither here nor there, so where is it? — Partly here, partly there. That much we can say, and that's enough. Its character is exhausted by the character and relations of its parts. (Lewis 1991, p. 79)

The Thesis of Composition as Identity aims to avoid the ontological commitments of set theory, as explained in the quote below.

To be sure, if we accept mereology, we are committed to the existence of all manner of mereological fusions. But given a prior commitment to cats, say, a commitment to cat-fusions is not a further commitment. The fusion is nothing over and above the cats that compose it. It just is them. They just are it. Take them together or take them separately, the cats are the same portion of Reality either way. Commit yourself to their existence all together or one at a time, it's the same commitment either way. If you draw up an inventory of Reality according to your scheme of things, it would be double counting to list the cats and then also list their fusion. In general, if you are already committed to some things, you incur no further commitment when you affirm the existence of their fusion. The new commitment is redundant, given the old one (1991, p. 81-81).

Given these considerations regarding the nature of fusion and identity, let us consider the mereological treatment of the Geach-Kaplan sentence, from Link (1998, p. 335). (2.4) would be paraphrased as (2.10).

(2.4) Some critics admire only one another.

(2.10) There is some mereological fusion of critics such that any one in the fusion admires another critic only if the latter is also a member of this fusion distinct from the former.

As Link himself noted, the only difference between this definition and the one committed to sets is simply that the term ‘fusion’ replaces every occurrence of ‘set’. This begs the question, how is this meant to be ontologically innocent when the set-theoretic version is claimed not to be? Link maintains that while there is the linguistic tendency for speakers to “singularize” plural terms, through the use of collective nouns for example, as in ‘the group of people’ versus ‘the people’, this has no bearing on what Link considers to be a separate issue of whether linguistic classes entail theoretical classes. The apparent singularization that occurs in the process of mereological fusion does not lead to an extra commitment to fusions beyond singular objects due to the thesis of composition as identity, where fusions are identical to their parts.

Recall the singular Russell sentence involving sets, in (2.11).

(2.11) There is a set such that its members are all and only the nonselfmembered sets.

If we use the same tactic here as was done for the Geach-Kaplan sentence, where all occurrences of ‘set’ were replaced with ‘fusion’, the natural question is whether the vulnerability to the paradox is the same. Link believes the pluralist observations that lead to fusions being treated as sets is a result of what he calls the “counting fallacy”. The idea behind this fallacy is that fusions are wrongly seen as both one and many simultaneously. This “puzzle” arises due to one of the three following issues, according to Link (1998, p. 318): (i) “the obstacle of the unspecified limit”: this is a problem of underspecification of the unit involved; a class of one and a class of many cannot be equated; (ii) “the grammatical obstacle”: this is exemplified by the tendency for speakers to singularize, as discussed above. There are classes expressed as plural phrases, like points, instants and the soldiers, as well as classes expressed as singular phrases, such as space, time and the army; and finally (iii) “the obstacle of double counting”: this is when the fusion is counted as an entity in addition to its parts. If we have, for example, ‘Tom and Jerry’, we may call their fusion ‘Genie’ (Yi 1999a). It would be double counting to consider ‘Genie’ a third object, since if there are two

things, there cannot be three. While it is possible to consider some things as one and as many at the same time, this is only with respect to how we talk about those things and not how those things are actually organized in the world.

Going back to Yi's (1999a) example, he claims not to take issue with the distinction between abstract sets or concrete fusions, but with the idea that 'Tom and Jerry' is an object that is neither 'Tom' nor 'Jerry'. This is a variation on the Russell paradox, but rests on the idea that there are no such things as nonselfmembered sets. It is not surprising that 'Tom and Jerry' cannot be understood as being either 'Tom' or 'Jerry', but instead is understood as both of them at the same time. However, Yi goes on to argue that the fusion of 'Tom and Jerry', which he names 'Genie', is an entity separate from its parts. This suggests the counting fallacy discussed above. Perhaps another example would show how this argument does not hold. Take the Hollywood actors Brad Pitt and Angelina Jolie. The media often refer to them as 'Brangelina'. It would be strange to use the term to refer to either one on his or her own given that the term 'Brangelina' is used as a kind of shorthand to refer to both of them at the same time. It is also clear that their "fusion" does not refer to some other entity that is not just those two people²⁹. In other words, we must make a distinction between objects and their names³⁰.

According to Varzi (2000), when we talk about how many things there are, we really mean things of a sort, whether they are peanuts or handfuls of them. Moreover, the way we sort out items is often a matter of context. Similarly to Link's counting fallacy, Varzi assumes a "Minimalist View"³¹ of objects and plurals. This view adheres to principles of completeness and non-redundancy. Varzi states (2000, p. 285): "Mereology distinguishes a whole from its parts. But the whole and parts encompass the same amount of reality and should not, therefore, be listed separately in an inventory of the world."

²⁹ While the Genie argument serves up a weak criticism of singularism, my Brangelina defense can also be considered grossly superficial on philosophical grounds. As de Almeida (p.c.) points out, Brangelina, and all fusions, possess properties that neither individual possesses on his own, for example, the fact that Brangelina does not include other individuals. Whatever entity Brangelina is, it goes beyond the mere sum of its individual parts. The properties of one or both may change when forming a fusion. Philosophically, we may be at an impasse, but linguistically, we can say that we only need to consider the fusion independently of its parts if required by the linguistic context. Therefore, while Link's counting fallacy may be philosophically fragile, it is an attempt at shifting the focus on the characteristics of plurals towards their linguistic relevance.

³⁰ This is reminiscent of Bennett's (1988) book entitled *Events and Their Names* in which Bennett makes precisely this distinction with respect to events.

³¹ No relation to Chomsky's (1995) Minimalist Program.

Oliver and Smiley (2001) present an argument for why mereological fusions are inappropriate for representing plurals, based on the example below.

(2.12) Whitehead and Russell are logicians.

If we are to accept fusions, they claim, then ‘Whitehead and Russell’ and ‘the molecules of Whitehead and Russell’ represent different compositions of the same sum, which would lead to the absurd conclusion that ‘the molecules of Whitehead and Russell were logicians’! This is a consequence of the transitive nature of the part-whole relation. However, this can be considered a case of the obstacle of an unspecified limit, a subcase of the counting fallacy. Our language determines how we carve things out in the world which would mean that ‘Whitehead and Russell’ and ‘the molecules of Whitehead and Russell’ represent different descriptions of the same objects, which should not be equated or interchangeable across contexts. When we say sentence (2.12), we are most likely not referring to the logicians’ molecules. That is, we are only referring to those parts, e.g. the men, that are relevant to the meaning of the rest of the sentence. Likewise with Hossack’s (2000) example, we should not be concerned when we say that a book is part of a library and a page is part of the book, since we will not be committed to assuming that the page is part of the library. Varzi (2006) claims that transitivity can only hold relative to certain conditions. Something can be a part without having to be a functional part of something. If functionality is a necessary condition for being a part, then it is only natural that transitivity may fail.

If how we sort things involves context, and transitivity also depends on a certain understanding of how things work in the world, then certain equivalences between parts and their wholes can be accepted or rejected on pragmatic grounds. For example, it would not be wrong to conclude from ‘Russell and Whitehead are moving’ that ‘Russell and Whitehead’s molecules are moving’.

Summing up the mereological perspective, plurals are seen as fusions which are identified according to the parts that compose them. This is different from some who claim that the standard definition of the part-of relation says that sums are parts of themselves (Zweig 2008). If this latter claim were true, mereology would be just as susceptible to the Russell paradox as sets, but the principle of composition as identity was conceived of precisely to avoid this result. Let us assume for now that it does. If we now consider the ontology of plurals to be a linguistic concern, it is linguistic intuitions

that will determine their semantic analysis as opposed to the metaphysical issues related to the ideal of a “pure logic”. While this theoretical readjustment simplifies the picture by excluding arguments and counterexamples which are not in accordance with a more language-oriented view, we are still at an impasse as to which theory is more adequate for dealing with plurals, the pluralist view or the singularist mereological view. That is, if we assume that both singularism and pluralism are philosophically coherent, which is better at accounting for the range of possible inferences that plurals allow?

Before we can answer this question, we must take into account that both perspectives, when considering language as their main focus, appeal to events for a more comprehensive account of plurals. This is because plural objects and plural events both contribute to the interpretation of events. Events have found their way into theories of plurals for different reasons, depending on one’s philosophical and linguistic perspective. For example, defenders of mereology believe events receive a natural application since it is common to speak of the parts and wholes of events (Link 1998). Consequently, the structural analogy between objects and events are exploited.

Moreover, mereology accounts for the interactions among three areas revealing structural analogies – plurals, events and mass terms – all of which contribute to approaches on lexical aspect and grammatical, to be discussed in chapter three. On the other hand, there are those who defend a second-order predication to account for plurals, appealing to the neo-Davidsonian feature of relating arguments to their verbs through thematic roles. In general, pluralists and singularists alike appeal to events for dealing with sentences with plurals, though the implementation varies according to each theory.

The next section deals with philosophical approaches to events, which incur similar questions and debates as plurals, i.e. ontological commitment, event identity and event criteria. These metaphysical issues will be discussed from different viewpoints and interestingly, the conclusion regarding the division of labor between metaphysics and semantics will be similar to the one arrived at in this section on plurals.

2.3 Philosophical Approaches to Events

As with plurals, philosophical approaches to events are often divided into their metaphysics and their corresponding semantics. The former concerns the nature of events in the ontology and the latter reflects how these metaphysical intuitions are

worked out in the logical semantic representation. Not only does the topic of events share the same philosophical scrutiny as objects and plurals, but the debates surrounding these issues also share the same inconsistencies with respect to whether it is metaphysics or language that determines ontological commitments. The way in which one delegates this ontological responsibility ultimately influences one's definitions of event identity and criteria.

Interest in events as part of the logical structure of natural language dates back to various logicians, including Ramsey (1927), Reichenbach (1947), Ryle (1949) and Prior (1949), though it was Davidson's (1967) paper that drew the most attention from both philosophers and, to a greater extent, linguists. There are various reasons to include events in modern semantic theory, but it was the initial evidence provided in Davidson (1967) that opened the floodgates for numerous other linguistic phenomena to receive the event treatment. However, like the aforementioned logicians, Davidson's arguments in favor of the existence of events were not necessarily linguistically-oriented, but were aimed at philosophical and logical issues, such as solving the problem of the polyadicity of action verbs. Consider the sentences in (2.13).

- (2.13) a. Brutus stabbed Caesar in the back with a knife.
 b. Brutus stabbed Caesar in the back.
 c. Brutus stabbed Caesar with a knife.
 d. Brutus stabbed Caesar.

(2.13a) entails (2.13b) and (2.13c), all of which entail (2.13d). These inferences would not be captured in a standard predicate logic. See (2.14) (from Zweig 2008).

- (2.14) a. $\text{Stab}_1(\text{Brutus})(\text{Caesar})(\text{the back})(\text{a knife})$
 b. $\text{Stab}_2(\text{Brutus})(\text{Caesar})(\text{the back})$
 c. $\text{Stab}_3(\text{Brutus})(\text{Caesar})(\text{a knife})$
 d. $\text{Stab}_4(\text{Brutus})(\text{Caesar})$

The lexicon would need to have four different entries as well as four different sets of denotations with complex lexical entailment relations between them in order to capture the inference patterns in (2.13) (Zweig 2008). By assuming that verbs have an extra argument place that is occupied by a hidden quantified event variable with modifiers

added conjunctively, the entailment relations are straightforward with no proliferation of lexical items. See (2.15).

- (2.15) a. $\exists e(\text{Stabbing}(\text{Brutus}, \text{Caesar}, e) \ \& \ \text{In}(\text{the back}, e) \ \& \ \text{With}(\text{a knife}, e))$
 b. $\exists e(\text{Stabbing}(\text{Brutus}, \text{Caesar}, e) \ \& \ \text{In}(\text{the back}, e))$
 c. $\exists e(\text{Stabbing}(\text{Brutus}, \text{Caesar}, e) \ \& \ \text{With}(\text{a knife}, e))$
 d. $\exists e(\text{Stabbing}(\text{Brutus}, \text{Caesar}, e))$

There are other incentives, mostly of a linguistic nature, for assuming the existence of events in our logical form. They include: (i) explicit reference to events (Casati and Varzi 1996), (ii) implicit reference to events (Parsons 1985), (iii) lexical event quantification (Rothstein 1995) and (iv) perceptual reports (Higginbotham 2000). A widely accepted modification of Davidsonian event semantics suggested by Castañeda (1967) and most prominently advocated by Parsons (1990) is the idea that the participants of the event should also be separated out conjunctively, via thematic roles. Thus, instead of (2.15d), the representation for (2.13d) would be,

- (2.16) $\exists e(\text{Stabbing}(e) \ \& \ \text{Subject}(\text{Brutus}, e) \ \& \ \text{Object}(\text{Caesar}, e))$

Having accepted for the most part that events do belong in our ontology, the next step is to define their nature and identity criteria. It is on this point that few philosophers agree. Differently from the debate on plurals, there are few clear-cut positions behind which groups of philosophers rally. Every well-known philosopher since Davidson's paper appears to have his own unique take on the nature of events. Still, the range of perspectives can be more or less categorized according to some basic criteria³².

First, events can be distinguished between being universal or particular. Universal events are those that recur and can be instantiated at different places and times, while particular events occur only once at specific times and places (Pianesi and Varzi 2000). Moreover, an event can be concrete or abstract, which refers to the extent to which more than one event can occur at the same place and time and is often a question of degree. The various perspectives on the nature of events are derived from combinations of these

³² The following exposition of the different views on events derives mostly from the works of Pianesi and Varzi (2000) and Casati and Varzi (2008).

four features, though the concrete/abstract features play more prominently when events are seen as particulars.

On the universalist side, Montague considers events to be properties of moments or intervals of time. Instead of assuming the absolute distinction between universal and particular events, he believes it is a question of degree of particularity, such that, at one end of the scale, there are generic events that recur and, at the other, events so particular that they occur only once. Chisholm, on the other hand, understands events to be proposition-like entities that recur, also called states of affairs.

For both Chisholm and Montague, many events can occur at the same place and time, making them very abstract entities. Chisholm's view is more extreme, since events can be multiplied according to the different descriptions they may take. This is because he believes that if it is possible to have two different propositional attitudes towards an event, this is sufficient to make it two distinct events. This way, recurring events such as waking up in the morning would differ from happily waking up in the morning. In the case of particular events, Montague may describe Brutus' stabbing of Caesar and Brutus' killing of Caesar as the same property under two different descriptions, while Chisholm defends that the different descriptions are sufficient to warrant different propositional attitudes, resulting in the distinct events. The latter view leads to a considerable proliferation of events.

It is clear that universalist perspectives on events attempt to capture the intuition about the way we talk about events, as it is common to talk about things that happen over and over again, like routines and habits. However, instead of considering them generic events that recur, Davidson (1967) notes that a distinction can be made between individual token events and event types. So, when a speaker says something like, 'Jane makes coffee every morning', it is not necessarily true that the brand of coffee is the same every day, or even the method of coffee-making that repeats every single morning, since it is not the specific event that is being talked about, but the type of event. This distinction between event types and tokens greatly reduces the appeal of the universalist view of events.

The view of events as particulars is more compatible with the concrete/abstract scale of event individuation (Pianesi and Varzi 2000). Extremely concrete particular events are likened to objects, in that both are spatiotemporal entities. Quine is the typical example of this perspective and believes that the difference between objects and events is merely one of degree, as they depend on one another metaphysically (Casati

and Varzi 1996, 2008). This means that no more than one event can occur at a given place and time, with their identity conditions determined in the same way as objects. These kinds of events are non-repeatable. The main drawback of this approach is illustrated by Davidson's example (1967), in (2.17), where events happening at the same time, but with different descriptions would necessarily be considered a single event.

(2.17) John swims the Hellespontus, catches a cold and counts his blessings.

Aside from disallowing simultaneous events, the example reveals that just as the temporal boundaries of an object are not easily demarcated, the spatial boundaries of events can also be vague, such as where John caught the cold.

Kim's theory on events is an example of an extremely abstract view of particulars, as his theory "distinguishes an indefinitely large number of events that can occur at the same place at the same time" (Pianesi and Varzi 2000, p. 7). Kimean events are exemplifications of properties by objects at particular times. Similarly to Chisholm's proposition-like proposal, Kim's events are extremely fine-grained and do not recur.

Bennett (1988, 1996) also sees events as abstract particulars, distinguishing slightly from Kim's view in that instead of the property being exemplified by an object, it is exemplified "at a zone", referring to a spatiotemporal region. According to Bennett, assuming events to be property exemplifications does not necessarily have to result in an excessive number of events. He proposes that properties can involve partial descriptions of events; a more complete description can be considered a different sense without changing the reference, with the consequence of producing a more neutral theory.

Davidson (1967) initially defended a theory wherein events are identified by their position in the causal network. In this case, events are identical if they have the same causes and effects. The problem is that these causes and effects may also be events themselves, which leads to circularity. Thus, Davidson eventually abandoned this idea in favor of Quine's perspective.

With respect to identity criteria for events, Casati and Varzi (1996) distinguish between the "unifiers" and the "multipliers". The unifiers defend a coarse-grained individuation of events such that a single event may have different linguistic descriptions. The multipliers defend a fine-grained approach such that every distinct

linguistic description results in reference to a different event. However, similarly to the problems faced by plurals and their identity criteria, the division of labor between the metaphysics and semantics is not always clear-cut for events either. Ideally, the semantics would indeed be a direct result of one's metaphysics, as Lombard (1998) defends. The nature of events would be derived from and limited by one's metaphysics, wherein the identity criteria lie. Thus, it is natural that a different metaphysics will result in a different kind of event. In fact, Lombard claims that the search for a metaphysical theory of events centers on the search for an appropriate criterion of identity for events (1998, p. 81).

However, Pianesi and Varzi (2000) suggest that Lombard's perspective may represent an unachievable goal. In fact, Bennett (1996) claims that since there appear to be no limits to how events can be described, attempts to establish criteria "mainly ramble through intuitions about meanings of event names" (1996, p. 147). Despite this, it is still possible to theorize about events, though it appears that indeterminacy is an inevitable factor. As shown in the previous section, plurals and the material objects that constitute them also suffer from indeterminacy to a certain extent, so the fact that it occurs with events as well should not be surprising.

Casati and Varzi (2008) consider the issue of identity criteria for events to be of a semantic nature and not a metaphysical one. They claim,

"No metaphysical theory, it is said, can settle the semantics of ordinary event talk, hence there is no way of determining the truth or falsity of an event identity statement exclusively on the basis of one's metaphysical views. Which events a statement speaks of depends heavily (more heavily than with ordinary material objects) on local context and unprincipled intuitions (Bennett 1988)" (Casati and Varzi 2008, p. 47).

This is what Varzi (2002) calls the "indeterminacy view". As a result, the question of telling events apart has to do with the way we talk about them and not with what we assume them to be. Much in the same way that objects can acquire new properties along the course of time, events can as well. The authors explain, for example, that Clinton's father became the father of the forty-second president only at the moment that Clinton became president and not beforehand, and will remain so even after Clinton is no longer president (Pianesi and Varzi 2000). They also use the example of Brutus' stabbing and killing of Caesar. At a particular time t , Brutus' stabbing of Caesar could only be

described as a stabbing, but at a later time t' , upon Caesar's death, the event could be described as both a stabbing and a killing. In this way, the two descriptions can be considered distinct senses of the same referent. Furthermore, Pianesi and Varzi (2000) propose that the killing of Caesar be seen as a mereological fusion of the stabbing and the death, though this need not entail any modifications in the ontological assumptions.

The problem of transitivity in the mereological approach to plurals can be mirrored in events. Recall that it was said that if we admit that a book is part of a library and a page is part of a book, then we are obligated to say that the page is part of the library, which would be intuitively false. With events, if John's gesturing is part of a talk and his talk is part of a course on semantics, it would also be false to say that John's gesturing is part of a course on semantics. With respect to events, Varzi (2002) claims that this difficulty is due to the fact that the spatiotemporal location of events is vague, which in turn is a result of the individuation of the relevant participants being problematic. Again, like parts of objects, a part of an event does not need to be functional to still be a part. The following two passages from Varzi (2002) basically sum up the metaphysics-semantics interface issues that have burdened philosophers regarding events.

“The indeterminacy is not epistemic. Yet this is not to imply that events are not spatiotemporal particulars, or that they are *vague* spatiotemporal particulars—that they have vague (fuzzy, imprecise) spatial or temporal boundaries. Our difficulty in answering the above questions concerns the structure of our event talk, not the ontological make-up of events. It is the event names we use that are vague, not the events themselves [...]

“There are *many* events around here that qualify as legitimate referents of the phrase ‘my talk’: it all depends on how we understand this phrase. Do we want to include my hand-waving as part of my talk? Is your listening part of my talk? To me these are not questions pertaining to the nature of an event. They pertain to the semantics of an event name: exactly *what* event are we talking about? In many cases (virtually always) there is no need to be precise; in some cases (perhaps always) it may not be possible to be precise. But these facts have nothing to do with ontology” (2002, p. 246).

As Varzi (2002) notes, material objects seem to be susceptible to the same problems as events. These arguments serve as a basis for dismantling the criticisms raised against

the mereological approach to plurals. Transitivity in the logical sense should still hold of parts and wholes. In this sense, a page of a book really is part of a library and John's gesturing really is part of the course on semantics. It is transitivity in the pragmatic sense that does not always hold. This latter type of transitivity appears to carry with it some added meaning of functionality or relevance relation between the part and the whole. The following quote by Varzi (2002) sums up nicely how the philosophical problem of defining identity criteria for objects and events is a misguided attempt at regimenting the way we talk.

“We refer to objects and events by means of descriptions that we take to be sufficiently accurate to pick out our intended referents. Context and linguistic conventions usually cooperate, making it possible for us to speak very loosely. In the case of objects this seems to work well. In the case of events, unfortunately, the picture is worse and a lot seems to depend on local context and unprincipled intuitions. If necessary we must be more explicit and say more, and that makes life more difficult. But of course this is not a way of multiplying entities. It is, more modestly, an attempt to pick out the ones we want” (2002, p. 262-263).

Furthermore, it should be noted that the suggestion of a mereological treatment for events would provide an even stronger analogy between the treatment of plurals and events. This would be an argument in favor of the singularist view, unless the pluralist view can show that such an analogy is not necessary and that a pluralist view is just as capable of accounting for the same set of linguistic phenomena without such analogies.

The discussion of the previous two sections suggests that we can still talk about the structure and meaning of plurals and events regardless of whether details concerning identity and individuation criteria have been resolved or not. What we can take from these philosophical discussions is the different perspectives on what plurals are, but without inheriting particularly metaphysical motivations like ontological innocence. That is, linguistic theory can inherit philosophical proposals on plurals and events without inheriting their motivations or implementations. In this sense, the nature of plurals and events may correspond to pre-theoretical intuitions involving vague metaphysical perceptions and basic linguistic intuitions³³.

³³ In the context of foundational consistency, a perspective involving only metaphysics and semantics apparently “skips over” one theoretical level of study, namely, linguistics, essentially collapsing

This means that the pluralist versus singularist debate will not (and perhaps cannot) be resolved at this stage. Moreover, it means ontological issues can be (if at all) answered after more complete linguistic-semantic analyses are carried out. It is sense that one level of investigation can have repercussions at another, as suggested in the introduction. Here, the ontological issues regarding identity and individuation criteria can benefit from results of linguistic analyses.

Thus, we move onto the second stage of investigation as outlined in the introduction, from philosophy to linguistics. The perspective at this stage is that ontology can be inferred from linguistic-semantic representations. However, given the different objectives of philosophy versus linguistics, metaphysical and natural language ontology do not necessarily overlap. Ultimately, discussions on philosophical ontology and linguistic ontology can carry on independently of each other.

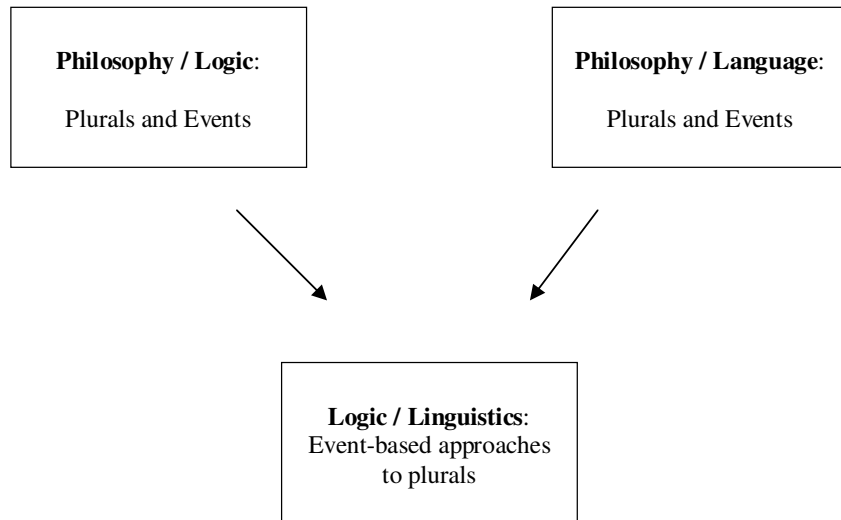
Generally, in the linguistic domain, pluralists carry the burden of showing that Russell's Paradox is sufficiently damaging in terms of deriving the correct linguistic-logical inferences, differently from the philosophical domain where ontological innocence appears to be central goal. Aside from avoiding the paradox, the pluralist view must also account for all the data that singularist views account for. Singularists, on the other hand, generally disregard any residual philosophical contention, tending to exploit nominal-verbal analogies to account for a broader range of linguistic data. This is the general topic of section 2.4.

Specifically, singularists are concerned with what kinds of data their analogies can cover and compare their analyses with those of other singularist theories. Pluralist objectives are generally twofold: to prove the singularist view is fundamentally inadequate for the treatment of plurals and quantification and show that the pluralist view is the only alternative capable of correctly accounting for the same data. In the linguistic investigation of bringing plurals and events together, theorists have assumed that events are an essential ingredient in providing a proper semantics of natural language, including the semantics of plurals. This is not to say that singularist and pluralist theories are mutually exclusive, as there are many elements that overlap, but only those in which the pluralist-singularist dichotomy is not crucial.

metatheoretical and theoretical levels. This is not unexpected as philosophical perspectives in this area of study are often concerned with the Philosophy/Logic interface, where the Logic and its corresponding semantics are informed by metaphysical intuitions, bypassing linguistic intuitions.

Figure 2.1 illustrates the portion of the overall investigation which is being considered at this point. We have discussed plurals and events from a philosophical point of view and now examine how the assumptions at this level are worked into event-based semantic theories for an account of these same topics.

**Figure 2.2 Schema of Stages I and II of the Investigation:
From Foundations to Theory**



2.4 Event-based Approaches to Plurals

Linguists who employ plurals and events often have different focuses in terms of what linguistic phenomena they want to account for. Despite this, some common threads can be ascertained, either explicitly or implicitly, which reflect their assumptions, regarding the metaphysical issues discussed in the previous section and how these are reflected in the linguistic analyses. The two main perspectives outlined in 2.3 were referred to as “singularist” versus “pluralist” perspectives³⁴. The main idea is that singularists reduce plural reference to singular quantification while pluralists represent plural reference with plural quantification. Many elements between singularist and pluralist views overlap. This is because there are some linguistic tools used to account for certain inferences that are not determined by the position one takes on what plurals are.

³⁴ Though the terms “singularist” and “pluralist” are primarily used in the philosophical realm, I will continue to use them to refer to the respective linguistic theories for the sake of consistency.

Moreover, plurals interact with a variety of other phenomena including scope, connectives, adjuncts and events, for example.

The singularist-pluralist opposition is translated in the linguistic realm as plural entities versus plurals as predicates. In the plural entity, or objectual view, I will discuss the works of Lasnik (1995), Landman (1995, 2000) and Kratzer (2003, 2005), all of whom assume Link's (1983, 1998) basic view of plurals to a certain extent, though they build upon it in different ways. In the view of plurals as predicates, I will discuss the works of Schein (1993, 2002) and Pietroski (2005). Despite the fact that Schein's work has had a significant impact on plural research, many of his results are often adapted to an objectual view, while the view that plurals are predicates does not enjoy as strong a linguistic following.

The theories discussed in this section all assume an event-based semantics, but the ways in which events are invoked and the motivations for doing so differ according to each theory. The questions central to this stage of investigation are: 1) what is the role of events in accounting for sentences with plurals? And 2) how do these theories account for the various readings that arise in sentences with plurals, namely, collective, distributive and cumulative interpretations? Hopefully, the answers to these questions will answer the more general one regarding the extent of the singularist-pluralist opposition.

It is safe to say, considering the literature of the past few decades, that the view of plurals as entities is the mainstream one, so it is up to those who support the view that plurals are predicates to show that this latter perspective is somehow superior in terms of accounting for linguistic inferences regarding sentences with plurals. Singularist theories focus on a variety of linguistic phenomena to distinguish themselves from other singularist theories such as conjunction, quantification, scope relations, etc. Since a comprehensive comparison is beyond the scope of this work, I will focus on the immediate results of assuming singularist versus pluralist views. That is, general linguistic assumptions regarding plurals and events directly affect how simple collective, distributive and cumulative interpretations are derived. To illustrate these basic meanings, see examples (2.18-2.19) below.

(2.18) Three men lifted the piano.

(2.19) Three boys invited four girls.

The example in (2.18) is ambiguous between two meanings. It can be understood distributively, where each man individually lifted the piano, or collectively, where all three men lifted the piano together. On the other hand, the example in (2.19) appears to be about an inviting relation with the three boys as agents and the four girls as patients. There is no other restraint on how the inviting was done. This is the cumulative interpretation. How the ambiguity in (2.18) and the cumulativity in (2.19) are accounted for depends on one's definitions for plurals and events.

In order not to complicate the discussion, the sentences considered below will primarily involve examples with a maximum of two plurals per sentence. This means I will not consider downward entailing contexts or a deep analysis of conjunction or other related phenomena that have been discussed in the literature. This is because my focus at this stage is on considering theoretical foundations for lexical and grammatical aspect. For now, these basic readings are sufficient to analyze the opposing views and are all that is relevant for later on. Section 2.4 is divided into three subsections. The first, section 2.4.1, presents the singularist views of plurals as objects, while the second, section 2.4.2, presents the pluralist view of plurals as predicates. Section 2.4.3 concerns how both views account for collective, distributive and cumulative interpretations. Section 2.5 presents the chapter summary.

2.4.1 Plurals as Objects

This section presents a synthesis of singularist theories, as presented by four different authors, which treat plurals as objects, or entities. The theories, though all essentially singularist in nature, differ according to the particular way in which the plural entities are constructed and the way in which events contribute to their interpretation. The discussion starts off with the pioneering work by Link (1983) which presents an alternative to the set-theoretic approach to plurals, with lattice theory, in an attempt to explore the structural properties of plurals and their similarities with mass terms. Sets are replaced with sums and fusions, revealing the mereological structure of plurals that can also be mirrored in events. Next, Landman's (1995, 2000) approach is presented as one that is most faithful to Link's main assumptions though Landman makes some modifications regarding the operators used to represent plurals in the logical representation. Lasersohn (1995) diverges from the tendencies set up by these two authors by attempting to reduce the number of plural entities that need to be assumed to

account for plural inferences. This section concludes with a discussion of Kratzer's (2003, 2005) work which emphasizes the need for a neo-Davidsonian approach to plurals in an effort to resolve inconsistencies in the other singularist views with respect to plural inferences and the role of events. The analyses of these four authors are discussed in turn below.

One of the most influential works in the area of plural research is that of Link (1983, 1984). The assumption of a lattice-theoretic approach represents Link's focus on the internal structure of the domain of entities and the part-whole nature of plurals and events. Perhaps the most important contribution of Link (1983) is the introduction of the $*$ -operator, which pluralizes one-place predicates P and generates all the individual sums of members of the extensions of P (1983). $*P$ has what Link calls the "cumulative reference property" and is closed under sum formation. This means that any sum of parts of $*P$ are again $*P$. It is in this property that plurals mirror mass terms as mentioned in section 2.3. The desire to capture this analogy is what motivated Link to assume a lattice-theoretic approach. While singulars and plurals are both considered individuals, they can be distinguished according to atomicity, where a singular like 'boy' is atomic and a plural such as 'children' or a conjoined noun phrase like 'John and Mary' are non-atomic sums of individuals.

In addition to sums and individuals, Link considers examples such as (2.20) to be sufficient motivation to introduce the notion of groups (1998, p. 52).

(2.20) The red cards and the blue cards are shuffled.

This sentence does not necessarily mean that the red cards and blue cards were shuffled and mixed together as a single deck, but that they were shuffled separately, as two decks. The shuffling is distributed down to the level of decks (the red cards versus the blue cards), but not further down to the individual cards. To capture this intuition, Link (1984) makes a distinction between individual sums and groups. Through a group-formation operation, represented by ' \uparrow ', sums can shift their interpretations to groups. The two meanings in (2.20) can thus be represented below, with the sum interpretation in (2.20') and the group interpretation in (2.20'').

(2.20') shuffled(σx *red.cards(x) \oplus σx *blue.cards(x))

(2.20'') shuffled($\uparrow(\sigma x * \text{red.cards}(x)) \oplus \uparrow(\sigma x * \text{blue.cards}(x))$)

(2.20') is compatible with a reading in which the cards are shuffled together as one deck, while (2.20'') is compatible with a reading in which the cards were shuffled separately as two decks. The same occurs if conjoined noun phrases are involved. In Link's (1998, p. 78) example below,

(2.21) George and Martha and Nick and Honey hate each other.

one possible reading is that George and Martha hate each other and Nick and Honey hate each other. In this case, the representation would involve a sum of two groups, as in (2.21').

(2.21') hate.each.other($\uparrow(g \oplus m) \oplus \uparrow(n \oplus h)$)

This treatment means that plural noun phrases are ambiguous between sums and groups, resulting in two types of collective readings. Landman (2000) criticizes this result of two collective readings in Link's theory and uses it as a starting point to build upon and modify Link's approach to plurals.

Landman (2000) follows Link in his assumption about sums and groups, in that plural noun phrases denote sums of singular individuals, which are ordered by a part-of relation. Sums are non-atomic while groups are atomic, just like singular individuals.

The ability of plural noun phrases to shift from an interpretation as non-atomic individuals to an interpretation as a collective entity means that the ambiguity in noun phrases remains, which turns out to be necessary for Landman's treatment of the collective-distributive distinction, despite his preexisting assumption that the ambiguity lies in the verb phrase.

Within a neo-Davidsonian framework, Landman makes an assumption regarding thematic roles as being uniquely specified for events, which he calls "The Unique Role Requirement", realized by thematic roles being partial functions from events to individuals. The analogy between plural arguments and plural events is important for the analysis of distributive, collective and cumulative interpretations, which will be discussed in section 2.4.3.

In other words, just as plural individuals are created by sum formation, forming a lattice structure, plural events can also be created by sum formation. From these sums, groups can be formed. Given the Unique Role Requirement, Landman proposes the Collectivity Criterion, which basically states that only singular individuals can fill genuine thematic roles. Where sums are concerned, they can only fill what Landman calls a “plural role”, the nature of which is derived from the corresponding singular thematic role, but are non-thematic. Singular, thematic predication involves singular objects and groups, while plural predication involves sums and plural events, associated by plural roles. Landman’s Collectivity Criterion is what expresses Link’s cumulative reference property and is based on Krifka’s (1989) notion of cumulativity³⁵. However, while Krifka attributes cumulativity to verbs, Landman attributes the collectivity criterion to the plural star-operator being applied to the plural roles themselves. Though collectivity for Landman is applied to arguments and Krifka’s cumulativity is applied to verbs, the result is essentially the same, that basic predicates are compatible with plural interpretations even without explicit plural marking.

Like Landman (2000), Lasersohn’s (1995) work is also motivated by the potential for broadening the analogies between plurals and events. However, the particular parallels they focus on differ. While Landman ultimately attempts to account for the interaction between plurals, quantifiers and scope, Lasersohn (1995) focuses on the treatment of various kinds of conjunction. These include noun phrase, verb phrase and sentential conjunction, as illustrated respectively in the examples below.

Noun phrase conjunction

(2.22) John and Mary are asleep.

(2.23) John and Mary are a happy couple.

Verb phrase conjunction

(2.24) Mary sang and danced.

Sentential conjunction

(2.25) John sang and Mary danced.

³⁵ Krifka’s (1998) proposal on the cumulativity of predicates, particularly with respect to lexical aspect, is discussed in more detail in chapter 3.

Lasersohn's desire to account for conjunction influences how he conceives of plurals and events. The author defends an approach that treats conjoined noun phrases similarly to regular plural noun phrases, despite the traditional view that the former involves equivalence to sentential conjunction (Schein 1997). While conjoined noun phrases and plural noun phrases are not equivalent, Lasersohn proposes that the same mechanism is capable of accounting for phenomena linked to both.

In Lasersohn's semantic model, there is a domain of individuals and a domain of groups. This means, essentially, that objects are counted twice, once as individuals and once again as part of some group. So, a plural definite noun phrase, whether conjoined, like 'John and Mary', or morphological, like 'the boys', denotes a group of individuals, which are defined by the common noun. Conjoined noun phrases denote the group formed by the denotations of each conjunct. Some predicates, like 'be asleep' can contain either individuals or groups which would explain why 'John and Mary are asleep' is truth conditionally equivalent to the corresponding sentential conjunction, 'John is asleep' and 'Mary is asleep'.

For Lasersohn, groups of objects are understood as sets with members, assuming those properties common to set theory, including singleton sets to represent individuals and the possibility of higher order groups. For example, 'the girls and the boys' can be understood as a single set of all the boys and girls or as a second order group where the group of girls is one member and the group of boys is another. Despite the appearance that theories such as this must commit to an infinitely large domain of discourse, since there is no limit as to how many groups can be made of groups, Lasersohn claims this is not so. He claims that there is no need to include groups in the domain itself. A model only needs to have enough information to distinguish one model from another and no repetition is necessary. On the other hand, when higher order groups are being used, they are as much part of the ontology as individuals³⁶.

Lasersohn-groups, triggered by conjunction, are different from Link/Landman-groups, the latter of which are determined by a part-of structure and are considered collective entities. For Lasersohn, singular noun phrases denote sets of individuals, while plural noun phrases denote sets of groups or individuals. Lasersohn criticizes the

³⁶ It is evident that this singularist theory probably runs the risk of Russell's Paradox. However, the fact that Lasersohn is capable of presenting a rich and complex theory on plurality, conjunction and events in spite of the paradox suggests that it is not so troublesome that it should prevent one from linguistic theorizing. The question then is at what point should the singularist feel the need to answer to the paradox?

distinction that Link/Landman make between sums and groups because it ends up treating conjoined noun phrases and plural noun phrases as being systematically ambiguous, which goes directly against Lasersohn's main objective in his work. Lasersohn ultimately finds no special need for the distinction between sums and the Link/Landman-groups.

Lasersohn first appeals to events in order to provide an account for collectivizing adverbs like 'together'. He assumes an event mereology where two or more eventualities can be added up to form sums of events. Essentially, Lasersohn attributes to 'together' the semantic condition of overlap. This overlap can be of a different nature depending on the context, be it temporal, spatial, cooperative, etc.

- (2.26) a. John and Mary arrived together. (temporal)
 b. John and Mary sat together. (spatial)
 c. The boys baked the cake together. (cooperative)

In (2.26c), it is possible that, even if not every single boy actively contributed to the baking of the cake, the boys, as a group, could still receive credit for doing so. This is what Lasersohn calls "team credit". So, (2.26c) can be true in a situation where different groups of boys act as teams and each team of boys is responsible for baking a cake. While 'together' and "team credit" mean that the group performing the event also performs any subevents, these notions are still true even if some members of the group did not contribute equally to the realization of the event. Lasersohn's use of event mereology for such inferences is important for his treatment of the collective-distributive ambiguity, discussed in section 2.4.3.

In addition to noun phrase conjunction, Lasersohn aims to accommodate sentential as well as verb phrase conjunction in his theory of plurals. For him, sentences denote sets of eventualities, and verb phrases denote functions from eventualities to sets of groups and/or individuals. Lasersohn extends this treatment of groups of events to the analysis of pluractional markers. Pluractionality refers to a kind of verbal plurality that is often marked by morphological affixes on the verb. The plurality can refer to multiple actions, participants, times or locations. However, this kind of pluractionality can also be expressed lexically in languages like English with expressions such as 'over and over' and 'keep x-ing'. Lasersohn provides pluractional markers with the converse meaning of 'together'. Instead of signifying temporal overlap, pluractionality signifies

separation, or non-overlap. The non-overlap portion of the pluractional meaning can be negated for continuous readings. Lasersohn treats pluractional markers as applying to groups of events, much in the same way that plural noun phrases denote groups of individuals³⁷. Hence, sentential and verb phrase conjunction are also seen as group-forming operations. Similarly to pluractional markers, they are groups of events. Lasersohn concludes that all conjunction is group-forming.

Following Landman (2000)³⁸, Kratzer assumes explicitly that all predicative stems are born as plurals. This means that intransitive verbs denote both singular and plural events while transitive verbs denote relations between singular/plural events and singular/plural entities. Kratzer assumes a weak notion of plurals where singularities are special cases of pluralities. This conception of plural meaning has been formalized as a hypothetical constraint called “The Cumulative Universal” which states that the denotations of basic predicates are cumulative from the very start. Aside from lexical cumulativity, Kratzer proposes phrasal cumulativity, present in plural determiner phrases (DPs). Plural agreement features on DPs can be “released” so that they can pluralize the adjacent verbal projection. These types of cumulativity together serve as the sources for the different interpretations of plurals to be discussed in 2.4.3.

Kratzer assumes a lattice structure of the domain of entities and a domain of eventualities, both of which include singulars and plurals. Both domains are cumulative under the sum operation. Moreover, the sum operation can be extended to ordered pairs of entities and eventualities, as in (2.27). This notion includes thematic role predicates as well.

(2.27) $\langle \text{Mary, dance}_1 \rangle + \langle \text{John, dance}_2 \rangle = \langle \text{Mary+John, dance}_1 + \text{dance}_2 \rangle$

Though cumulativity is inherent in basic predicates, one can, as Kratzer does, maintain the use of the pluralization *-operator, defined as a function that “maps sets that come with a sum operation to their smallest cumulative superset” (2005, p. 270).

³⁷ The data presented in Lasersohn’s discussion on pluractional markers appear to be very informal and non-systematic, but have since generated quite a bit of semantic research in various languages. Some studies include: van Geenhoven (2005) on pluractionality and adverbs of quantification, Yu (2003) on the Chechen language and Muller and Sanchez-Mendez (2008) on the Karitiana language. The notion of pluractionality will be taken up again in the next chapter as it has been observed in subsequent research that it involves interactions with both lexical and grammatical aspect.

³⁸ Kratzer (2003) also follows Krifka (1989), whose work is discussed in more detail in chapter three.

In characterizing singular individuals, sums and groups, Kratzer (2003) suggests that they can be distinguished according to how they behave as agents. In this neo-Davidsonian framework, singular agents, according to Kratzer, satisfy the “single agent constraint”, which states that if x is the agent of event e , then x is the agent of any subevent of e . So, if Mary is the agent of an event of cooking dinner, she is also the agent of any subevent of cooking dinner, like chopping the onions, turning on the stove, etc. This is not true if Mary and John are the agents of cooking dinner. The sum of Mary and John may not be the agents of the smaller events that are part of the larger cooking dinner event. On the other hand, Kratzer proposes that groups do adhere to a kind of singular agent constraint. Not that groups are necessarily singular in nature, but just that they behave like singulars. This means that if a group is the agent of some event, then that group is the agent of the respective subevents. Taking the example of a soccer game, even though a single player scores a goal, it is attributed to the team as a whole. It is just in this sense that groups behave like singular individuals. Kratzer’s constraint is basically a neo-Davidsonian reformulation of Lasersohn’s “team credit”, discussed earlier.

Contrary to the unrestricted composition principle by Lewis (1991), Kratzer describes her groups as substantive groupings of pluralities that exist in the real world, such as teams, piles, clubs and committees, but no “trout-turkeys” (see section 2.2). Substantive groups are different from Link’s groups, which are formed based on sums with a group-forming operation. Instead, Kratzer proposes that we do not need groups in addition to sums in our domain of discourse. Recall that Landman-groups are introduced since they are believed to be necessary to distinguish between collective and distributive readings. This results in type-shifting noun phrases. Kratzer claims that instead of collective entities, there should be collective eventualities. Therefore, when an eventuality is collective, it will subject the plurality acting as agent to the single agent or single possessor constraint (depending on whether the verb phrase corresponds to an event or a state). This maneuver removes the ambiguity from the noun phrase and sends it back to the verb phrase. This way, sums are no different from substantive groupings as such, except for whether they are participating in a “perceptually salient” collective eventuality or not (Kratzer 2003). Further discussion on the collective-distributive distinction follows in section 2.4.3.

In sum, the differences in how the singularist theories discussed in this section define plurals and how events contribute to these definitions will have a direct affect on

how they account for the different readings that arise in sentences with plurals. There are two fundamental notions that determined how each theory varies: i) whether the ambiguity lies in the NP or VP (or both); and ii) the possibility of plurality without plural marking. The next section discusses the view that confronts all of the theories discussed in this section, despite theory-internal variations. The view that plurals are predicates denounces any kind of objectual treatment of plurals, based mostly on Boolos' observation that they lead to Russell's Paradox. However, the next section will focus primarily on the (logical-)linguistic consequences of Russell's Paradox and other linguistic data that pluralists say an objectual view may not be able to account for.

2.4.2 Plurals as Predicates

This section presents the pluralist perspective in the linguistic domain, represented here primarily by the works of Schein (1993) and Pietroski (2005). In assuming that plurals should be treated as predicates, pluralists believe that philosophical objections to the singularist view have real linguistic consequences and are not restricted to metaphysical banter. This means that, according to this view, Russell's Paradox needs to be confronted in order to provide a proper treatment of plurals. If this is correct, then the relation between philosophy and linguistics is more continuous than singularists let on.

Following Boolos (1984, 1985), Schein assumes a monadic, second-order logic where second-order variables are assigned many objects, and these objects do not need to form a set. This means that a single argument place can be simultaneously satisfied by many objects. This way, the meaning of plurals is located in the denotation relation as opposed to the object that is denoted. A second-order representation is necessary so as not to make any new ontological commitments than those afforded by the first-order logic. There are no sets, sums or groups added to the primitive inventory of entities. However, it is not the ontological commitment that motivates Schein's work, but his belief that a semantic theory based on sums or sets will not always give the right logical forms when it comes to the interpretation of sentences with certain types of plurals.

According to Pietroski (2005), Russell's Paradox represents a logical constraint on the available sets. So, while a plural entity account in a set-theoretic framework would be able to account for a sentence such as (2.28), it would not be able to account for (2.29), since, according to logic, there is no such set.

(2.28) Every pet that does not own itself is a pet.

(2.29) Every set that does not contain itself is a set.

In a view that assumes predicates can have many values, both examples above are treated equally. The advantage of this approach is the ability to provide a logical representation for sentences such as (2.29), represented below in (2.30) (from Pietroski 2005, p. 109), without risking Russell's Paradox.

(2.30) $\exists X[\forall x(Xx \leftrightarrow x \notin x)]$ ³⁹

(2.31) "There is a set_X such that for each thing_x, it_x is an element of it_X iff it_x is not an element of itself_x".

(2.32) "There are some things_X such that for each thing_x, it is one of them_X iff it_x is not an element of itself_x".

The set interpretation in (2.31) is false since, as previously mentioned, there is no such set as that described. On the other hand, the plural interpretation, in (2.32), would be true. According to Pietroski (2005), the difference is not in how the sentence is represented in the logical form, but how it is read. Moreover, in a theory that assumes sums, the corresponding sentence would be as in (2.33).

(2.33) Every sum that is not a part of itself is a sum.

In this case, talking about a non-existent sum would just lead to indeterminacy instead of Russell's Paradox (Zweig 2008). However, Schein (1993) presents the following inference which forms the basis of his arguments against the "objectual view".

(2.34) There exists an elm \vdash The elms exist.

³⁹ In this perspective, according to Pietroski (2005), x represents the singular variable and X , without restriction, is neutral. The latter variable is only explicitly plural with a plural restriction, as in ' X :Plural(X)'. This way, X is compatible with both plural and singular restrictions. This idea suggests that the nature of basic predicates adheres to a weak notion of plural, one which is compatible with singularity. If this is correct, it is similar to the idea behind the Cumulativity Universal, defended by some singularist accounts, which claims that basic predicates are born plural. This will be discussed in more detail along the course of this chapter.

Schein claims that the above inference could not be captured by a singularist view and would require ad hoc extra-logical axioms. This is because the logical form of ‘the elms’ requires some kind of ‘is on of’ relation in order to express that an elm is one of the elms. However, a representation that depends on this kind of relation is what makes it susceptible to Russell’s paradox, according to Schein.

The problem with this particular inference is Schein’s apparent portrayal of the plural, as meaning “one or more” as opposed to “more than one”. While it has been assumed that a so-called “weak” notion of plurality is compatible with a “one or more” meaning, this is with respect to basic predicates (Kratzer 2003), and not to predicates with plural morphology. This distinction is reflected in Kratzer’s definitions for lexical versus phrasal cumulativity. Since the inference in (2.34) incorrectly depends on a “one or more” meaning of the plural morphology in order to go through, this particular argument against the singularist view is weakened.

Regardless of the above observation, most proponents of the singularist view claim that the Paradox is not linguistically relevant. Landman (2000), for one, discards the Paradox completely by pleading the “Semanticist’s First Amendment” (2000, p. 79): “the right to resolve Russell’s Paradox some other time is not restricted”. Most other event-based approaches to plurals implicitly follow suit. Singularists appear to treat the paradox on a par with identity and individuation criteria, in that it is not necessary to address these topics in order to theorize about plurals and events. However, even if this is a valid plea, Schein claims that characterizing plurals as predicates accounts for a broader range of linguistic data and gives the right results regarding the relevant inferences involved in sentences with plurals and quantifiers.

The focus of Schein’s work is on “essential plurals”, which, unlike singular objects and certain quantified noun phrases like ‘every boy’, do not easily reduce to reference to objects. For example, in Schein’s example (2.35) below, it cannot be said that a group of rocks is such that *it* rained down or that each rock is such that *it* rained down.

(2.35) The rocks rained down.

The sentence just seems to mean that the rocks are such that *they* rained down. Instead of the sentence being about some plural object, in this case the rocks, it is about an event of raining down, and each of *those* rocks participates in that event. Moreover, the

rocks are the only things that rained down. So, (2.35) would be represented as in (2.35') below.

(2.35') $\exists e(\text{rained.down}(e) \ \& \ \underline{\forall x(\text{Subject}(e, x) \leftrightarrow \text{the rocks}(x))})$

'The rocks' is represented by the underlined portion in (2.35'). As can be seen, Schein's representation of plurals requires not only a reference to events, but to a neo-Davidsonian reference to events and thematic roles. In general, thematic roles depict the nature of the relation between the plural object and the event. In the pluralist perspective, the thematic role is part of the plural meaning itself. This way, plural predication is reduced to singular predication of objects and events where the plurality itself is allocated to the relation that holds between the objects and the event. This reduction, called decomposition, is necessary for every argument position in which a plural might occur (Schein 1993, p. 4). Schein claims that this approach is a natural consequence of what it takes to account for arguments behind Russell's Paradox.

Examples like (2.35) show that some things can be true of a plural predicate even though each of those things fail to be true of that plural predicate. This is precisely because a predicate can have many values. Schein assumes exhaustive reference to an event's participants which means that each thematic role is uniquely specified for the event in question. So, plural noun phrases are predicates that denote all and only those singular individuals that bear a particular thematic relation to the event.⁴⁰

Given this perspective on plurals, that each singular object participates in the event, it becomes clear that a mereological approach to events is required. This is because each singular object's participation is considered a subevent, and all the participations are added up and related to the larger event. A mereology of events is also important for cross-reference of events. Consider (2.36) from Schein (1993, p. 7).

(2.36) Unharmoniously, every organ student sustained a note on the Wurlitzer for sixteen measures.

⁴⁰ Schein's (2002) notion of exhaustivity is different from Landman's Unique Role Requirement discussed in the previous section. For Schein, thematic relations are complex and exhaustivity can hold when the Uniqueness requirement does not. For exhaustivity, there can be many participants in a single thematic role, as long as each of their activities are of the nature described by the thematic role and the event in question. For Landman, thematic relations are simple and so there can only be one participant per thematic role. In this sense, Landman's plural roles are still thematic roles for Schein.

In (2.36), it is not the case that each organ student sustained a note that was unharmonious and that was for sixteen measures. On the contrary, each student's sustaining a note is a smaller event that contributes to the larger event and this larger event is what is unharmonious. This part-whole relation involves a distributive quantifier over parts of events. In other words, distributing over individuals is understood as distributing over events.

Schein argues for radical decomposition, where thematic roles are not only separated in the lexicon, but also in the logical syntax. This is called "essential separation". Separation is required to represent the truth conditions of sentences that combine independent and dependent quantifiers. This separation can be paraphrased as in (2.37').

(2.37) Three videogames taught every quarterback two new plays.

(2.37') There was an event of every quarterback, being taught two new plays, and *there*⁴¹ three videogames were the teachers.

Schein believes that the paraphrase in (2.37'), which involves vagueness with respect to which videogames taught which quarterbacks, is a direct result of an essential separation of thematic roles, present in the logical syntax. In general, Schein claims that vagueness always results when more than one plural occurs in a sentence since, "this is what makes plurals essential" (1993, p. 16).

However, the idea of separation is not affected by one's assumption of plurals as either predicates or objects. This means that regardless of one's take on what plurals are, essential separation would be necessary for a theory of plurals and events anyway. Moreover, this kind of separation must be achieved by a neo-Davidsonian approach to events.

Mereology is also used for individuating events in Schein's theory. Individuation at the linguistic level is to give the correct logical representation and interpretation for certain predicates and not to define and characterize events in metaphysical terms.

⁴¹ Moreover, essential plurals are characterized by the fact that quantified expressions are scope-independent. In order to hold the separate conjuncts involving the quantifiers together, cross-reference to events is required, represented by the *there*-anaphora in (2.37') and by the existentially bound event quantifier in the corresponding logical representation in (i) below.

(i) $\exists e([\exists X: 3(X) \ \& \ \forall x(Xx \rightarrow Gx)] \forall x(\text{Subject}(e,x) \leftrightarrow Xx) \dots$
 [every $y: Qy$][$\exists e': e' \leq e$] ...)

- (2.38) a. The Carnegie Deli sits opposite the Carnegie Hall.
 b. The Carnegie Hall sits opposite the Carnegie Deli.

The events in (2.38a) and (2.38b) cannot be identical, because then we would be able to infer that the Carnegie Deli sits opposite the Carnegie Deli, which would be incorrect. It is mereological overlap that determines whether two events are identical or not. Since two or more events can occupy the same spatiotemporal location, the stronger notion of mereological overlap is incorporated as a condition on the interpretation of the existential event quantifier (1993, p. 125). With symmetrical predicates being non-identical, we get a finer-grained ontology⁴².

Differently from what is assumed about plurals in a mereological framework, in which sums or fusions are formed, Schein does not assume that a mereology of events leads to the assumption that a plurality of events combines to form a sum or fusion. Talking about groups of events does not lead to the metaphysical assumption of the existence of sums of events.⁴³

Schein's main focus is on the proper treatment of plurals (as predicates) and their interaction with multiple quantifiers. However, some of his ideas, particularly those that do not depend on the assumption that plurals are predicates, have been adapted to singularist frameworks to account for the different readings of sentences with plurals (Kratzer 2003). Some of these ideas include the need for neo-Davidsonian

⁴² Schein (2002) argues for a more coarse-grained ontology in order to maintain certain intuitions about event identities. In order to do so, he proposes the notions of scenes and reticules, which account for the fine-grained intuitions behind exhaustivity (that the Carnegie Deli cannot sit across itself), while events remain "medium-grained subjects of intuition" (2002, p. 274), such that (2.38a) and (2.38b) cannot take place without one another. See Schein (2002) for details.

⁴³ This begs the question: if events are concrete particulars, as Schein assumes, like objects, and events can have a mereological structure, like objects can (at least in the singularist perspective), and if a mereological approach to plurals leads to Russell's Paradox, then wouldn't a mereological structure of events be susceptible to the paradox as well? Russelling events can be done by referring to events that are not their own themes. In fact, according to Schein (2005), this event-ish equivalent of the paradox is a risk for any neo-Davidsonian approach regardless of whether plural or singular events are involved and also regardless of one's views on what plurals are. However, instead of giving up on events, the way Schein says some semanticists (read: singularists) have given up on truly plural predication, there is a way to avoid Russelling events. This solution depends on the author's assumptions regarding clause structure and exhaustivity. With respect to clause structure, Schein assumes that a relation of mereological overlap relates the events that agents do and the events that happen to patients. The distributive nature of exhaustivity, coupled with the mereological coincidence of events that subjects and objects participate in, events and their themes do not contradict. See Schein (2005) for a more detailed discussion. Schein's desire to confront the paradox with respect to events, as opposed to pleading the "Semanticist's First Amendment" reveals his desire to preserve the linguistics-philosophy "matrimony", differently from singularists. This analysis also supports Schein's assertion that the paradox is a legitimate linguistic concern.

decomposition to represent the meaning of plurals as well as the idea that the vagueness of essential plurals is due to their being scope-independent (Landman 2000).

2.4.3 Readings with Plurals: Collectivity, Distributivity and Cumulativity

After discussing in the previous section how different authors use events in the analysis of plurals, this section relates how those same analyses are implemented in order to account for the different readings that arise with plurals, namely, collective, distributive and cumulative readings. For example, some predicates, such as ‘sleep’, ‘bleed’ and ‘jump’, only allow a distributive reading, as in (2.39). This is equivalent to (2.40). ‘The boys slept’ is true if and only if every boy slept.

(2.39) The boys slept.

(2.40) Every boy slept.

Distributive predicates denote properties that apply to individuals only, and not to groups or collections of individuals. Other types of predicates, such as ‘gather’, ‘split up’ and ‘meet’, can only give rise to a collective reading.

(2.41) The girls gathered.

(2.42) *Every girl gathered.

These differences persist with conjoined noun phrases as well, as shown by the distributive examples in (2.43) and the collective examples in (2.44).

Distributive

(2.43) a. John and Larry left.

b. John left and Larry left.

Collective

(2.44) a. John and Mary are a happy couple.

b. *John is a happy couple and Mary is a happy couple.

Then, there are what are sometimes called “mixed predicates” (Link 1998, Landman 2000), which allow both collective and distributive interpretations, leading to an ambiguity. These predicates include ‘build a table’, ‘lift a piano’ and ‘eat a pizza’.

(2.45) The girls (Mary, Jane and Paula) lifted the piano.

The ambiguity can be resolved explicitly with collectivizing adverbs like ‘together’ or distributive adverbs like ‘each’. Moreover, the readings of collectivity and distributivity can be compounded with scope when the singular definite ‘the piano’, in (2.45), is replaced by its indefinite counterpart ‘a piano’. We then get two more readings, depending on whether ‘a piano’ takes wide or narrow scope. This leads to four combinations, though two of the readings are equivalent, (1) and (3):

1. Girls: collective; piano: narrow scope. There is a group x of girls and a piano y such that x lifted y . There is one lifting act and one piano lifted.
2. Girls: distributive; piano: narrow scope. There is a group x of girls, each of whom lifted y . There are as many acts of lifting as there are girls (in (2.45), three), and as many pianos lifted as acts (in this case, three).
3. Girls: collective; piano: wide scope. There is a piano x and a group y of girls such that y lifted x .
4. Girls: distributive; piano: wide scope. There is a piano x and a group y of girls such that each girl lifted y . There are three lifting acts and one piano.

Four more readings are possible if there are plural noun phrases in both argument places, as in ‘the girls lifted three pianos’.

Sentences with cumulative interpretations were first observed in detail by Scha (1981). In Scha’s example in (2.46), for example, there is simply a relation of using that holds between 600 Dutch firms and 5000 American computers. There is no other restriction beyond this.

(2.46) 600 Dutch firms use 5000 American computers.

With the cumulative reading, there is the possibility of a cumulative-collective ambiguity as well. For example, in (2.47), there is the collective reading where three

professors wrote jointly five papers and the cumulative reading where three professors wrote five papers between them, with no commitment regarding possible collaborations.

(2.47) Three professors wrote five papers.

The following discussion on distributive, collective and cumulative readings surrounds the way in which each is represented in the theories discussed so far in this chapter and whether they in fact involve three distinct representations in the grammar. While the collective-distributive ambiguity is the focus of the next section, cumulativity will be discussed whenever relevant, that is, it will not be discussed independently of its relation to collectivity and distributivity.

Given the various ways in which plurals and events are conceived of, the natural question is how the collectivity-distributivity ambiguity is to be represented in the grammar. The literature has discussed at least four ways in which this ambiguity can be treated:

1. Ambiguities in the noun phrase (Lakoff 1972, Bennett 1975, Gillon 1992);
2. Ambiguities in the verb phrase (Link 1983, 1998; Landman 1996, 2000; Dowty 1986; Lønning 1987; Schwarzschild 1991; Lasersohn 1995);
3. Ambiguities in neither (Roberts 1990, Schwarzschild 1992). In this case, the ambiguities are due to the way in which certain combinations of predicates and arguments are interpreted;
4. Ambiguities are due to quantifier scope (Higginbotham and Schein 1989).

Of the above approaches, Link (1984) and Landman (2000) will be discussed in terms of (1) and (2), since they attribute some ambiguity to noun phrases as well, as discussed earlier. The remaining singularist theories discussed in the previous section fall under the second approach while the pluralist theories generally assume the fourth perspective, where the ambiguities are treated with scope. The third approach will not be discussed here.

2.4.3.1 Singularist approaches to the plural readings

With regards to collectivity and distributivity, Link's (1983, 1998) work is the point of departure for many. Though Link admits some ambiguity in noun phrases, in that the

denotations of plurals can be understood as sums as well as groups, he essentially attributes the collective-distributive ambiguity to the verb phrase. The reason for this is that the very same plural noun phrase can simultaneously appear in both a collective and distributive reading, as in Link's (1998, p. 50) example (2.48).

(2.48) The Beatles split up and (each) started a solo career.

In the first conjunct, 'The Beatles split up' is interpreted collectively, since it cannot be said that each Beatle split up. The natural reading of 'The Beatles started a solo career' is that each one of them started a solo career, which is a distributive reading. If the collective-distributive ambiguity were to be derived from the plural noun phrase alone, it would be impossible to give the truth conditions in contexts such as (2.48), which involve both types of readings. However, this is also an argument against Link's distinction between sums and groups, and so, it is not clear how one is to incorporate both sum and group meanings into a single NP in the logical form. This is an important drawback for the Link/Landman method of representing plurals.

Collective predicates such as 'gathered' and 'meet' only admit sums in their extensions, while distributive predicates such as 'sleep' and 'leave' allow only atomic individuals in their extensions. While all pluralized NPs receive a star-operator, only distributive VPs receive one.

(2.49) a. The boys sleep. (distributive)

b. *sleep(σx *boy(x))

(2.50) a. The girls gathered. (collective)

b. gather(σx *girl(x))

Mixed predicates, such as 'eat a pizza' or 'lift a piano', can have both sums as well as atomic individuals in their extensions, which is what gives rise to the collective-distributive ambiguity. Link (1983) resolves this ambiguity by introducing a silent D(distributive)-operator which appears on the verb phrase for distributive readings. For collective readings, this operator is absent. So, in (2.51), the D-operator is optionally added depending on the interpretation intended.

(2.51) a. The boys ate a pizza.

- b. ${}^D\text{eat.a.pizza}(\sigma x^*\text{boy}(x))$ (distributive reading)
- c. $\text{eat.a.pizza}(\sigma x^*\text{boy}(x))$ (collective reading)
- d. $\text{eat.a.pizza}(\uparrow(\sigma x^*\text{boy}(x)))$ (collective reading)

The benefit of this view is that collective and distributive readings receive similar logical representations, the only difference being the presence or absence of the D-operator. However, given the sum-group ambiguity, we get two collective readings as shown by (2.51c) and (2.51d). Having built in ambiguity into both the NP and the VP, Link has generated an unnecessary reading.

Moreover, recall that the star-operator was initially introduced by Link (1983) to capture the cumulative reference property of predicates, but in sentences with distributive interpretations, the cumulative reference also holds. Thus, the distinction between the star-operator and the D-operator is not clear and consequently, the relation between cumulativity and distributivity is lost.

Landman (1995, 2000) assumes Link's work as a starting point, aiming to solve the problems left open regarding the distinction between groups and sums and their roles in the collective-distributive ambiguity. Following Link, Landman claims the ambiguity resides in the verb phrase.

Landman proposes that the function of Link's distributivity operator can be defined in terms of the star-operator. When the star-operator applies to a noun phrase, it forms a plural predicate, and when it is applied to a verb phrase, it creates distributive interpretations. This way, distributivity is reduced to semantic plurality and the D-operator is no longer necessary. That is, distributivity is plural predication involving sums. Collectivity, on the other hand, involves a non-starred predicate and, as in example (2.52), the group-forming operation applies to 'the students'.⁴⁴

- (2.52) a. The students carried the piano upstairs.
- b. $*\text{CARRY}(\sigma(*\text{STUDENT}))$ (distributive)
 - c. $\text{CARRY}(\uparrow(\sigma(*\text{STUDENT})))$ (collective)

⁴⁴ Landman (2000) assumes that starred predicates are the unmarked, unsorted form, because a starred predicate, *P, still allows the argument to be singular, collective or plural. This is compatible with saying that all predicates start out cumulative, since cumulativity is also compatible with singular, collective and plural interpretations. This is basically the same as Kratzer's (2003, 2005) assumption of the Cumulativity Universal.

Applying pluralization to the predicate CARRY in (2.52b) makes it distributive and ‘the students’ also requires pluralization of the singular ‘student’, which results in a sum of individuals. The representation in (2.52c) shows that the predicate is not pluralized and the sum of students shifts to a group interpretation. So, distributivity is plural predication to sums while collectivity is singular predication to groups. It is also clear that ambiguity remains in both the VP and NP.

Landman’s (2000) analysis of collectivity and distributivity has consequences for the way in which thematic roles are understood in the version of neo-Davidsonian event semantics that he assumes. This is summed up in his aforementioned Collectivity Criterion, which states that a collectively interpreted noun phrase receives a thematic role while a distributively interpreted plural noun phrase receives a non-thematic role. This is because Landman defends that, in order for the notions of agent and object to have semantic content as opposed to just being labels, only a singular individual can fill a thematic role at a time. That means, only singular noun phrases and groups can fill a thematic role. In an example like (2.53),

(2.53) The boys sing.

The property of singing is not predicated of the sum of boys, but of each individual boy. Allowing a sum to fill a thematic role would render the role semantically useless. This way, Landman claims that sums can only fill plural roles, which are defined based on the corresponding thematic roles. One can conclude then, that thematic predication is singular predication and vice versa.

Collective inferences in Landman’s theory are drawn from the general theory of thematic roles or the nature of the arguments filling the thematic role, which are groups instead of individuals. This way, Landman claims that the types of inferences possible with singular and collective predication are basically the same. In an inference that Landman calls “collective body formation”, individuals and groups are both submitted to a part-whole structure.

(2.54) a. The boys touch the ceiling.

b. I touch the ceiling.

Both examples mean that “part of the agent is in surface contact with part of the theme” (Landman 2000, p. 166). Another parallel inference between groups and individuals involves “collective action”.

- (2.55) a. The boys carried the piano up stairs.
 b. I carried the piano up stairs.

Similarly to Lasersohn’s “team credit”, it is not necessary in (2.55a) for every boy to be directly involved with carrying the piano up the stairs, just as not every part of the agent’s body in (2.55b) needs to be directly involved in the carrying either⁴⁵. However, in both sentences, the action is said to be done by ‘the boys’ or ‘I’. A third related collective inference involves “collective responsibility”, where not every individual needs to be directly involved in the action in order to be considered responsible.

- (2.56) a. The gangsters killed their rivals.
 b. Al Capone killed his rivals.

In (2.56a), not all the gangsters need to have directly killed the rivals to receive some responsibility, just like in (2.56b), Al Capone did not have to pull the trigger to be responsible for the killing. However, there are some counterexamples to these types of collective inferences, provided by Brisson (1998, p. 65).

- (2.57) a. The soldiers of the 4th platoon were captured by the enemy.
 b. Bill was captured by the enemy.

(2.57a) can be true even if one or two soldiers had managed to escape. However, it does not seem that a similar inference could be made of (2.57b). Another pair of examples, in (2.58), suggests singular and collective predication are not necessarily equivalent.

- (2.58) a. Jane knows the answers to these questions.
 b. Jane knows the answer to this question.

⁴⁵ The idea that parts of collections and parts of individuals are analogous is contested by Schein (2002). See footnote 52.

In a context where Jane is considering a list of questions, she doesn't need to know the answers to every single one in order for (2.58a) to be true. However, in (2.58b), in a context where the question is a long math problem with different subparts, the sentence can only be true if Jane knows the answer to the entire question including the subparts⁴⁶.

Another consequence of the Collectivity Criterion is that cumulativity is closer to distributivity in meaning than with collectivity, since cumulativity also does not involve thematic predication, as seen in the example below.

(2.59) Seven women gave birth to fifteen children.

It is not the case in the sentence above that each of the seven women gave birth to fifteen children. Though this distributive reading does exist, it is not the salient one. A collective reading suggests that the seven women together gave birth to the group of fifteen children which is incorrect⁴⁷. In the cumulative interpretation, nothing is said about which children were born to which women. This reading is represented as in (2.59') (Landman 2000, p. 175).

(2.59') $\exists x \exists y [\text{woman}(x) \ \& \ \text{child}(y) \ \& \ |x|=7 \ \& \ |y|=15 \ \& \ \text{give.birth}(x,y)]$

In sum, distributivity and cumulativity are reduced to plurality, receiving non-thematic roles while collectivity is reduced to singularity, receiving thematic roles. However, distributive and cumulative interpretations are maintained distinct due to their difference in scope relations. Distributive readings are scoped while cumulative readings are scopeless⁴⁸.

In line with Link and Landman, Lasersohn (1995) assumes the collective-distributive ambiguity is attributed to the verb phrase. As mentioned in section 2.4.2, Lasersohn only assumes groups as opposed to both sums and groups. He maintains

⁴⁶ These judgments are based on Brisson (1998), though they are not agreed upon by everyone. Some claim that (2.57a) must include all the soldiers and in (2.58a), Jane must know all the answers.

⁴⁷ To further distinguish cumulative from collective readings, Landman cites contexts with downward entailing quantifiers.

(i) a. At most seven women gave birth to at most fifteen children.

b. $\exists x \exists y [\text{woman}(x) \ \& \ \text{child}(y) \ \& \ |x| \leq 7 \ \& \ |y| \leq 15 \ \& \ \text{give.birth}(x,y)]$

The *at most*-quantifier means the sentence is compatible with no women giving birth, but analyzing the cumulativity as collectivity, as in (ib), would give the wrong result of the quantifier taking scope under the existential quantifier, which is compatible with there being some women who gave birth.

⁴⁸ Landman attributes this idea to Schein (1993).

Link's (1983) distributive operator to represent distributive interpretations, while its absence results in a collective reading. Lasersohn's groups, unlike Landman's groups, can occur in both distributive and collective interpretations. This way, Lasersohn eliminates ambiguity from NPs⁴⁹. With the ambiguity located solely in the VP, Lasersohn assumes that distributive interpretations receive the D-operator while collective interpretations do not.

As mentioned in 2.4.2, in order to provide a semantics for 'together', Lasersohn appeals to event mereology, which turns out to be the means by which collective and distributive meanings are distinguished. Basically, the meaning of 'together' adds a clause that the agents of any subevent must be the same as the agents of the larger event. Consequently, collective and distributive readings can be distinguished based on whether the event or events in question involve subevents or not. In example (2.60),

(2.60) John and Mary lifted the piano together.

Both John and Mary are involved in lifting the piano and any smaller event that involves lifting the piano still has both John and Mary as agents. In other words, on the collective reading with the group of John and Mary as the agent, there are no subevents where only John or only Mary does any piano-lifting.

Parting from the collectivizing meaning of the adverb 'together', distributive readings are understood as involving subevents performed by different members of the group in the subject position, while, in collective readings, the subevents are performed by the same members of the group as the larger event. In (2.60), without 'together', the distributive reading means there are subevents of piano-liftings where John and Mary each lift the piano. On the collective reading, John and Mary lift the piano together, and there are no subevents of piano-liftings that do not involve both John and Mary. Given this participant-based interpretation of the collective-distributive ambiguity, perhaps the use of the D-operator is no longer necessary, though Lasersohn does not discuss this.

⁴⁹ On the other hand, the distinction has been useful for the treatment of collective versus cumulative readings, the latter of which Lasersohn does not discuss. It has been argued that cumulative readings are grammatically distinct from collective readings (Scha 1981, Link 1998, Landman 2000). While the consequence is that ambiguity is in both the noun phrase and verb phrase, Link/Landman-groups versus sums appear to provide a natural treatment of the collective-cumulative ambiguity. In an example such as 'Five professors wrote ten papers', there is the collective (Link/Landman-group) reading where the five professors together wrote the ten papers. The cumulative (sum) reading refers to the sum of professors and the sum of papers in a writing relation, with no sense of collaboration. It is not clear how Lasersohn's theory would account for this type of reading.

Kratzer (2003, 2005) considers collectivity to be a singular property applied to a plural individual and distributivity a plural property applied to a plural individuals. Both cases involve plural individuals, differently from Landman's analysis. This means Kratzer's analysis attributes the collective-distributive ambiguity entirely to the verb phrase, removing any ambiguity from the noun phrase.

In collective interpretations, plural individuals behave like singular individuals in terms of their role as agent and, in distributive interpretations, those same individuals behave like plurals. However, for collective interpretations, the plural individuals must adhere to the single agent constraint for events and the single possessor constraint for states. This way, it is the job of the thematic relation to decide how the noun phrase should be interpreted. Those pluralities that adhere to the single agent/possessor constraint are considered substantive groupings. These groupings correspond to cognitively salient collections in the world such as piles, bunches or committees. They cannot refer to random sums of individuals.

Collective nouns, such as 'choir' and 'committee', are treated as relations between sums and substantive groupings of sums, the latter of which Kratzer refers to as collective states. In order for Kratzer to eliminate a formal distinction between sums and groups in the sense of Link and Landman, she assumes the existence of collective eventualities. In (2.61) below, the collective noun in 'that pile of plates' is understood as the relation between the plates and the state of being in a pile.

(2.61) John destroyed that pile of plates.

Link/Landman-groups would treat the plates as a sum and the pile of plates as an independent group. Kratzer claims it is unclear what happens to the sum and the corresponding group when John does the destroying. It is not clear whether one could be affected without affecting the other. Essentially, in Kratzer's analysis, the work of groups in Link/Landman is shifted to group events and states. So the idea that pluralities are seen as singularities is due to the particular way in which they participate in collective states and events as well as substates and subevents.

Different from Landman, Kratzer suggests that no grammatical distinctions be made between cumulative and collective interpretations. An example such as (2.62), from Kratzer (2005, p. 280), is compatible with a situation in which the two boys lifted the boxes together and the two girls each lifted the boxes alone.

(2.62) The two boys lifted the two boxes and the two girls did too.

This means there is no ambiguity here. In the example in (2.63), aside from having the cumulative and collective readings lumped together, there are also two kinds of distributive readings, which Kratzer attributes to Landman (1989).

- (2.63) a. Two children lifted two boxes.
 b. (two children) *[lifted two boxes]
 c. (two boxes) * λ_1 [two children lifted t_1]

These distributive interpretations, when produced by a plural DP, should be derived by pluralizing its sister predicate. This is what Kratzer refers to as “phrasal cumulativity”. One of the distributive interpretations of (2.63) involves applying a star-operator to the subject’s sister constituent, as in (2.63b). This means each boy lifted two boxes. The other involves raising the direct object over the subject and applying a star-operator to the object’s sister constituent, as in (2.63c). This means each box was lifted by two boys. Consequently, the collective and cumulative readings can again be lumped together with either the subject distributive reading or with the object distributive reading. Collectivity and cumulativity is derived from lexical cumulativity while the distributive readings are derived from phrasal cumulativity. There are no other grammatical distinctions made between these readings. Kratzer confirms this with an example that mixes distributive and collective interpretations in another VP-ellipsis context (2005, p. 282).

(2.64) The two chefs cooked a stew, and the two students did, too. The chefs were very experienced, so they each prepared a Moroccan tagine. The two students worked together on a Boeuf Bourguignon.

After considering three singularist approaches to plurals and their respective accounts of distributive, collective and cumulative readings, let us see how a pluralist account goes about it.

2.4.3.2 The pluralist approach to the plural readings

In Schein's (1993) and Higginbotham and Schein's (1989) neo-Davidsonian framework, collectivity and distributivity have to do with event participation, similarly to singularist approaches that do not appeal to NP ambiguity⁵⁰. This is why Schein considers separation of thematic roles to be essential. In addition to neo-Davidsonian decomposition, these authors also appeal to an event mereology in order to represent the collective-distributive ambiguity. Recall that plurals are predicates and plural predication is always reduced to singular predication. That is, plurals never directly involve singular predication as if they were individuals themselves. Distributive predicates distribute simultaneously over individuals and parts of an event⁵¹. Therefore, a distributive interpretation is achieved when there is quantification over events in each of which a single individual participates in a given role. A collective interpretation is achieved when multiple individuals participate in the same role⁵². These ideas are based on at least three of Boolos' (1984) intuitions: i) that plurals can be treated as second-order variables; ii) that second-order variables can be assigned many objects (collectivity); and iii) predicates can denote every object that they are true of (distributivity).

⁵⁰ The difference is in how this participation is encoded. Singularist views like that of Kratzer (2003, 2005) encode the participation in the thematic role, while Schein (2002) encodes it directly into the verb, or in what he calls "scene structure".

⁵¹ Though Schein may not agree, this idea could feasibly be extended to distribution over whole events, which will be discussed in chapter three.

⁵² Landman (2000) criticizes Schein's (1993) approach, which allows thematic roles to be filled by many individuals. Landman claims that this results in a semantic weakening of the notions of agent and theme, to the extent that an individual does not have to do anything at all and can still receive an agent label. The distributive (essentially plural) thematic relation between pluralities and predicates is too strong. In an example such as 'the students cooked dinner', one of the students could have just salted water and this would be enough to be an agent of cooking as long as the subevents of all the other students can be added up to form the kind of event denoted by the verb. Landman prefers to appeal to collections and collective (singular) thematic relations. Schein counters this criticism by taking aim at Landman's inference involving "collective body formation", where, for both singular and plural agents, as long as a part of the agent carries out the act in question, the collectivity holds. Schein claims that the notion of part is too "theory-laden and interest-dependent" (2005, p. 72). The conditions under which something is part of the collective agent depends on the particular verb and context in which it is used. This suggests that the role of agent is relative to these other elements, while Schein believes the role should have an invariant meaning independent of context (Schein 2002). Ultimately, his point is that it is not at all obvious that the notion of part is the same for both singular and plural reference. Recall Varzi's (2006) claim in section 2.3 that the transitivity of parthood did not require an added condition of functionality. His discussion was focused mostly on singular objects. However, my intuition is that there might be at least a pragmatic condition of functionality that distinguishes the transitivity of parthood with plural versus singular agents. Those parts of a singular agent not directly involved in carrying out a particular action are still a direct part of the agent due to mere physical continuity. However, if parts of a plural agent are not somehow directly involved in carrying out a particular action, what guarantee is there that those parts are truly parts of the plural agent at all? This point is illustrated by examples such as those by Brisson (1998) discussed in section 2.4.3.1.

In the logical form, these differences are represented by scope ambiguity of the existentially quantified event variable. For example, in (2.65), the collective reading, (2.65b), would have the event variable take wide scope over the conjoined noun phrase, while in the distributive reading, (2.65c), the event variable (with respect to the lifting, ‘ $\exists e$ ’) takes narrow scope⁵³.

(2.65) a. John and Mary lifted the piano.

b. $\exists e \exists y (\text{piano}(y) \ \& \ \text{lift}(e)) \forall x (\text{John and Mary}(x) \leftrightarrow \text{Agent}(e, x))$

c. $\exists e \forall x (\text{John and Mary}(x) \rightarrow \exists e' \leq e: \exists y (\text{lift}(e') \ \& \ \text{piano}(y)))$

$\forall z (\text{Agent}(z, e) \leftrightarrow z = x)$

In examples involving more than one plural, the relation among them is vague and the quantified expressions are scope-independent⁵⁴.

(2.66) Three boys invited four girls to the party.

Cumulative interpretation is treated by pluralists as a higher order reference to an event with subevents of invitings and the agents of these subevents are the three boys and the patients of these subevents are the four girls. For each of these subevents some of the boys invites either distributively or collectively some of the girls.

⁵³ Lasersohn (1995) claims that this view is not capable of individuating events correctly. He cites an example where John and Mary participate in a demonstration where each lifts a piano alone. ‘John and Mary lifted pianos’ would be true in the sense that ‘lifted pianos’ is true of the demonstration and that John and Mary were each agents in this event, but that it would be wrong to say that John and Mary lifted the pianos collectively. However, one could borrow insight from Lasersohn’s theory of collective inferences in order to explain why such a conclusion may not be wrong. Having assumed the semantics of overlap for collectivizing adverbs such as ‘together’, ‘John and Mary’ can be considered the collective agents of the piano lifting event, not as collaborators in the actual liftings, but as collaborators in the demonstration. The nature of the overlap in each of their piano-lifting events is spatial in nature and not necessarily temporal or in terms of cooperation. Given situations such as these, it is no wonder some consider the collective-distributive distinction to be pragmatic in nature, with no distinction made in the grammar (Kratzer 2003, 2005). Pietroski (2005) also claims that different kinds of cooperation should not lead to different semantic representations.

⁵⁴ This is what Landman refers to as “Schein’s Observation” on which he bases his analysis of cumulativity.

2.5 Chapter Summary

The purpose of each section of this chapter up until now was to provide the foundations for each subsequent section. Therefore, I have only presented the fundamental ideas behind each theory's views on what plurals are and how events are incorporated into an analysis of sentences involving plurals. The philosophical foundations of plurals and events were considered in sections 2.2 and 2.3, respectively. In the philosophical portion, the vagueness of identity and individuation disallowed an outright elimination of one view or the other. Therefore, the core of the debate was carried on into the linguistic discussion of plurals and events, namely, the opposition between so-called pluralist and singularist perspectives. In section 2.4, this debate was translated into conceiving of plurals as either predicates (the pluralist view) or as objects (the singularist view).

With respect to event-based approaches to plurals, I have only covered a small amount of the data that each theory proposed to account for. For example, Landman (2000) is concerned with downward entailing contexts, while Lasnik (1995) wants to account for conjunction. Kratzer (2003, 2005) aims to advance the view that all basic predicates start out cumulative and Schein (1993) and Pietroski (2005) seek a theory with fundamentally distinct assumptions from the previous three regarding the nature of plurals. It is in these various extensions that each author claims to provide the better theory. However, despite having only discussed basic assumptions regarding plurals and events and how they determined the treatment of collective, distributive and cumulative readings, some comments can be made about what elements a theory of plurals and events must have. These are the elements that are part of both singularist and pluralist theories. They include:

1. Cumulativity or “weak” plurality of basic predicates: This means that unmarked nouns and verbs are compatible with both plural and singular interpretations.
2. Neo-Davidsonian decomposition: Objects and events should be related conjunctively via thematic roles. The nature of the thematic relation is important for accounting for different types of readings. Each theory varies in terms of their implementation of this concept.
3. Mereology of events: Singularists and pluralists clash over whether plurals have a mereological structure or not, but both agree that the domain of events has a part-whole structure.

The following elements remain under dispute in the singularist-pluralist debate:

1. Are plurals predicates or objects? With the limited linguistic data considered in this chapter, it was still not possible to answer definitively which conception of plurals is better than the other. Without an answer to this question, two more issues are left unanswered:
 - a. Do singularists need to provide an answer to Russell's Paradox?
 - b. Do pluralists need to explore nominal-verbal analogies?

In terms of question (b), it is natural for singularists to focus on these analogies since both plurals and events are treated as entities as concrete as individual objects. Pluralists, having assumed that plurals are predicates, lose this analogy, but claim that event mereology alone is capable of accounting for those linguistic inferences that singularists attribute to both object and event mereology.

In terms of collectivity, distributivity and cumulativity, there are many grammatical and contextual elements that can influence the interpretation of these readings⁵⁵, whereas I have focused mainly on the results of the basic assumptions of the nature of plurals and events on the collective-distributive ambiguity and mere cumulativity. To this extent, three different singularist theories and a pluralist theory were compared. On the singularist side, Link and Landman assume that both noun phrases and verb phrases are ambiguous in order to account for the collective-distributive distinction. Since this perspective results in unwanted complications for the logical representation of both collectively and distributively interpreted conjuncts in a single sentence, Lasersohn attempt to remedy this by excluding sums as a possible representation for plurals. However, he is then left without an obvious treatment for cumulativity.

For Kratzer, on the other hand, plural individuals do not shift in meaning, but are understood differently according to the predicate with which they occur. Collectivity involves collective eventualities, in which pluralities adhere to the singular agent/possessor constraint. In this case, pluralities are understood as substantive

⁵⁵ See, for example, the following works for more advanced research on distributivity and collectivity: Brisson (1998, 2003), Filip and Carlson (2001), Lasersohn (1998), Schwarzschild (1996), Hamm and Hinrichs (1998), Yoad (2000).

groupings. Distributivity involves pluralities that do not adhere to the constraint and are thus understood as sums. Accordingly, there is no real distinction between substantive groupings and sums. In other words, in order to avoid ambiguity in the nominal domain, Kratzer essentially took plural objects out of the picture⁵⁶. Adhering or not to the constraint has to do with the way in which the plurality participates in the eventuality. This behavior is represented by event mereology. Moreover, Kratzer claims that, given collective eventualities and lexical cumulativity, no specific grammatical constraint is required to distinguish collective from cumulative readings and phrasal cumulativity is capable of distinguishing between cumulative and distributive readings.

The pluralists (Schein 1993, Higginbotham and Schein 1989, Pietroski 2005) also distinguish collective and distributive readings according to how pluralities participate in a particular event. However, differently from Kratzer, pluralists accomplish this by appealing to a combination of scope ambiguity and event mereology. Collective readings involve no quantification over parts of events and the event variable takes wide scope over the plural predicate. This means every individual denoted by the plural participates directly in the event. Distributive readings involve quantification over parts of events and the event variable takes narrow scope under the plural predicate. This means every individual denoted by the plural contributes with his own particular part to the event in question. Cumulativity involves a scopeless reading.

Aside from the basic requirements listed earlier on the essential requirements of any theory on plurals and events, Kratzer's singularist approach and Schein's pluralist approach have made no special assumptions in order to account for the basic collective, distributive and cumulative readings. This means that accounting for these readings does not require plural objects and hence the plurality of the NPs is shifted to the event, resulting in a plurality of events or subevents.

While Kratzer assumes an object mereology, she does not employ it for the data discussed so far. However, with pluralism, we lose the intuitive nominal-verbal analogies that were introduced at the foundational philosophical level. Russell's Paradox, as understood at the Linguistics/Logic interface, does not seem to hold up as a theoretical impediment for dealing with lexical and grammatical aspect and subsequent issues. The above represent arguments in favor of assuming a singularist view,

⁵⁶ This approach is arrived at by drawing from works by Schwarzschild (1991), Lasnik's (1995) approach to 'together' and from Schein (1993), illustrating that the assumption regarding plural objects versus plural predicates is not an impediment towards providing an event-based approach for the particular phenomena discussed in this chapter.

particularly Kratzer's view, which is basically a singularist reformulation of Schein's view. At this point, we may assume a Schein-Kratzer perspective, in the singularist sense, upon which theories of lexical and grammatical aspect can be built and postpone for the remainder of the present work, the singularist-pluralist debate. For the present purposes, those elements that are critical for an event-based approach to plurality in the tense-aspect system are the same for both sides and so the singularist-pluralist opposition temporarily dissolves⁵⁷.

⁵⁷ However, this debate may need to be taken up again in the future when considering a broader range of data and linguistic issues.

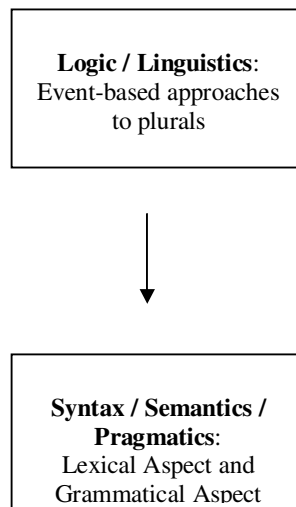
Chapter 3

Lexical and Grammatical Aspect

3.1 Introduction

In this chapter, we will discuss how the theory-internal analyses of lexical and grammatical aspect are guided by the semantic theory assumed at the end of the previous chapter, namely, a Schein-Kratzer theory that is essentially singularist regarding its assumptions about the nature of plurals and events. Below is a portion of the figure presented in chapter one, corresponding to the level of investigation to be dealt with in this chapter.

**Figure 3.1 Schema of Stage III of the Investigation:
From Theory-External to Theory-Internal**



Before discussing the conceptions of lexical and grammatical aspect within our singularist approach, I will first provide a general historical-philosophical-linguistic overview of the main elements that are common to most theories. At this point, I am concerned with the natural language metaphysics of aspect, as Bach (1986) calls it, as opposed to philosophical metaphysics, which was discussed in chapter two, with respect to plurals and events. This means I am interested in the way in which language reveals the nature of semantic structures, more specifically, the nature of the **kinds** of events that we can talk about and how grammatical elements such as tense and grammatical

aspect can influence their interpretation. After introducing the basic notions of lexical aspect (in section 3.1.1), temporal reference and grammatical aspect (in section 3.1.2), I will discuss the importance of distinguishing between these two types of aspect and how they are often confounded in the literature (in section 3.1.3).

As discussed at the end of chapter two, the basic theoretical elements that have resulted from this methodological approach, include the following: i) basic predicates are compatible with both singular and plural interpretations; ii) semantic representation involves Neo-Davidsonian decomposition; and iii) a mereology of objects and events.

The singularist view assumes plural terms are treated as objects and thus, object-event analogies can be explored at the philosophical and linguistic levels. Despite this, the various possible readings of sentences with plurals can be derived from the way in which the plural participates in the eventuality denoted by the verb and, given the assumptions of lexical and phrasal cumulativity, no other grammatical constraints are required. This way, a theory of lexical aspect based on the singularist view exploits the notion of lexical cumulativity as well as the notion that both types of entities, objects and events, can be submitted to a mereological analysis.

In section, 3.2, I will discuss the singularist view on what a theory of lexical and grammatical aspect should be like. This section compares theories of lexical aspect based on the theoretical and philosophical foundations discussed up until this point. Moreover, the basic notions of grammatical aspect will be defined and their interactions with those of lexical aspect will be investigated.

3.1.1 Lexical Aspect

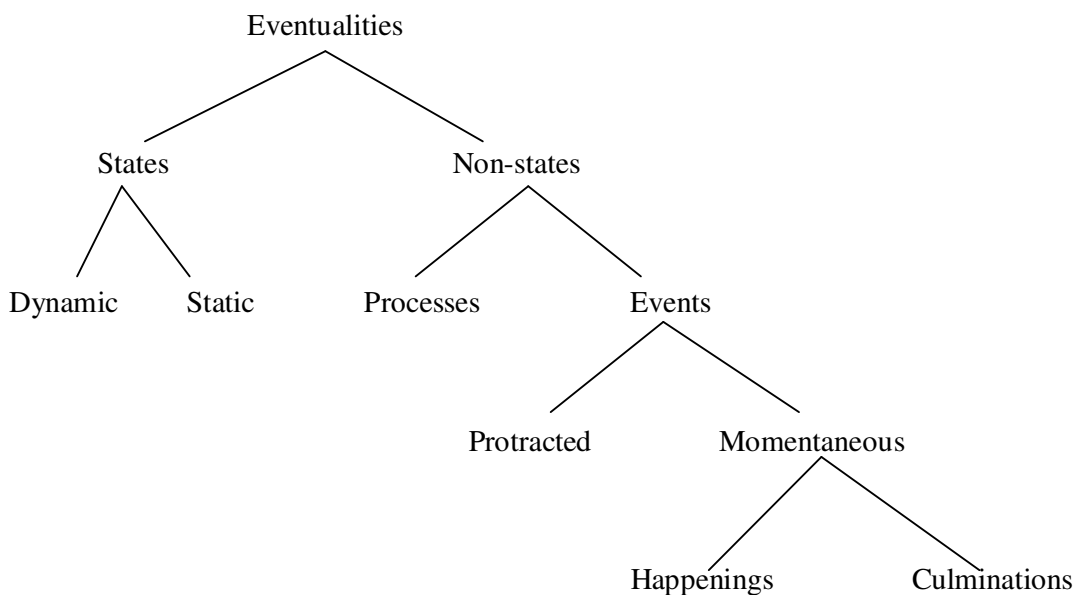
Lexical aspect is understood here as the inherent temporal information that is expressed lexically or by derivational morphology, but is often not morphologically realized at all (Rothstein 2004). The situations or eventualities picked out by VPs or simple sentences can be classified in different ways. The most widely assumed classification system is that of Vendler (1967), which has been assumed and revised by Dowty (1979) (and parts of which have also been historically attributed to Ryle (1949) and Kenny (1963), the latter of whom cites Aristotle as a precedent). Lexical aspect has also been referred to as *Aktionsart* (Agrell 1908), situation type (Smith 1991), actionality (Flämig 1965)

and aspectual class, among other terms. The following classification corresponds to Vendler's analysis (1967), repeated from chapter one⁵⁸.

- **States:** homogeneous situations which persist for a determined interval of time. (e.g. to love, to know, to be a hero)
- **Activities:** durative homogeneous events with no inherent terminal point. (e.g. to rain, to laugh, to dance)
- **Accomplishments:** events which develop towards a terminal point, with focus on the development. (e.g. build a house, walk a kilometer, eat a sandwich)
- **Achievements:** events which develop towards a terminal point, with focus on the instantaneous terminal point. (e.g. to fall, to reach the top, to win the race)

Bach (1981) introduced a cover term, 'eventuality', for these four categories and in Bach (1986), he introduced a more detailed schema, as shown in figure 3.2.

Figure 3.2 Bach's (1986) Schema of Eventualities



There are a greater number of distinctions in Bach's schema than are recognized in Vendler's system. Processes correspond to activities and the protracted versus momentaneous events correspond to accomplishments and achievements, respectively. However, Bach divides achievements up into two more categories, as 'happenings'

⁵⁸ Semelfactives are considered by many to constitute a fifth aspectual category (Smith 1991). These events are punctual like achievements, but have no development leading up to them. Some examples are 'sneeze', 'wink' and 'hop'. Understood as a one-time occurrence, semelfactives are point-like events, but understood as repeating events, they can behave like activities with no inherent terminal point.

versus ‘culminations’. However, when it comes to non-states, the present work will limit itself to assuming the distinctions provided by Vendler, namely, activities, accomplishments and achievements.

A more established distinction in the current literature is that between dynamic and static events, which are more currently recognized as stage-level and individual-level predicates, respectively. These terms were first presented in Carlson (1977) and examined in more detail by Kratzer (1995). Stage-level predicates (SLPs) express temporary properties, such as ‘be sick’ or ‘be available’, while individual-level predicates (ILPs) express permanent properties, such as ‘be intelligent’ or ‘have blue eyes’. Kratzer (1995) has shown that these two types of predicates present grammatical and interpretive contrasts. Thus, this distinction will be considered where relevant in the investigation of lexical and grammatical aspect in a singularist perspective.

Eventualities can be further specified with the aspectual features of punctuality, telicity and dynamicity (Smith 1991). See table 3.1.

Table 3.1 Aspectual Features of Eventualities

Aspectual features	Punctual	Telic	Dynamic
State	-	-	-
Activity	-	-	+
Accomplishment	-	+	+
Achievement	+	+	+

The feature of punctuality reveals the instantaneity of achievements with respect to the rest of the classes. Dynamicity distinguishes states from the rest, while telicity separates states and activities from accomplishments and achievements. Telicity derives from “telos” (Garey 1957), which means there is some inherent endpoint in the eventuality denoted by the verb or verb phrase. Those eventualities that do not have a telos are considered atelic. The nature of the atelic event is akin to Bennett and Partee’s (1974) subinterval property, such that what is true of some time interval is true of every corresponding subinterval. Differently from atelicity, however, the latter notion involves interpretation at the level of tense and grammatical aspect marking.

The notion of the inherent endpoint for telic eventualities, as opposed to atelic eventualities, and its expression in natural language has intrigued many theorists,

generating a large body of work dedicated specifically to the feature of telicity. One way of determining whether a verb or VP is telic or atelic is to look at how the verb/VP patterns with certain temporal adverbs, namely, ‘in x time’ versus ‘for x time’. Telic eventualities have an endpoint that is determined by the description of the event. These eventualities can be modified with ‘in x time’ without the need for a special context, as in (3.1a-3.1b). On the other hand, atelic eventualities are not readily compatible with ‘in x time’, as in (3.1c-3.1d).

- (3.1) a. Accomplishment: John built a house in two months.
 b. Achievement: Mary reached the summit in six hours.
 c. Activity: *John danced in an hour.
 d. State: *Mary loved John in a year.

Despite the tendency illustrated above, not all achievements behave the same way. For example, ‘Paul won the lottery in six weeks’ is not particularly agreeable without some qualification regarding the context. On the other hand, consider ‘Paul won the marathon in five hours’. This suggests that there is more involved in this adverb compatibility diagnostic than just the semantics of the verb or VP. Compatibility judgments also appear to require world knowledge and contextual information. The pattern is reversed when the eventualities are modified by ‘for x time’, in which atelic eventualities can be modified without restriction, while compatibility with telic eventualities is constrained. See (3.2) below.

- (3.2) a. Accomplishment: *John built the house for two months.
 b. Achievement: *Mary reached the summit for six hours.
 c. Activity: John danced for an hour.
 d. State: Mary loved John for years.

States also have variable behavior with respect to ‘for x time’, but this may be due to the use of the perfective. If one says ‘Mary loved John for a year’, this suggests, that she no longer loves him, unless the present perfect is used. Another borderline example is ‘?Mary knew the answer for a year/for years’, which suggests that Mary no longer knows the answer. But consider ‘Mary was a teacher for a year/for years’, which is perfectly fine. This variability is likely due to the individual-level / stage-level

distinction of state predicates. Individual-level predicates are not readily compatible with either temporal adverb since they denote situations that are considered to be either permanently true or permanently false, such as ‘have blue eyes’ or ‘be tall’, while stage-level predicates denote situations which can be considered temporary, such as ‘know a password’ or ‘stand in the corner’. It should be clear from this discussion that the notion of (a)telicity and adverb compatibility simply reflects a tendency and does not represent any kind of strict rule. However, a semantic theory of tense and aspect should still be able to explain these tendencies.

Aside from looking at adverbial compatibility, there are various ways in which aspectual classes can be determined. Dowty (1979) has developed a range tests, shown in table 3.2 below, which can be seen as guidelines for classification. Though it is known that eventualities can fail the tests under certain circumstances, resulting in a different classification, they are still helpful for a better understanding of event ontology.

Table 3.2 Aspectual Classification Tests (Dowty 1979, p. 60)

Criterion	States	Activities	Accomplishments	Achievements
Meets non-stative tests	no	yes	yes	?
Has habitual interpretation in the present tense	no	yes	yes	yes
ϕ for an hour, spend an hour ϕ -ing	ok	ok	ok	bad
ϕ in an hour, take an hour to ϕ	bad	bad	ok	ok
ϕ for an hour entails ϕ at all times in the hour	yes	yes	no	does not apply
x is ϕ -ing entails x has ϕ -ed	does not apply	yes	no	does not apply
Complement of ‘stop’	ok	ok	ok	bad
Complement of ‘finish’	bad	bad	ok	bad
Ambiguity with ‘almost’	no	no	yes	no
x ϕ -ed in an hour entails x was ϕ -ing during that hour	does not apply	does not apply	yes	no
Occurs with ‘studiously’,	bad	ok	ok	bad

'attentively', 'carefully', etc.				
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As discussed earlier, the 'in/for x time' adverbial test has often been considered a diagnostic for distinguishing telic versus atelic predicates, respectively, (Vendler 1967, Verkuyl 1972, Smith 1991). However, Dowty's chart above notes that accomplishments, which are telic, are in fact compatible with 'for x time'. If this is true, then some sense must be made of sentences such as (3.2a) above. One of the more common explanations for this acceptance is that an accomplishment modified by 'for x time' triggers an "aspectual shift", such that the accomplishment is understood as not having reached its "telos". In this case, in an example like (3.2a), the house remains incomplete at the time of reference. Some theorists claim that the resulting understanding is that the accomplishment has shifted to an activity of some sort⁵⁹.

"Aspect shift", or "aspectual coercion", is a process that is triggered when there is a mismatch in information between the predicate and other elements of the sentence (de Swart 1998). The result is that an expression originally understood to be of one aspectual class shifts to another. This raises the question of what exactly is being classified in the first place: the verb, the VP or the sentence? Verbs can be classified, but the nature of the arguments can influence this classification, as shown in (3.3).

- (3.3) a. John drank beer. (activity)
 b. John drank a glass of beer. (accomplishment)
 c. Mary ran. (activity)
 d. Mary ran for an hour/to the store. (accomplishment)
- (3.4) a. *The student arrived all morning.
 b. The students arrived all morning.

(3.3a-b) illustrate how the mass versus count object NP can trigger an aspectual shift, while (3.3c-d) illustrate how the addition of an adverbial or prepositional phrase can shift an activity to an accomplishment. On the other hand, (3.4) shows how the subject NP can influence the aspectual interpretation of the sentence. Grammatical elements, such as the progressive, can also trigger a shift, as in (3.5).

⁵⁹ See Basso (2007) for an in-depth analysis of this type of phenomena without appealing to aspectual coercion.

- (3.5) a. Mary reached the summit. (achievement)
 b. Mary is reaching the summit. (accomplishment)

Achievements are often considered to denote instantaneous events, so the focus on the progress of the event makes the eventuality appear to be more of an accomplishment with an endpoint that hasn't been reached yet.

The problem of aspect shift has been debated extensively in the literature, primarily within a singularist perspective. Though there are various “triggers” of aspect shift, it will be argued in section 3.1.3 that the phenomenon is primarily a byproduct of the confusion that lumps together lexical and grammatical aspect. Therefore, aspectual shift will ultimately not be considered when evaluating theories of lexical aspect in this chapter. The relevant theories will only be discussed to the extent that they are capable of reflecting the intuitions regarding the aspectual classes discussed here and defining the role of telicity in their meanings.

The next subsection presents a general overview of the notions of temporal reference and grammatical aspect, and their expressions in English and Portuguese.

3.1.2 Temporal Reference and Grammatical Aspect

Though there are many ways to express temporal reference, probably the most common is through grammaticalized tense (Comrie 1985, Bybee et al. 1994). Since I will focus primarily on tense when dealing with temporal reference, I have grouped its discussion together with grammatical aspect, as both are grammatical means of temporal expression. Temporal reference is the localization of the event or events being talked about, with respect to some other temporal point. Most theories assume at least two temporal points, an event time, which refers to the running time of the situation in question and a speech time, which is the moment of utterance. Those who follow the Reichenbachian tradition assume a reference time, first introduced by Reichenbach (1947). As mentioned in chapter one, it can also be understood as a time for which the claim is made in the sense of Klein (1994).

Grammatical aspect is “concerned with different ways of representing the internal temporal constitution of a situation” (Comrie 1976, p. 52), by means of morphological markings. The main aspectual distinction present in many languages for describing an event is that between perfective and imperfective. A perfectly

described event is understood as complete, while an imperfectly described event is understood as ongoing. Then, there is the perfect aspect, which has also been considered a tense, a relative tense, and an aspect (Comrie 1976) in the literature. The perfect meaning expresses a relation of anteriority between the event time and the reference time. Different structures are used in different languages to express these aspectual relations.

Klein's (1994) tense-aspect schema is an expansion of Reichenbach's (1947) study. Reichenbach's system is focused basically on tenses in the English language, and the relations were expressed by temporal points. Klein's reformulation is an attempt at broadening the representation to include tense and aspect relations potentially relevant for all languages. This means that Klein believes that the relations outlined in table 3.3 can be expressed by either grammatical or lexical means. As seen in table 3.3, all tense-aspect relations are mediated by the reference time⁶⁰. That is, tense structures are represented by relations between the speech time and the reference time while (grammatical) aspect structures are represented by relations between the event time and the reference time. Moreover, it should be noted that Klein understands the three times to be intervals instead points. Though Klein's (1994) descriptions are rather informal, they can be represented according to Kratzer's (1998) formalization as in the table below.

Table 3.3 Tense-Aspect Relations based on Klein-Kratzer⁶¹

Tense	Aspect
Present: $S \subseteq R$	Imperfective: $R \subseteq E$
Past: $R < S$	Perfective: $E \subseteq R$
Future: $S < R$	Perfect: $E < R$

Slightly diverging from the representation above, Klein's informal description of imperfectivity is that it involves proper inclusion, i.e. '[$R \subset E$]' (1994, p. 108 and 118),

⁶⁰ Despite the fact that many authors conceive of tense as a relation between the speech time and the event time, as in Comrie (1976), thus ignoring, or giving secondary importance to, a reference time, this third time point has proven to be of importance in a variety of tense-aspect phenomena, particularly in studies of discourse (Hinrichs 1986, Kamp and Reyle 1993). Therefore, I assume with Klein the importance of the reference time in a representation of tense-aspect relations. This contextually determined interval will prove to be important in gaining a better understanding of the PPC and its differences from the present perfects in other languages.

⁶¹ S: speech time; R: reference time; E: event time; ' \subseteq ': proper or improper inclusion; '<': temporal precedence; ' \subset ': proper inclusion.

though Kratzer (1998) assumes the modification as shown in the table above. Nevertheless, it is important to keep these variations in mind as they will be discussed later on. Moreover, Klein defines the perfective as '[R AT E]', such that a perfectively described event is simply over within the interval denoted by the reference time (1994, p.108). Consequently, the perfective event cannot temporally follow the reference time, which is what improper inclusion would allow. Klein's sense of the perfective appears to be more in line with that of overlapping and temporally preceding, which can be represented by '<o'. So, in the sense that perfectives are seen as "complete" and imperfectives as "incomplete", it is only with respect to the event in question being over or not. Nothing else is said about how particular eventualities behave when described perfectively versus imperfectively⁶².

Given the tense-aspect relations above, the system of perfect structures can be represented as in table 3.4.

Table 3.4 The Perfect System based on Klein (1994)

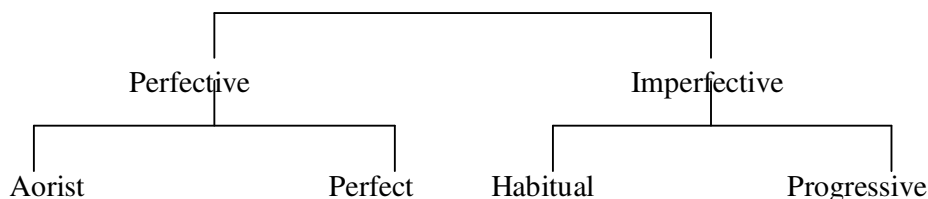
The Perfect System	
Present Perfect:	$E < (S \subseteq R)$
Past Perfect:	$E < R < S$
Future Perfect:	$S < E < R$

As can be recalled from chapter one, the representation above reflects a Priorian Past type theory of the present perfect. However, it should be made clear that accepting such a representation does not necessarily entail an acceptance of the corresponding present perfect theory.

Some aspectual meanings are not expressed in the tables above. The aspectual relation representing the imperfective in table 3.3 does not reveal the many different ways in which one can "see a situation from the inside". Comrie (1976), for example, considers such meanings as habituality and the progressive to be subtypes of the imperfective, as illustrated in the schema below.

⁶² More importantly, Klein makes no comment about the apparent entailment that a telic verb expressed perfectively means the telos has been reached. This is because the author limits himself to a discussion of changes of states, deliberately avoiding talk of privileged points such as the telos. Such interactions between lexical and grammatical aspect will be examined in section 3.1.3.

Figure 3.3 Comrie's (1976) Aspectual Oppositions



Habituality is understood as the repetition of situations on different occasions, while the progressive refers simply to an action that is ongoing at reference time (Comrie 1976, Bybee et al. 1994). Though habituality has often been confused with or used interchangeably with iterativity, Comrie (1976) and Bybee et al. (1994) contrast the two, defining iterativity as the repetition of situations on a single occasion. This way, one may consider iterativity to be a subtype of habituality⁶³.

These aspectual meanings can be expressed in many ways across languages, though in languages like English and Portuguese they can be expressed via certain verbal periphrases. While English does not have an explicit perfective-imperfective opposition, it makes use of a progressive (*be+gerund*) and a habitual (*used to+infinitive*). The progressive has also been understood to have habitual meanings under certain circumstances (Comrie 1976). Portuguese makes use of the perfective-imperfective opposition with progressive and habitual meanings subsumed under the imperfective structure⁶⁴. Aside from the progressive structure (*estar+gerund*), Portuguese also makes use of other verbal periphrases composed of one of a variety of different auxiliaries – e.g. ‘vir’, ‘ir’, ‘andar’, ‘viver’ – plus a gerund. Very generally speaking, these constructions involve a progressive or habitual meaning with an additional meaning, metaphorical or otherwise, of motion provided by the auxiliary.

Given the apparent meaning of habituality or iterativity of the PPC, it can be said that there is some semantic overlap with some of these verbal periphrases involving a gerund, which is theoretically unexpected considering the use of the past participle in

⁶³ The term ‘iterativity’ was used in chapter one in reference to the feature of repetition of the PPC. Given the more specific definition of iterativity here, I will from now on refer to readings of repetition in the PPC and PrP as plural readings, to maintain a generality and avoid association with more specific definitions until later on.

⁶⁴ A distinction should be made between the progressive/continuous reading of the imperfective and the progressive structure, *estar+gerund*. The progressive reading of the imperfective expresses an eventuality that is ongoing at reference time (e.g. ‘Quando Maria chegou do trabalho, as crianças *brincavam* no jardim.’). This reading is also characteristic of the progressive structure (e.g. ‘As crianças *estão* brincando no jardim.’), but can also have other types of readings to be discussed later on.

the PPC structure. It is this property that distinguishes the PPC from the corresponding structures in other Romance and Germanic languages.

When evaluating the singularist theories of lexical and grammatical aspect in this chapter, we want to be able to account for perfectivity and imperfectivity and have a general account of the aspectual meanings subsumed within them, including those expressed by the progressive periphrases mentioned above.

The next subsection deals with the importance of maintaining the categories of lexical and grammatical aspect distinct.

3.1.3 Lexical versus Grammatical Aspect

The position defended here is that drawing a clear distinction between event ontology (or lexical aspect) and the grammatical manipulations of events (or grammatical aspect), has a significant impact on the analysis of particular grammatical structures, sentences, discourses, and the way in which they all interact. A theory of events aimed at dealing with tense-aspect phenomena must account for this. Despite the various terms that have been used in the literature, I prefer the terms ‘lexical aspect’ and ‘grammatical aspect’ since it is stated right in their names the basic source and nature of each type of aspect.

The problem in previous literature has always been one of conflation, such that the two categories of aspect, lexical and grammatical, are considered to be the same or to share the same properties. This often leads to contradictions and misguided conclusions. I will discuss three ways in which this lexical-grammatical distinction has been distorted in the literature: i) the perfective-telic confusion (Bertinetto 2001); ii) the stative aspect confusion; and iii) aspectual coercion.

With the first problem, there is the suggestion that telic events (accomplishments and achievements) can only occur in the perfective or that perfectly described events are telic in nature. Conversely, atelic events (states and activities) can only occur in the imperfective or that imperfectly described events are atelic in nature. This is clearly not true since any type of event can receive either a perfective or imperfective description. The (a)telicity of an event is not determined by its being described perfectly or imperfectly.

- (3.6) a. John is eating. [-telic, -perfective]
 b. John ate. [-telic, +perfective]

- c. John is eating an apple. [+telic, -perfective]
 d. John ate an apple. [+telic, +perfective]

In fact, it is the combinations represented in (3.6c) and (3.6d) that have led to what is known as the “imperfective paradox”, such that the use of the imperfective calls into question whether a telic event is still being referred to. Perhaps a better and more common example of this paradox is of that in (3.7).

(3.7) The chicken was crossing the road.

Here we have an example that is telic and imperfective. If we add to this, ‘when it was run over by a truck’, then the chicken did not actually get to the other side of the road. The paradox is in talking about telic events that may never actually reach their telos, or inherent endpoint. Simply assuming that the imperfective shifts a telic event to an atelic one does not solve this reference problem.

Another example of the perfective-telic confusion is in studies of discourse and the distinction between foreground/background information. It has been proposed that telic events belong to the foreground and move the narrative forward, while atelic events belong to the background, simply adding description (Hinrichs 1986). Similarly, it has been said that the perfective advances the narrative while the imperfective does not (de Swart 1998). (3.8a) below illustrates how a stative can be used as foreground information. The translation in Portuguese, (3.8b), would even use the imperfective form of the verb while still maintaining foreground status.

- (3.8) a. A strange man entered the room and suddenly, it was dark.
 b. Um homem estranho entrou na sala e, de repente, estava escuro.

Another set of problems that arises from this aspectual entanglement is when theorists claim that certain morphological structures contribute descriptions usually reserved for the nature of eventualities. More specifically, progressives, habituals and imperfectives are often described as being statives (de Swart 1998, Vlach 1981, Parsons 1990, Mittwoch 1988, a.o.). This is what I referred to earlier as the “stative aspect confusion” and was seen in chapter one, where some theorists attribute to the perfect the principal characteristic of introducing a resultant state. Even authors that assume a lexical versus

grammatical distinction of aspect, such as those mentioned above, believe that the analogies between states and progressives, habituals, imperfectives and perfects are such that a convergence is inevitable.

However, the apparent similarities are misleading. While states and activities do not have inherent boundaries, the progressive, for example, even if it focuses on an unbounded part of an event, may still present an eventuality whose base predicate has inherent endpoint. Another problem is the characteristic of stativity being attributed to morphological structures with apparently opposing meanings, namely imperfectives and perfects, the latter of which are often considered a subtype of perfectives (Bybee et al. 1994). This means different types of states must be assumed for each type of structure. But then, this defeats the purpose of the analogy in the first place.

In Vlach (1981), for example, the progressive is considered a stativizer, which would explain its incompatibility with stative verbs. But stative verbs can occur in the progressive form, as shown in (3.9).

(3.9) John is being silly.

In this case, the stative seems to express that John is acting silly, giving a more eventive meaning. That would mean that the progressive is a stativizer with eventive predicates and a “destativizer” with stative predicates, which is contradictory (Bertinetto 1994). Also, the extent to which the progressive allows states varies from language to language. For example, the progressive is especially permissive in Brazilian Portuguese, such that it does not actually “destativize” stative predicates at all, as in “João está sabendo a resposta”. The problem of treating the imperfective and progressive as stative is that there is no distinction made between dynamic and static states, and so we are unable to capture the different readings that these structures give rise to (Bach 1986).

The use of the progressive in the example above brings to light a third problem that results from fusing lexical and grammatical aspect together, known as aspect shift or aspectual coercion. Aspectual coercion is a semantic operation that is triggered when there is a mismatch between the aspectual specification of a verb and some other linguistic element. The coercion operator is seen as a repair mechanism. There are a variety of “triggers” for aspectual shift, which include: adverbs (temporal, locative, directional), phasal verbs (start to, finish), mood (imperative), aspect (progressive) and

tense. For the sake of brevity, I will discuss the two most commonly discussed shifters, temporal adverbs and the progressive.

The temporal adjunct ‘for x time’ has been considered a trigger for shifting activities, such as (3.10a), into accomplishments, as in (3.10b), such that the time of two hours adds a telic point to the running event (de Swart 1998, Rothstein 2004).

- (3.10) a. John ran. (activity)
 b. John ran for two hours. (accomplishment)

On the other hand, the same temporal adjunct has been considered to also be a trigger in the opposite direction, from an accomplishment, in (3.11 a), to an activity, as in (3.11 b).

- (3.11) a. John read the book. (accomplishment)
 b. John read a book for a week. (activity)

The first problem is that ‘for x time’ has the contradictory function of both adding a telic point to activities to form an accomplishment, as well as removing a telic point from accomplishments to form an activity. Conceiving of ‘for x time’ as having any kind of role in adding or removing telic points has to do with the commonplace use of the past tense in the examples found in the literature when discussing this type of phenomenon, implicitly suggesting that the past has no semantic contribution to the overall interpretation. However, when we replace the past with the past progressive, it becomes clear that, in the case of the activity to accomplishment shift, the adjunct does not represent any kind of telic point, but measures the event merely up until some reference point. In the example below, the reference point is represented by the second clause initiated by ‘when’, and is perfectly compatible with a situation in which John kept running after his realization.

- (3.12) John was running for two hours, when he realized he forgot his watch.

Basso (2007), for example, considers ‘for x time’ to have the role of introducing an arbitrary point, not to be confused with the telic point, but should be understood as a focalization point. In the case of activities in the perfective, it simply measures how

long it took for the event to end and does not represent a non-arbitrary point such as a telos. Consider (3.13).

(3.13) John was reading the book for a week by the time he got to the climax.

In the example above, ‘for a week’ introduces a focalization point that is distinct from the telic point of reading the entire book. Studies such as those by Basso (2007) and Bertinetto (2001) make clear that a greater range of interactions between (a)telicity and (im)perfectivity ought to be considered before taking conclusions regarding so-called triggers of aspectual coercion.







Another type of trigger is progressive morphology, particularly in the case of achievements, which are meant to be incompatible with the progressive due to their instantaneous nature. Such an example is shown in (3.14).

(3.14) John is arriving at the station.

Rothstein (2004) provides an extensive analysis which results in the progressive achievement being treated as a “derived accomplishment”. However, this does not appear to be an aspectual shift in the sense that the verb shifts to a different lexical category. Since aspectual classes are understood as being lexical in nature, and the progressive morphology understood as grammatical in nature, then any shift that the progressive may trigger cannot be lexical. The shift in meaning that occurs is in fact provided by contextual factors, as Rothstein argues. This suggests, however, that what takes place is a “contextual reinterpretation” in the words of de Swart (1998), which, in turn, suggests psycholinguistic consequences, such as longer reading or reaction times. In fact, “contextual reinterpretation” is how aspectual coercion in general is defined and used by various authors regardless of the type of trigger. The problem with this interpretation of aspectual shift is that psycholinguistic studies focusing on a variety of triggers have shown that sentences or discourses involving aspectual mismatches do not result in any kind of psycholinguistic reinterpretation (Basso 2007, Proctor et al. 2004). Instead of an aspectual shift, what has been suggested is that these contextual reinterpretations are nothing more than “particular contextual enrichments of underspecified semantic representations” (Dölling 2003, p. 319). This perspective favors a more compositional approach to how speakers interpret utterances and also

defeats the argument that aspectual shifts are actually predicted by the aspectual classes, a position defended by Rothstein (2004). Given the table of event types below, the basic idea is that those classes with the same feature in a single column are capable of shifting from one to another, as illustrated by the arrows.

Table 3.5 Event Type Shifts

	[±stages]	[±telic]
States	-	- 
Activities	+ 	- 
Achievements	-	+ 
Accomplishments	+ 	+ 

For example, it has been shown that activities such as ‘run’ can be shifted to accomplishments with a measure function such as ‘to the store’. The progressive is capable of shifting states such as ‘be silly’ into an activity reading and achievements into an accomplishment reading. What are not predicted by Rothstein’s theory are the shifts that **cannot** occur. According to the table above, it should be logically possible for a state to shift into an achievement, but this does not occur, at least not in Romance or Germanic languages. There are also no known shifts from activities to states or accomplishments to achievements. A theory that assumes aspectual coercion should not only justify the coercion operators that exist, but should explain why others do not.

Ultimately, grammatical elements such as the progressive do not trigger a shift in aspectual class. The apparent change in meaning is contextual with no repercussion in the lexicon or grammar. Bertinetto (2001) has proposed that an aspectual class is subject to two conditions: i) a predicate plus its arguments; and ii) the features of the DP that occupies the relevant argument position, i.e. [+/- determinate] and [+/- singular]. Notice the difference, however, between ‘push a cart’ and ‘push a button’. Both have a direct object with the same features, except the former is an activity and the latter is an achievement. What kind of shift is at work here? Therefore, even Bertinetto’s conditions are still not sufficient to uniquely determine aspectual status. Moreover, in the face of psycholinguistic evidence pointing against a link between coercion and extra processing efforts, perhaps those linguistic elements (particularly lexical items) that have been seen as triggers in aspectual coercion are in fact just elements contributing to the composition

of aspectual meaning. Too often these so-called elements are described as tests for aspectual classification as much as they are described as triggers for classification shift. How could a single element be responsible for both of these functions? The view of these elements as contributors to compositionality is in line with Mourelatos' (1981) claim that there are at least six determining factors in the interpretation of verb predicates, including: i) the verb's inherent meaning; ii) the nature of the verb's arguments (i.e., subjects and objects); iii) adverbials; iv) grammatical aspect; v) tense as phase (e.g., the perfect); vi) tense as time reference (e.g., past, present or future).

The elements above can be categorized as having either lexical or grammatical sources. The addition of lexical items to a verb enriches its underspecified meaning and which can result in a different aspectual classification. So-called shifts of interpretation due to grammatical elements are just that, with no actual shifts in ontology. However, these grammatical shifts are not unnatural and do not cause any repercussions in online performance. This way, we avoid the proliferation of ad-hoc coercion operators. We could also add to this list discourse elements and world knowledge, both of which influence the aspectual interpretation of a sentence. See the example in (3.15), from Pulman (1997, p. 280).

- (3.15) a. The princess protested as the photographer interrupted. Her **protest** was ignored.
- b. The princess protested throughout her trip. Her **protests** were ignored.

The possibility of interpreting the protest as singular, in (3.15a), or plural, in (3.15b), depends on the interpretation of the previous sentence.

In addition to the previous arguments against the convergence of the two types of aspects, we also find evidence from L1 acquisition studies in favor of the distinction. The initial acquisition of tense and aspect morphology in children is utilized to mark lexical aspect, otherwise known as the Aspect First Hypothesis (Bloom et al. 1980, Andersen and Shai 1994, 1996). This means that lexical aspect may be the driving notion in the early stages of acquiring temporality. The main claims of this hypothesis are as follows⁶⁵.

⁶⁵ See Molsing (2009) for more discussion on the importance of distinguishing lexical and grammatical aspect in studies on the Aspect First Hypothesis as well as in experiments aimed at testing event perception in speakers of different languages.

1. Initial markers of past/perfectivity are used with verbs of accomplishment/achievement and afterwards include state/activity verbs.
2. In languages that encode the (im)perfective distinction, the perfective appears first, and the imperfective begins to be used to mark states/activities, later including accomplishments/achievements.
3. In languages with the progressive aspect, these markers are initially used with activity verbs and later with accomplishments/achievements.
4. Progressive markers are not used incorrectly with state verbs.

It is important to note that the four claims made above are to be taken as tendencies and not absolute correspondences. If grammatical and lexical aspect did, in fact, have a one-to-one relation in terms of (im)perfectivity and (a)telicity, they should co-occur in all languages. However, this is not the case. There is no language that does not possess lexical aspect, while there are languages that do not possess grammatical means of expressing aspect. In fact, the legitimacy of the Aspect First Hypothesis depends on the proper distinction between the two categories of aspect⁶⁶.

As we enter into the investigation of a singularist view of lexical and grammatical aspect, the issues discussed up until this point will be utilized as points of evaluation. The preferred theory should be able to incorporate the basic definitions of temporal reference, lexical aspect and grammatical aspect as well as account for the relevant interactions without succumbing to the potential difficulties discussed so far.

3.2 A singularist approach to lexical and grammatical aspect

The theories of lexical and grammatical aspect within the singularist tradition adhere to a neo-Davidsonian semantic framework within which a mereological structure of individuals and events is assumed. This way, nominal-verbal analogies continue to be central in describing and explaining a variety of aspectual phenomena, though there are variations from author to author. We will begin by reviewing studies that focus on lexical aspect, though elements of grammatical aspect are ultimately important in analyzing the former. It will be evident that lexical and grammatical aspect are

⁶⁶ See the for example Shirai and Andersen (1995) and Arnom-Lotem and Berman (2003), among others.

intricately related and thus maintaining the two categories distinct requires continuous care and justification.

Within a mereological framework, the aspectual classes are recast in terms of the part structures of events and their participants. This approach should also reveal the role of telicity in the definitions of the classes and in interactions with other grammatical elements. The main works to be reviewed along these lines are those of Krifka (1989, 1992, 1998) and Rothstein (2004). While the focus of these two authors is on lexical aspect, Filip (1999, 2001) is one of the few theorists in the singularist tradition who focuses precisely on the interactions between lexical and grammatical aspect. This may be due to the author's frequent analysis of Slavic languages in which traditional notions of lexical and grammatical elements of aspect are often intertwined. Additionally, in terms of English and, particularly, Romance languages, we will discuss those works that focus not only on the basic perfective-imperfective distinctions, but also on their respective sub-meanings, such as the past tense and perfect tense/aspect (on the perfective side), and progressivity, habituality and iterativity (on the imperfective side). The notion of pluractionality, introduced by Lasersohn (1995), will also be discussed with respect to verbal periphrases. Obviously, an in-depth analysis of any of these meanings is beyond the scope of this chapter and will only be discussed in terms of the potential for the representation of their meanings within some singularist framework.

3.2.1 Towards a divorce between lexical and grammatical aspect

In a series of highly influential articles, Krifka (1989, 1992, 1998) takes the lead from Verkuyl (1972) regarding the influence of arguments on the interpretation of verbal predicates. Krifka explicitly focuses on the semantic similarities between the nominal and verbal domains in his proposal that the quantificational properties of NPs have a direct influence on the interpretation of verbs. It is based upon describing the relations between verbs and their arguments that Krifka constructs his theory of telicity.

Lattice structures are assumed for the domain of individuals and the domain of events⁶⁷. Objects are mapped to spatial regions and events are mapped to temporal regions. Event descriptions are understood in the same way as object descriptions. This

⁶⁷ This can be true for times as well. We can either assume that plural times are constructed out of events or that plural events are constructed out of temporal relations (See, for example, Pianesi and Varzi (1996) or Artstein and Francez (2006) and references therein). However, in this chapter, I will talk of events and plurality of events.

way, telicity provides a “set terminal point”, but only under a certain description. Though it is not clear in Krifka’s texts, it appears that different descriptions do not necessarily lead to different events in the ontology, in the Kimean sense, but merely represent different ways in which a speaker picks out the event he means to refer to, in the Varzian sense. Consequently, telicity is not so much a property of events as it is a property of event descriptions.

Krifka assumes, along with Bach (1986), the basic nominal-verbal analogy that mass and count nouns are parallel to atelic and telic verbs, respectively. However, the notions of mass and count are replaced with cumulative and quantized respectively, where cumulative nouns include mass nouns and bare plurals, and quantized nouns include singular or cardinal plural nouns. Accordingly, atelic predicates are cumulative and telic predicates are quantized, though basic verbal predicates are always cumulative. Moreover, the notions of quantization and cumulativity apply to both objects and events. More specifically, an object/event is cumulative if, for any two parts of the object/ event, their sum is also a part of the object/event. On the other hand, an object/event is quantized if the sum of the two parts cannot be a proper part of the object/event. These ideas are exemplified in the table below.

Table 3.6 Quantization and Cumulativity

	Quantized	Cumulative
Nominal	‘three houses’, ‘the glass of wine’	‘houses’, ‘wine’
Verbal	‘build three houses’, ‘drink the glass of wine’	‘build houses’, ‘drink wine’

A verb phrase is determined to be telic (quantized) or atelic (cumulative) based on the relation between the event, denoted by the verb, and its theme, denoted by the direct object. This relation between the domain of events and the domain of individuals is constrained by certain properties that reflect a homomorphism, which is necessary to preserve the lattice structure. This means that as the event progresses, the direct object is gradually consumed or “used up” until there is no more object left, at which point the event ends. In other words, to the extent that the event progresses in time, the object is

affected to the same extent in space. For example, in ‘John built three houses’, as the event of building goes on, the houses start to take form, and this goes on gradually until there are three houses, at which point the event of building ceases.

The properties that guarantee the homomorphism between objects and events include: i) uniqueness of objects, which means that the event is related to a specific object and no other; ii) mapping to sub-objects, which means that every part of building a house corresponds to part of the house; iii) uniqueness of events, which means there is only one event related to the object via a thematic relation; and iv) mapping to sub-events, which means that every part of the house being built corresponds to a part of the building event. These relations together are also known as strict incrementality (Krifka 1998). Incrementality is the first element necessary towards building a telic predicate. The verb ‘eat’, for example, is incremental. The second element necessary is a direct object that is quantized, as in ‘three apples’. If the direct object is cumulative, the resulting predicate is atelic, as in ‘apples’. Hence, two (quantized) events of John eating three apples is not also an event of John eating three apples, whereas two (cumulative) events of John eating apples is also an event of John eating apples. The deciding factor in the (a)telicity of a VP is thus the quantized versus cumulative nature of the direct object, since incrementality alone does not guarantee telicity.

In a further analogy between nouns and verbs in the singularist perspective, events can be summed in the same way that individuals can, such that we can have plural events and plural objects. This extends to thematic roles as well, which leads to a treatment of cumulativity and distributivity. In Krifka’s (1989) example, ‘two girls ate seven apples’, the cumulative reading captures the eating relation between a sum of two girls and a sum of seven apples. For the distributive meaning, Krifka assumes a verbal operator to get the ‘each’ meaning for the plural object X consisting of two girls, each of which ate seven apples⁶⁸. Collective readings receive a different representation which Krifka does not provide.

However, Rothstein (2004) presents some critical problems for Krifka’s theory of telicity. For one, the same VP can be interpreted as an activity or an accomplishment, using ‘in x time’ and ‘for x time’ as indicators. See (3.16) from Rothstein (2004, p. 98).

⁶⁸ Note that this ‘each’ operator would not be necessary if the “Schein/Kratzer” approach to distributive and collective readings were assumed. The presence of plural arguments alone would lead to a distribution over eating events.

(3.16) John wiped the table / polished the vase in / for five minutes.

Rothstein also provides a variety of telic VPs in which the extent of the event is not determined by the extent of the theme, as in ‘repair the computer’, ‘prove the theorem’, ‘convince someone of something’, among others. Other evidence includes progressive achievements such as, ‘the pizza is arriving’, in which there is no incremental theme with which the verb has a gradual relation. Moreover, Zucchi and White (2001) present a series of examples in which a VP is telic but with a non-quantized theme. The examples below are repeated from Rothstein (2004, p. 151), again with the ‘in x time’ modifier indicating their telicity despite the cumulative direct object.

- (3.17) a. John wrote a sequence of numbers in ten minutes / *for ten minutes.
 b. Mary drank a quantity of milk in an hour / *for an hour.

Taken together, the evidence described above leads Rothstein not only to question the gradual relation as the source of incrementality, but to eventually conclude that telicity “has nothing to do with quantization and cumulativity” (2004, p. 151).

Rothstein’s (2004) study on lexical aspect serves as an advancement and expansion on the state of the art, including Krifka’s theory, and other studies based on the Vendler and Dowty tradition. As a point of departure, Rothstein (2004, p. 35) recasts Dowty’s take on the aspectual classes in a neo-Davidsonian framework, listed below as verbal templates.

(3.18) Verb class templates

- a. States $\lambda e.P(e)$
 b. Activities $\lambda e.(DO(P))(e)$
 c. Achievements $\lambda e.(BECOME(P))(e)$
 d. Accomplishments $\lambda e.\exists e_1\exists e_2[e=S(e_1\sqcup e_2) \wedge (DO(P))(e_1) \wedge Cul(e)=e_2]$

In line with Krifka, Rothstein claims that the incremental nature of accomplishments is due to the incremental thematic relation with their theme. But the definition of the accomplishments, as presented above, ends up being modified in order to account for a

broader number of cases than those covered by Krifka, which includes data from progressive achievements and resultatives.

Rothstein proposes that accomplishments are composed of activities plus a BECOME event, like the one that defines achievements. The BECOME event is equated with the incremental process, the final minimal event of which corresponds to the culmination of the event. This way, the incremental argument is the argument of both the culminating event as well as the BECOME event. Krifka's homomorphism is replaced by the incremental function, a contextually determined function which maps parts of the BECOME event onto the activity which results in a culmination of the activity. This culmination corresponds to the telic point. The accomplishment meaning from above is revised to reflect Rothstein's proposal.

(3.19) Accomplishment meaning revised

$$\begin{aligned} & \lambda e. \exists e_1 \exists e_2 [e =^S (e_1 \sqcup e_2) \\ & \wedge \text{ACTIVITY}_{\langle X \rangle} (e_1) \wedge \text{Ag}(e_1) = x \wedge \text{Th}(e_1) = y \\ & \wedge \text{BECOME}_{\langle Y \rangle} (e_2) \wedge \text{Arg}(e_2) = \text{Th}(e_1) \\ & \wedge \text{INCR}(e_1, e_2, C(e_2))] \end{aligned}$$

Though it seems the direct object is central to defining accomplishments and consequently, telicity, Rothstein claims that this is secondary to the fact that the principle characteristic of accomplishments and achievements versus activities and states is that the former pair involve change, while the latter pair do not. The property of change is more important since achievements can be telic independently of the properties of their arguments. This change is represented by the BECOME event.

Beyond this, the nature of the direct object is related to the BECOME event with respect to its atomicity. The notion of atomicity replaces Krifka's notion of quantization. What distinguishes the two is mainly reflected in the fact that Rothstein sees the nominal-verbal analogies differently than Krifka does. Instead of assuming that the count-mass distinction corresponds to the telic-atelic distinction, Rothstein (1999) argues that all verbal predicates have their denotation in the count domain. This does not mean that all verbal predicates are atomic, however, as Rothstein assumes that singular count predicates are not equivalent to atomic predicates. Her definition of atomicity is as follows (2004, p. 164):

(3.20) X is an atom of P in a context C if there is no y which is an atom of P in C such that x is a proper part of y.

Atomicity, then, is characteristic of a nominal or verbal predicate with respect to some context. The atomicity of a nominal count predicate depends upon the determiner, while the atomicity of a verbal count predicate depends upon criteria provided by lexical and contextual information. The telicity of a VP, then, is summarized in Rothstein's Telicity Principle (2004, p. 158).

(3.21) Telicity Principle

A VP is telic if it denotes a set of events X which is atomic, or which is a pluralization of an atomic set (i.e. if the criterion for individuating an atomic event in X are fully recoverable).

In accomplishments and achievements, this criterion is provided by the BECOME events. Consequently, activities and states are atelic unless atomic functions are provided by modifiers such as 'to the store' or 'for x time'.

Within this framework, Rothstein assumes Landman's (2000) approach to distributive and collective readings, which involve plural roles versus singular thematic roles, respectively. In order for a collective reading to have a singular thematic role, the argument of the BECOME event in an example such as (3.22), must be atomic. This means there is one atomic event of building with a theme of a group of three houses⁶⁹.

(3.22) Mary built three houses in three months.

The distributive reading, on the other hand, involves a sum of atomic events, with each event being the building of a single house. Recall, however, from chapter two that maintaining an ambiguity in plural NPs is undesirable given that the same plural NP can have both a distributive and collective meaning within a single discourse, complicates the potential for a semantic representation. See, for example, (3.23) below.

⁶⁹ Recall from chapter two that Landman's theory of plurals included a shift operation from sums to groups.

(3.23) Mary built three houses and John did too. Mary built hers in one go while John built one after the other.

Nevertheless, given the discussion in the previous chapter, there is no reason that this portion of Rothstein's theory cannot be replaced by the perspective proposed by Kratzer, for example, in which the distributive reading involves subevents of building, where each subevent involves a different house. The collective reading involves subevents of building, but all three houses are collectively understood as the themes of each subevent⁷⁰.

To sum up, the notions of incrementality, atomicity and telicity interact to provide an understanding of the meaning of lexical aspect and their class distinctions. The approaches presented in the works of Krifka (1989, 1992, 1998) and Rothstein (2004) depend on the assumption that both noun phrases, denoted by the set of individuals, and verbal predicates, denoted by the set of eventualities, be analyzed mereologically within a lattice structure. So far, we have explored nominal-verbal analogies with respect to plurals and events in chapter two and now with respect to lexical aspect. This singularist perspective can be extended to the analysis of grammatical aspect as well, as demonstrated in Filip (1999, 2001). Importantly, Filip defends a clear distinction between the categories of lexical aspect and grammatical aspect, criticizing those theories in which the semantic contribution of grammatical aspectual operators is treated merely with respect to eventuality types.

Though Filip assumes Krifka's (1989, 1992) account⁷¹, she claims that the lack of distinction between the two types of aspect is one of its main drawbacks. Krifka basically applied the terms 'quantized' and 'cumulative' not only to telic and atelic predicates, respectively, but also to perfective and imperfective sentences, respectively. Filip claims that this leads to an oversimplification which prevents the proper treatment of aspectual data from a cross-linguistic point of view.

While there are many nominal-verbal analogies to be exploited in the semantics of aspect and events, which favors systematic treatments of various phenomena and results in a more streamlined theory, principles of economy should not preempt the

⁷⁰ Kratzer's single agent constraint can be generalized to the theme position as well.

⁷¹ Filip's (1999, 2001) work, which predates Rothstein's (2004) contribution, assumes Krifka's framework with respect to quantization and cumulativity as well as the homomorphism. Though, the notions of quantization and homomorphism can be replaced with Rothstein's atomicity and incremental chain, respectively, I will maintain Filip's terms for the sake of simplicity, since the notions are complementary.

proper representation of the concepts involved. While lexical and grammatical aspect are both “inherently verbal categories” and “are mainly designed to operate on the domain of eventualities” (Filip 2001, p. 455), reducing one category to the other not only risks the problems discussed in section 3.1.3, but also misses out on some important analogies that benefit a cross-linguistic analysis in a broader range of languages. This is because there are languages that also encode aspectual information in NPs and PPs, with denotations in the domain of individuals.

As seen in the works of Krifka and Rothstein, the features of the thematic argument influence the interpretation of the VP. Quantized NPs lead to telic predicates, while cumulative NPs lead to atelic predicates. However, in Slavic languages, for example, it is the verb predicate that influences the interpretation of the thematic argument (Filip 1999, 2001). Slavic languages do not have articles like ‘a’ or ‘the’ in English. So, when a mass noun or bare plural is used as a theme argument in a perfective sentence, it is interpreted as an indefinite, so that the eventuality is seen as a whole. On the other hand, when a mass noun or bare plural is used as an argument in an imperfective sentence, it gets an indefinite interpretation. These facts support a true one-to-one relation between the domain of individuals and the domain of events. Indeed, Filip claims that the verb predicate and its arguments are mutually constraining with respect to their interpretation. However, one might be motivated to reduce the features of definiteness and indefiniteness to quantization and cumulativeness, respectively. This approach would then be incapable of capturing the fact that there are NPs in the Czech language, for example, that can be definite and cumulative. In fact, Krifka’s framework predicts such a reduction. It also predicts that quantization and cumulativeness be reduced to perfectivity and imperfectivity, respectively⁷². While this appears to favor a more efficient theory, it also makes incorrect predictions. There are languages, like Czech, in which NPs can be definite in both imperfective and perfective sentences. The same goes for quantized NPs in Russian, which maintain their nature despite the imperfective or perfective context.

Given the facts in the previous paragraph, there are three pairs of features that Filip (1999, 2001) proposes should be distinguished. They are: i) definiteness vs. indefiniteness; ii) quantization and cumulativeness; and iii) partitivity and totality. The third pair of features, according to Filip, reflects the main semantic contributions of

⁷² The same can be said about Rothstein’s atomicity.

imperfectivity and perfectivity, respectively. Like quantization and cumulativity, these features are also mereologically based, but they provide distinct semantic information. Filip's idea that the verb predicate and its (internal) arguments are mutually constraining contribute to the understanding of these pairs of features which, in turn, contribute to the interpretation of constructions involving the interaction between lexical and grammatical aspect⁷³.

Filip (1999, 2001) proposes that the main contribution of the imperfective (in its continuous interpretation) is that of partitivity, while perfectivity contributes totality. Basically, the imperfective acts as a function that maps eventualities onto "partial events" and the perfective acts as a function that maps eventualities onto events seen in their entirety, as "total events". "Total events" are those that have attained their inherent endpoint, or those that have merely ended. The partitivity function is slightly different for imperfectives and morphological progressives as they are not equivalent. "Partial events" are expressed by a PART condition, as in (3.24).

(3.24) PART: $\lambda P \lambda e' \exists e [P(e) \ \& \ e' \leq e]$

The weak ordering relation, ' \leq ', represents imperfectivity, which means that a perfective interpretation is possible. This is true for Slavic languages, in which the "partial event" may actually be equal to the corresponding "whole event" denoted by P. This results in the possibility of a perfective interpretation with imperfective morphology. On the other hand, the progressive structure cannot have a perfective interpretation and thus, is considered a function which maps eventualities onto their proper parts, represented by the strong ordering relation, '<'.

These definitions for perfectivity and imperfectivity represent what Filip (1999, 2001) refers to as the "prototype view of aspect" and proposes that these mereological relations represent the semantic core of all grammatical aspectual systems. This generalization is due to the fact that parallels across languages can be described "regardless whether the relevant aspectual notions are expressed by means of verbs, or some periphrastic verbal constructions or by means of nouns, noun phrases and various constructions with a locative or partitive origin" (1999, p.216).

⁷³ This idea provides empirical support for Schein's and Kratzer's treatment of plurals in the previous chapter, in which the plurality of the arguments influences the plural interpretation of the (sub)events denoted by the verb.

This aspectually enriched perspective accounts for the range of data that Filip discusses on Slavic languages, which conflicted with the simplified versions in Krifka and Rothstein, and has the added advantage of strengthening even more the empirical support for nominal-verbal analogies within the singularist view.

The next section builds further on this type of approach to account for the core notions expressed by the perfective and imperfective as well as the related notions of progressivity, habituality and iterativity.

3.2.2 Extending nominal-verbal analogies to grammatical aspect

Progressives and habituais are subtypes of the imperfective⁷⁴. This includes the imperfective with past temporal reference as well as present temporal reference. Perfectivity includes, among other notions, the past tense and the perfect. The notion of iterativity is variably considered synonymous with plurality, repetition in general and habituality. Habituais, in turn, are often considered subtypes of generics. These notions have been dealt with in numerous types of theoretical frameworks, each with different empirical motivations. There are, for example, complex interactions between the various values of grammatical aspect and adverbs of quantification, which have led to proposals of covert adverbs of quantification for certain aspectual values. There is also the question of modality and extensionality versus intensionality with respect to imperfectivity and its subtypes. These are only a few of the many issues that complicate a straightforward treatment of grammatical aspect regardless of the theoretical perspective assumed. Since an in-depth investigation of any one of these grammatical structures is beyond the scope of this section, the purpose here is to examine the role of plurality in grammatical aspect, since the primary motivation of this dissertation is the apparently obligatory reading of plurality with respect to the present perfect structure in Brazilian Portuguese. Instead of defending any particular account over another, all that matters is that they are compatible with the basic singularist perspective. I will deal primarily with studies that focus on Romance languages, with comparisons to English.

Ferreira (2005) proposes a unified treatment for the progressive and habitual readings of the imperfective, attributing the same temporal and modal ingredients to

⁷⁴ While this is a basic assumption by many authors (Comrie 1976, Bybee et al. 1994), it is by no means uncontroversial. See Boneh and Doron (2009), for example, who argue that the treatment of habituality should be completely separate from that of imperfectivity.

both. Following Link (1983), Ferreira assumes the existence of singular and plural individuals in the ontology, with the latter having singular individuals as their minimal, proper parts. Following Kratzer (1996), the author assumes that all lexical predicates are cumulative and, this way, the extension of bare NPs denoting one-place predicates may contain both singular and plural individuals. The singular (SL) versus plural (PL) morphemes select the atomic versus non-atomic individuals in a predicate extension. Evidence for this intuition comes from the nominal domain with plurals.

- (3.25) a. Every mother of a one year old child agreed to sign this form.
 b. #The mothers of a one year old child agreed to sign this form.

The contrast in (3.25a) and (3.25b) is with respect to the number of the pair of nouns, ‘mother’ versus ‘mothers’, singular versus plural, respectively. In (3.25a), the reading is that each singular mother of each singular baby agreed to sign the form, but in (3.25b), it appears that there is a group of mothers of a single baby who agreed to sign the form, suggesting the biological impossibility (so far) of a single child having many mothers. Ultimately, this insight from the nominal domain is what forms the basis of Ferreira’s treatment of progressive and habitual sentences.

Ferreira (2005) argues that there are hidden elements in the syntactic representation of certain sentences, and particularly those that involve plural definite descriptions of events and event quantifiers selectively binding plural variables. Drawing from analogies in the nominal domain regarding singular/plural oppositions, the aspectual/verbal domain is claimed to behave in the same way, even in the absence of any overt morphological manifestation.

Ferreira proposes different treatments for two different kinds of habituals. Bare habituals, as in (3.26), involve plural definite descriptions of events.

- (3.26) When John has dinner with friends, he drinks wine.

The logical form would correspond to a reading like, “The events of John having dinner with friends overlap with events of John drinking wine”. The ‘the’ in that reading is represented by a silent habitual operator in bare habitual structures, such that they do not appear in the surface form, but in the logical form. Habituals with adverbs of quantification, as in (3.27), involve quantification over singular events or situations,

which has a more straightforward adaptation from the nominal domain, involving quantifiers over individuals.

(3.27) When John has dinner with friends, he always drinks wine.

The logical form would read “Every event of John having dinner with friends overlaps with an event of him drinking wine”. The different treatments for the two kinds of habituals are due to Ferreira’s proposal that it is not the adverbial that is responsible for the habitual interpretation, as some traditional views assume (Krifka et al. 1995). The idea is that habituality is not the same as plurality. If it were, then the examples in (3.28) would have the same meaning, since they have the same adverbial modifiers, but this is not the case.

(3.28) a. (No semestre passado), às segundas-feiras, o João sempre ia pra escola de trem.

(Last semester), on Mondays, John always went-IMP to school by train.

b. (No semestre passado), às segundas-feiras, João sempre foi pra escola de trem.

(Last semester), on Mondays, John always went-PERF to school by train.

The imperfective sentence expresses John’s habit, how he usually went to school last semester. The perfective sentence, on the other hand, expresses past facts which may or may not be a reflection of his habits. This difference relates to the area of modality, which involves notions of possibility and necessity. However, Ferreira claims that these effects are not due to the semantics of ‘sempre’, but because of the fact that imperfectives, and also progressives, appear in the scope of a modal operator, more specifically, a covert plural definite determiner.

A sentence like ‘Mary is crossing the street’ may be true, but this does not necessarily imply that ‘Mary has crossed the street’, since she may have been hit by a bus in the middle of the road. Ferreira suggests solving this puzzle, known as the “imperfective paradox”, by adding a modal component to the meaning of progressive sentences such that the speaker, when uttering progressive sentences with an achievement or accomplishment verb, is not committing himself to the existence of a complete event of ‘crossing the street’, for example.

Ferreira (2005) includes present tense and progressive constructions under the imperfective heading. Non-stative verbs in the present tense give rise to habitual readings. See (3.29).

- (3.29) a. John smokes
b. Mary lies.

Progressive constructions can give rise to at least two different kinds of readings, habitual and on-going at speech time. See (3.30).

- (3.30) Mary is eating healthy food (these days / right now).

In line with his previous arguments, Ferreira claims that imperfectives have both a temporal and a modal component, which are the same for both types of readings. They are distinguished with respect to the assertions they make: the former asserts the existence of a plural event while the latter asserts the existence of a singular event.

Sentences like the ones discussed here include an imperfective operator, *Imp*, which can express both singular, continuous events, as well as plural sequences of events. The differences are a result of *Imp* combining with either a singular or plural VP. When the *Imp* operator combines with a singular VP, a single event is expressed and when the operator combines with a plural VP, a sequence of events is expressed. An unmodified *Imp* operator is compatible with both singular and plural readings. Aside from this difference, the remaining elements of the logical form of continuous and habitual sentences are the same. Ferreira finds corresponding behavior in the nominal domain in determiners such as ‘some’, which can combine with both singular and plural NPs, as in ‘some boy’ versus ‘some boys’. Other determiners can combine with only one or the other, as in ‘every’, which combines only with singular NPs, allowing ‘every boy’ but not ‘every boys’, and ‘many’, which combines only with plural NPs, allowing ‘many boys’ and disallowing ‘many boy’.

When accomplishments, (3.31c), and activities, (3.31b), are in the present tense, only habitual readings arise, suggesting that a covert *Imp_{pl}* is part of their logical form.

- (3.31) a. John loves Mary. (continuous)
b. Mary dyes her hair. (habitual)

- c. John walks to school. (habitual)
 d. ?Mary wins the race. (continuous, reportive reading only)

A straightforward treatment for states, (3.31a), in the present tense is that they can only have a continuous reading of an ongoing situation that overlaps with speech time, suggesting a covert *Imp_{sg}* in the logical form. However, instead of this Ferreira maintains a covert *Imp_{pl}*, but adding that stative predicates possess a property called interval density such that the sequences of states must overlap with speech time. Nothing is said of achievements, (3.31d). However, an alternative to this is if we maintain that states in the present tense give rise to a continuous reading, then we can extend this to the less salient reading of achievements in the present tense. With achievements, a continuous reading is possible, but only in the reportive sense, also known as sportscaster style. In this case, states and achievements in the present tense would suggest a covert *Imp_{sg}* in the logical form.

In the progressive, habitual and continuous readings arise, suggesting a covert *Imp_{pl}* and *Imp_{sg}*, respectively, in the logical form. With ambiguous sentences such as (3.30), deciding which covert operator is the relevant one depends on contextual interpretation. Another interesting piece of data is that the imperfective accepts plural indefinites under its scope as long as there is no cardinality requirement, as in (3.32).

(3.32) #John smokes five cigarettes.

This is because “the imperfective operator requires the VP-predicate to hold not only of the plural event whose existence is being asserted, but of its proper parts as well” (Ferreira 2005, pg. 105). Singular indefinites also result in an odd sentence.

(3.33) #John smokes a cigarette.

This is because the present tense selects for plural predicates of events where activities are concerned, resulting in habitual interpretations.

The main idea of Ferreira’s proposal for imperfectives and progressives is that the different readings that arise, continuous versus habitual, derive “from a difference concerning the plurality of the time intervals being quantified over, singular intervals in the case of continuous readings, plural intervals in the case of habituals” (2005, pg.

116). However, it can be argued that number is not the distinguishing factor between progressive and habitual readings. Both potentially denote plural events, but as mentioned earlier, plurality does not equate with habituality. Consider example (3.34) by Boneh and Doron (2009, p.16)

(3.34) Sue is dialing a busy number.

The dialing repeats, but it is not a habit. Moreover, the apparent habituality expressed by the progressive does not always allow for exceptions, which is a characteristic of habits, as shown in (3.35a) (cf. p. 17).

- (3.35) a. #They are issuing visas at the consulate, but they are closed this month.
 b. They issue visas at the consulate, but they are closed this month.

These differences lead Boneh and Doron to propose that the progressive and habitual are different modal operators⁷⁵.

While many authors defend the progressive and habitual to be subtypes of the imperfective, one of the major theoretical problems is in reconciling the two meanings within a unified account. Another is a providing a solution to the imperfective paradox. This often leads to semantic representations and licensing conditions that favor or reduce one reading to the other. Despite this, I will review at least one way in which progressive and habitual readings have traditionally been dealt with and which is compatible with a singularist view, given the mereologically-based approach. An approach already mentioned in the previous section is that of Filip (1999, 2001), which treats the progressive as a partitivity operator, such that a set of eventualities is mapped to their (proper) parts. The basic idea behind this view is also defended by Landman (1992), Bertinetto (1996) and Delfitto and Bertinetto (1995). The habitual reading has often received a quantificational analysis due to the presence of adverbs such as ‘always’ and ‘often’, a view defended by Bonomi (1997), Chierchia (1995) and many others. I will discuss each type of reading in turn⁷⁶.

Bertinetto (1996) discusses the idea of the progressive representing a part of the event denoted by the predicate as sharing enough properties with the event that it can be

⁷⁵ See Boneh and Doron (2009) for details on this approach.

⁷⁶ For arguments against both types of approaches, see Giorgi and Pianesi (2004).

considered a less developed version of it⁷⁷. So, for (3.36), at least one subevent of crossing must have occurred. This subpart, of course, may exclude the telic point of getting to the other side.

(3.36) Mary is crossing the street.

This type of approach should be capable of accounting for the fact that speakers may infer, in (3.36) for example, that the crossing event may continue, even if it never actually does. This explains the imperfective paradox of why a sentence like (3.36) does not entail its perfective counterpart. According to this view, whatever the proper definition of the partialization operator is, it should at least contain a condition of the type in (3.37), which expresses the relation between an event and its progressive subpart.

(3.37) $\exists e'(P(e') \ \& \ e \subseteq e')$ ⁷⁸

Ideally, whatever the proper definition for imperfectivity is, for a unified account of progressive and habitual meanings, one would be able to replace the partitive relation in (3.37) with some relation expressing habituality, to get this reading. Whether this is ultimately possible with the particular theories discussed here is a question for another occasion.

With respect to the quantificational approach to habituality, I will focus on the framework proposed by Lenci and Bertinetto (2000). They part from the assumption that aspect should be considered a type of A-quantification, which also includes adverbs, auxiliaries, affixes and argument-structure adjusters as means for establishing the quantificational force of sentences. The authors propose that the habitual imperfect introduces a modal generic quantifier, which can co-occur with (instead of be replaced by) overt quantificational adverbs. This means that habitual readings always receive an adverbial quantifier, either overtly or covertly. Comparisons are also made with perfective sentences which also may contain quantificational adverbs.

Perfective and imperfective sentences behave differently with different types of adverbs. The literature typically distinguishes between frequency, or relational, adverbs

⁷⁷ This idea is based on Landman's (1992) distinction between the 'part-of' and 'stage-of' relation.

⁷⁸ This representation is virtually the same as that of Filip's partitive operator.

(e.g. ‘often’, ‘always’, ‘twice a day’) and iterative (or cardinal) adverbs (e.g. ‘twice’, ‘many times’). It is well-established that the imperfect is incompatible with iterative adverbs. These examples are adapted from Lenci and Bertinetto (2000, p.247).

(3.38) a. *João ia pra praia com a Maria duas vezes.

John went-IMP to the beach with Mary twice.

b. (?)João assistia Blade Runner muitas vezes⁷⁹.

John watched-IMP Blade Runner many times.

(3.39) a. João foi pra praia duas vezes.

John went-PERF to the beach many times.

b. João assistiu Blade Runner muitas vezes.

John watched-PERF Blade Runner many times.

It is also known that perfective sentences are ambiguous between a singular, episodic reading and a habitual/generic one, as shown in (3.40).

(3.40) John walked to school.

The generic reading can be specified with an explicit adverb like ‘every day’. However, plurality of events is not equated with habituality. Consider (3.41), adapted from Lenci and Bertinetto (2000, p.251).

(3.41) a. No ano passado, João encontrava Maria na universidade.

Last year, John met-IMP Mary at the university.

b. No ano passado, João encontrou Maria na universidade.

Last year, John met-PERF Mary at the university.

(3.41a) expresses a regular habit of John meeting Mary at the university last year, sometimes referred to as a “nomic generalization”. And while (3.41b) is compatible with repeated meetings, it expresses the facts of the situation and not any kind of habit that is capable of continuing beyond the reference time. This latter type of reading is

⁷⁹ In Italian, this type of sentence receives a Kleene star of unacceptability, though it is not restricted in Brazilian Portuguese. The Portuguese imperfect is always restricted, however, with cardinal iterative adverbs.

often referred to as an “accidental generalization”. Moreover, it is not the presence of the adverb that makes a sentence habitual, but imperfective marking, in the case of Romance languages. This is shown by the differences in interpretation of the following sentences.

(3.42) a. João frequentemente saía com Maria.

John frequently went-IMP out with Mary.

b. João frequentemente saiu com Maria.

John frequently went-PERF out with Mary.

Again, (3.42a) expresses a regular habit of John going out with Mary, but (3.42b), basically describes some bounded number of events of John going out with Mary.

Lenci and Bertinetto (2000) propose that the perfective is extensional while the imperfective is intensional. They also cite evidence that the progressive meaning is intensional as well (Landman 1992). The idea behind this distinction is that the perfective always deals with sets of actual classes. That is, they only involve events that exist in the actual world. The imperfective, which also deals with actual classes, sometimes expresses relations between sets of non-actual classes. This means the events denoted by the imperfective sentences do not need to have occurred in the real world to be considered true. Consider (3.43), adapted from Lenci and Bertinetto’s examples in (2000, p.256).

(3.43) a. ?*Em 1998, os habitantes de Pisa foram para a praia uma vez em cada dez anos.

In 1998, the inhabitants of Pisa went-PERF to the beach once every ten years.

b. Em 1998, os habitantes de Pisa iam para a praia uma vez em cada dez anos.

In 1998, the inhabitants of Pisa went-IMP to the beach once every ten years.

The generalization depicted in (3.43a) is delimited by the temporal adverb which conflicts with the frequency adverb at the end. However, the sentence in (3.43b) depicts a general tendency that is not restricted by the temporal adverb. Moreover, even if there were inhabitants of Pisa that never went to the beach at all, sentence (3.43b) would still be true. The idea is that habitual sentences do not necessarily have to denote specific individuals or events in order to be true.

Assuming the intensionality of the imperfective, a model of intensional logic, with possible worlds, is required. Lenci and Bertinetto (2000) base their analysis on Chierchia's (1995) model of intensional logic. This type of model includes the domain of individuals and events, which can be structured according to semi-lattice structures, and which are included in a single, multisorted domain, 'D'. There is also a set of possible worlds, 'W', and an ordering source, ' \leq_w ', over possible worlds. The ordering source ranks the possible worlds according to how "close" they are to the actual world. The more differences between the actual world and the possible world, the "farther" it is. The worlds are ordered within a "modal base", a contextually determined parameter that picks out all the relevant worlds before they are ordered. There is also an interpretation function, 'F'.

The perfective operator is represented as in (3.44) below. It is an existential type operator that binds the time variable, 'i'. The first conjunct represents the contextually-determined size of the temporal interval and the second conjunct represents the quantification of events that took place inside that interval.

(3.44) $\text{Perf}[i](C(i) \ \& \ \varphi(i))$

The perfective, which refers to one or more bounded events, is extensional in the sense that its interpretation involves only the actual world. So a sentence such as (3.45a) has its representation in (3.45b) (Lenci and Bertinetto, p.271).

(3.45) a. John smoked.

b. $\text{Perf}[i](C(i) \ \& \ i <_t \text{Now} \ \& \ \exists e(\text{smoke}(e) \ \& \ \text{agent}(\text{John}, e) \ \& \ e \subseteq i))$

As suggested earlier, the imperfective is capable of expressing sentences that denote either existing or non-existing events.

(3.46) a. João fumava.

John smoked-IMP.

b. Maria vendia cosméticos.

Mary sold-IMP cosmetics.

(3.46a) seems to require at least some events of smoking in order to be true, but (3.46b) can be true of Maria even if she never actually sold a single product. Lenci and Bertinetto (2000), based on intuitions from Krifka et al. (1995), claim that there are two types of habituals, those that are deductively based and those that are inductively based. The deductive type makes no requirement on the existence of events for a true interpretation, while for the inductive type, some occurrences of the event must have taken place. These differences are reflected in the modal base and ordering source. The presence of quantificational adverbs always leads to an inductive interpretation. The basic generic operator is defined in Lenci and Bertinetto (2000) as follows:

$$(3.47) \exists i(C(i) \ \& \ G_n [\text{overlap}(i, i') \ \& \ D(i')] \ \& \ \varphi(d_1, \dots, d_n)) [\psi(d_1, \dots, d_n)]$$

The generic operator is considered a “strong quantifier” like the universal quantifier, ‘ \forall ’ (Diesing 1992), and is triggered by imperfective morphology. The above representation involves the relation between two intervals, an external one, represented by ‘C(i)’ and an internal one, ‘i’’, which is bound by the generic operator and is also contextually determined by ‘D(i’)’. The external interval can be overtly specified by a temporal adverb, co-occurring with the generic operator. See the example in (3.48a) and its corresponding representation (3.48b) (adapted from Lenci and Bertinetto (2000, p.273-4)).

(3.48) a. Em 1998, João ia ao cinema com a Maria.

In 1998, John went-IMP to the cinema with Mary.

b. $\exists e(i=1998 \ \& \ i <_t \text{Now} \ \& \ G_n[\text{overlap}(i, i') \ \& \ D(i')] \ \& \ \text{go}(e) \ \& \ \text{theme}(\text{John}, e) \ \& \ \text{to}(\text{cinema}, e) \ \& \ e \sqsubseteq i') [\text{with}(\text{Mary}, e)]$

This type of logical form is similar to that of conditional or ‘when’-clause statements and explains why imperfective sentences are sometimes compatible with iterative adverbs. The sentence in (3.49a) is paraphrased as in (3.49b), in which the ‘if’/‘when’-clause acts like the external interval with overlaps with the matrix clause with the iterative adverb.

(3.49) a. My postman rings twice.

b. If/When my postman rings, he rings twice.

Differently from perfective sentences with iterative adverbs, which are ambiguous between a repeated (i.e. many occasions of ringing) and repetitive reading (i.e. a single occasion of repetitive ringing), the imperfect only has a repetitive reading⁸⁰. Moreover, “habitual sentences are always compatible with frequency adverbs expressing cyclic iteration” (Lenci and Bertinetto 2000, p.280).

(3.50) a. João me ligava três vezes por semana.

John called-IMP me three times a week.

b. João ia ao cinema duas vezes por mês.

John went-IMP to the cinema twice a month.

Moreover, differently from purely iterative adverbs, Lenci and Bertinetto assume that these types of cyclic iterations involve universal quantification over time intervals.

Summing up so far, we have discussed the difference between the perfective and imperfective in quantificational contexts and reviewed a quantificational analysis to these phenomena and their interaction with adverbs. The progressive was also discussed as a partitive function that maps events to their subparts. The partitive approach can be said to apply to both the progressive structure, *be/estar+gerund*, as well as the progressive interpretation of the imperfective. While these types of accounts are far from controversial, they are heavily represented in the literature on the semantics of grammatical aspect. What is important to keep in mind in this section, and in fact, this chapter, is not the details of each approach, but the general assumptions that sustain them. In the present context, this means that the accounts presented up until this point are all compatible with a singularist perspective which exploits nominal-verbal analogies for the treatment of aspectual phenomena.

In addition to the semantic notions discussed so far, Romance languages present a variety of verbal periphrases composed of an auxiliary and gerund. In Portuguese, the auxiliaries used in these constructions include: ‘continuar’, ‘ficar’, ‘viver’, ‘andar’, ‘ir’

⁸⁰ Repeated readings are treated as a temporally bound “event units” which can be counted. Repetitive readings are treated as collective sums of atomic events, whose parts are denoted by the predicate. Lenci and Bertinetto (2000) consider iterative verbs to be types of pluractional markers, in the sense of Lasnik (1995). This way of treating iterative adverbs provides further support for a singularist view of event-based plurals.

and ‘vir’⁸¹. In a study that involved all the Romance languages, Bertinetto (2000) groups together periphrases with ‘andar’, ‘ir’ and ‘vir’ auxiliaries under the title of “motion-progressive” in contrast to “state-progressive” which refers to the traditional progressive with ‘be’/‘estar’. There have been sociolinguistic studies aimed at showing that the state-progressive is increasingly being used in contexts where the PPC generally occurs (Mendes 2004). It has also been said that motion-progressives can appear in similar contexts and have similar meanings to those of the PPC (Cavalli 2008). Due to these comparisons, it is worth taking a closer look at these constructions. Moreover, Laca (2006) suggests that aspectual periphrases reveal yet another case of nominal-verbal analogies. This will be discussed below.

In a typological study focusing on these verbal periphrases in Romance languages, Bertinetto (2000) states that the auxiliaries ‘ir’, ‘vir’ and ‘andar’ are not completely bleached in the sense that they still contribute some meaning of a deictic, or spatial-temporal orientation. ‘Ir’ and ‘vir’ have goal-oriented meanings while ‘andar’ has more of an undirected, perambulative meaning (Bertinetto 2000). Though the *estar*+gerund is considered a dynamic structure, it is more static when compared to motion-progressives. Consider the examples below, adapted from Bertinetto (2000, p. 17).

(3.51) a. João esteve / estava colocando livros das três às cinco horas.

John was-PERF / was-IMP shelving books from three to five o'clock.

b. João foi colocando livros das três às cinco horas.

John went-PERF shelving books from three to five o'clock.

There are differences as well between the progressive with perfective auxiliary versus the imperfective auxiliary. The former appears to be the most static of the three, while the *ir*+gerund construction is the most dynamic. This dynamicity refers to the sequence of gestures involved in placing the books, which Bertinetto refers to as “plurifocalization”. The *estar*+gerund expresses mainly durativity, or “monofocalization”.

Following Lasersohn (1995), Laca (2006) assumes that verbs modified by pluractional markers are “predicates of sets of events of the sort denoted by the

⁸¹ Literally ‘to continue’, ‘to stay’, ‘to live’, ‘to walk’, ‘to go’ and ‘to come’, respectively.

modified verb whose cardinality is higher than some threshold n and such that the events in the set have different participants, locations or running times. Temporal pluractionality arises when the events in the set X are required to have distinct non-overlapping running times ($\tau(e)$)” (2006, pg. 194). The definition of temporal pluractionality is in (3.52)⁸².

$$(3.52) \text{ V-PA}(X) \Leftrightarrow \forall e, e' \in X[\text{V}(e) \ \& \ \neg\tau(e) \circ \tau(e')] \ \& \ \text{card}(X) \geq n.$$

In a study on the Spanish aspectual periphrases, Laca (2004, 2006) distinguishes *estar+gerund*, a time-relational aspect, from *ir+gerund* and *andar+gerund*, eventuality modifiers which contribute aspectual operators. Laca defines the *ir+gerund* as an incremental pluractional, contributing the operator INCR⁸³, which involves a “monotonic mapping between successive times and successive positions on some scale” (2004, p.4). This periphrasis is exemplified below.

(3.53) La situación va empeorando.

The situation has been getting worse.

The *andar+gerund* periphrasis is defined as contributing a frequentative, FREQ^{84} , operator, which can involve repeated occurrences of a complete event or subevents with gaps in a singular event. See (3.54).

⁸² In another example of confusion regarding the distinction between grammatical and lexical aspect, Laca follows Van Geenhoven (2004) in likening pluractionality, denoted by aspectual markers, to atelicity, a property of certain types of eventualities, namely states and activities. This analogy is similar to that of saying that perfectivity expresses telicity. There is no reason atelicity needs to be used to describe pluractional events, especially since telic predicates can be used in these constructions. Moreover, the notion of unboundedness is capable of conveying the authors’ intended meaning while avoiding the confusion of certain notions that should remain distinct, as discussed throughout this chapter.

⁸³ This is to be distinguished from the INCR function in the sense of Krifka and Rothstein, though the basic intuitive sense is the same.

⁸⁴ With the FREQ operator, Laca (2006) claims that *andar+gerund* gives rise to “atelic descriptions”, an unfortunate choice of words that might be better described as “unbounded or imperfective descriptions” since (a)telicity is a property of aspectual classes and not of pluractional operators. However, this confusion may be due to the fact that Laca (2006) draws analogies between the operators and certain lexical verbs. For example, Laca likens the FREQ operator to verbs like ‘nibble’ and semelfactives like ‘knock for five minutes’ or ‘jump to the pond’. Also, the *ir+gerund* is associated with degree achievements. On the other hand, these similarities may be misleading due to the fact that the ‘ir’ and ‘andar’ auxiliaries make a semantic contribution to the overall meaning of the aspectual periphrasis due to the fact of “semantic persistence” (Hopper 1991, Cavalli 2008). This means that these auxiliaries still preserve some of their original meaning as main verbs in the grammaticalization process.

(3.54) *Anda molestando a la gente.*

[He] has been bothering people.

Laca (2004, 2006) suggests that the behavior of these periphrases is similar to that in Portuguese. In both languages, the ‘andar’ auxiliary involves undirected motion and the ‘ir’ auxiliary involves goal-directed motion. However, they present different restrictions, particularly with respect to the type of aspectual classes they accept (Squartini 1998).

With respect to compatibility with verb types, the Spanish *ir+gerund* does not seem to go well with activities, but does with degree achievements. *Andar+gerund* shows the opposite behavior. And apparently both do not combine with states and achievements. While it is true that in Portuguese, *ir+gerund* prefers telic, durative predicates like accomplishments and especially degree achievements, atelic predicates are also acceptable with an inceptive or inchoative reading (Squartini 1998). *Andar+gerund* prefers durative, dynamic predicates like activities and accomplishments, though states and degree achievements are also possible. Below are some examples illustrating the two periphrases in Portuguese.

Activities

(3.55) *Maria ?vai / anda trabalhando.*

Mary has been working.

States

(3.56) *Maria ?vai / anda pensando em casar.*

Mary has been thinking of getting married.

The *ir+gerund*, particularly the auxiliary marked for the present tense, seems to have an inceptive reading with atelic predicates, which is more easily achieved in a focalized context.

(3.57) a. *Toda vez que Maria chega, ela já vai perguntando de ti.*

Every time Mary arrives, she’s already asking about you.

b. *Enquanto as suas amigas procuram emprego, Maria vai pensando em casar.*

While her friends look for jobs, Mary is thinking about getting married.

Degree Achievements

(3.58) O rio vai / anda subindo.

The river is / has been rising.

While degree achievements are most compatible with the *ir+gerund*, the *andar+gerund* does not restrict it. Both constructions seem to be compatible with accomplishments.

Accomplishments

(3.59) João foi / andou se desinteressando por Maria.

John has been losing interest for Mary.

With respect to achievements, the most appropriate contexts involve a plural reading, which can be derived from a plural or mass argument in subject or object position.

Achievements

(3.60) a. Maria foi / andou buscando uma solução melhor para o problema.

Mary has been searching for a better solution to the problem.

b. Os preços foram / andaram caindo.

The prices have been falling.

Since both *ir+gerund* and *andar+gerund* are compatible with durative, dynamic contexts, the variability with respect to telicity can be accommodated depending on the context and tense form of the auxiliary. Despite the possible variability in acceptability patterns between Spanish and Portuguese, the frequentative nature of *andar+gerund* and the incremental nature of *ir+gerund* appear to be adequate and any potential restrictions on aspectual classes probably come from another source. Portuguese also has a *vir+gerund*, which appears to pattern with *ir+gerund* with respect to compatibility with aspectual classes. The following examples show how *vir+gerund* is also compatible with incremental contexts.

(3.61) a. O rio ia / vinha subindo.

The river was / has been rising.

b. Os convidados foram / vieram cumprimentando o dono da casa.

The guests were / came greeting the host.

Similarly to *ir*+gerund, *vir*+gerund seems to require a focalization point, based on which the periphrasis is interpreted. However, the orientation of the focalization point is different for both. For example, the inchoative readings of *ir*+gerund suggest that it is parting from some focalization point that the events denoted by this periphrasis begin to take place. On the other hand, the *vir*+gerund appears to require only that it be oriented towards some reference time, which is contributed by the tense of the verb, thus serving as its focalization point. Consider the minimal pair below.

(3.62) Maria vai / vem desenvolvendo projetos para empresas.

Mary has been developing projects for companies.

For example, if someone asks ‘Me diz uma coisa sobre a Maria’, the *ir*+gerund response appears to require some prior context based on which it can be interpreted, while *vir*+gerund does not. Compare with (3.63).

(3.63) Já com curso de arquitetura, Maria vai desenvolvendo projetos para empresas.

With a degree in architecture, Mary has been developing projects for companies.

Returning to Laca’s proposal on pluractional markers, those contributed by aspectual periphrases operate on the VP, instead of on the verb alone like most pluractional markers. This way, the operator has scope over the verb and its arguments. This assumption comes from the need to explain certain distribution effects over participants. With the *ir*+gerund, a plural argument is required in certain contexts to achieve the incremental meaning of this construction.

(3.64) ??Pedro foi / os convidados foram cumprimentando o dono da casa.

Pedro was / the guests were greeting the host.

The *andar*+gerund may require a plural argument in order to allow for the reading of subevents with different participants.

(3.65) O raposo anda matando ??uma galinha / ??três galinhas / galinhas.

The fox has been killing a chicken / three chickens / chickens.

Laca claims that in these types of contexts, the *FREQ* operator, contributed by *andar+gerund*, requires an argument that can be distributed or multiplied. Parallel behavior can be found in the nominal domain. Collective nouns, understood as groups in the sense of Landman (2000), can distribute, such that the interpretation of (3.66a) does not require joint ownership; different members of the family can own different buildings. However, they cannot receive cardinal modification.

(3.66) a. My family owns buildings in the neighborhood.

b. *My family is four.

This leads Laca to conclude that the pluractional operators, *FREQ* and *INCR*, represent predicates of groups of events just like collective nouns are predicates of groups of individuals⁸⁵.

As can be seen, this type of approach to aspectual periphrases requires an event-based semantics and particularly one that depends on mereological relations for the domains of both individuals and events.

At this point, it has become clear that, within the singularist perspective, nominal-verbal analogies have infiltrated every level of investigation so far, providing strong support for treating plural objects and plural events more or less equally. Through these analogies, plurality can be analyzed similarly in individuals and events, with mereological relations used to structure both domains. Moreover, lexical and grammatical aspect, having been cast into such a framework, facilitates the possibility of analyzing languages that depend on either nouns or verbs for aspectual expression as well as their interaction. Hence, the nominal-verbal analogies, central to any singularist view, depend on the existence of plural objects and plural events, and result in systematic treatments for a wide range of phenomena. Obviously, there are limitations and variations across different types of singularist theories, but the advantages have so

⁸⁵ If one were to accept Kratzer's (2005) approach to events and plurals, collective nouns are considered to be relational and actually represent collective states. Therefore, the analogy would just be between the collective nature of states and events.

far been consistent with respect to the array of topics discussed over the course of this work.

3.4 Chapter Summary

The literature within the singularist perspective provides a complete theoretical framework for all the notions presented in the introduction of the chapter, especially the notion of telicity and its interaction with specific grammatical structures such as the perfective and the imperfective, as well as a series of verbal periphrases. Chapter four continues to assume the singularist view for the analysis of the present perfect in Portuguese and English. Of particular importance is the perspective that lexical aspect and grammatical aspect are categories kept separate so that their interactions can be correctly understood. Moreover, the extensive nominal-verbal analogies continue to be exploited as they have been at every level of the singularist investigation so far. For example, part-whole structures of the nominal domain are extended to account for the difference between telic and atelic eventualities. In Rothstein's (2004) theory, these eventualities correspond to atomic and non-atomic events, respectively. The basic grammatical distinction between perfectivity and imperfectivity is accounted for with mereological relations as well, corresponding to totality and partiality, respectively. Grammatical structures or readings involving a plurality of events are also treated similarly to the plurality of individuals, as sums and collections. In the case of Schein's approach, it is the verb that absorbs the plurality of individuals, while in Kratzer's account, it is the thematic role that does this job.

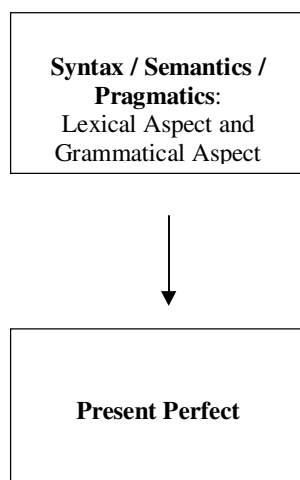
Chapter 4

Back to the Present Perfect

4.1 Introduction

The methodological approach assumed in this dissertation has taken us from philosophical and linguistic foundations of plurals and events in chapter two to the realm of tense and particularly aspect in chapter three and finally, we have come full circle and arrived back at the grammatical construction that motivated this investigation, namely, the present perfect and more specifically, the “pretérito perfeito composto” (PPC) in Brazilian Portuguese (BP).

**Figure 4.1 Schema of Stage IV of the Investigation:
From Theory-Internal to Analysis**



In chapter one, three types of present perfect theories were reviewed. The Priorian Past theory strictly follows the Reichenbachian representation of the present perfect and treats it as an indefinite past. Different interpretations of the perfect are treated as pragmatic implicatures, which means that they should be cancelable. However, the reading of repetition often expressed by the PPC is non-cancelable, suggesting that the source of the difference between the present perfect in a language like English (the PrP), for example, and the PPC must have some semantic elements. The Stative Perfect theory exploited the resultative nature of the present perfect in many languages by defining it as the construction’s main semantic contribution. The present perfect

introduces a resultative state, the nature of which is determined by lexical inferences. The problem with assuming a stative perfect is in distinguishing it from the stativity often attributed to other tense-aspect structures such as the present tense (Kamp and Reyle 1993), the progressive (Vlach 1981) and the imperfective (de Swart 1998), as well as from the stativity of lexical states. Defining different kinds of states for each case defeats the purpose of the analogy. Finally, the most cross-linguistically appealing present perfect theory, Extended Now and its more recent formulation, Perfect Time Span (PTS), proposes a structurally uniform meaning for all perfects, where the differences are derived from a combination of the nature of the eventuality, adverbs and viewpoint aspect. The problem with this theory is in distinguishing the readings that derive primarily from differences in the viewpoint aspect. Excluding those languages that mark viewpoint morphologically on the participle, there is no principled way in which the viewpoints are determined and consequently no principled way to derive the different readings.

With respect to the PPC, previous characterizations include that it expresses only a universal reading, in the sense of the PTS framework (Iatridou et al 2003, Brugger 1978, Pancheva 2003). The PPC has also been said to express imperfectivity (Travaglia 1994, Squartini and Bertinetto 2000). Previous formal accounts of the PPC were criticized for providing ad-hoc solutions such as coercion operators that are not independently motivated (Schmitt 2001) or unmotivated stipulations about the auxiliary ‘ter’ (Giorgi and Pianesi 1997). These approaches generally ignored the possibility of a durative reading with a stative predicate. We now see that the proposal hinted at in Ilari (2001) was in the singularist vein. Drawing from analogies in Link (1983), a single semantic rule would be responsible for the main PPC structure while the aspectual nature of the event predicate would be responsible for the difference in readings. The details of this semantic rule need to be determined according to the discussion of the previous three chapters. In the present work, this involves the following elements: tense, grammatical aspect, lexical aspect, plural arguments and adverbs. Moreover, telic predicates elicit a plural reading while atelic predicates elicit a singular, durative one. However, this telic/atelic distinction represents only the tendencies in potential interpretations of the PPC, since other elements aside from aspectual class can influence these interpretations.

The aim of this chapter is to provide an analysis of the PPC that is consistent with the singularist framework as it has been described along the course of this work.

Given the similar morphology used for the present perfect not only in English and Portuguese, but other Romance languages as well, it is hoped that a unified compositional analysis is possible, with other, independent phenomena of each language motivating the cross-linguistic differences.

The singularist assumptions that guide this final chapter include the following: i) a mereological lattice-structure for the domains of objects and events which includes plural objects and plural events; ii) the notions of incrementality and atomicity in the definition of telicity; iii) the notions of partitivity and totality as the semantic core of grammatical aspect. Moreover, I will assume the time-relational configurations proposed by Klein (1994) in which temporal markers are composed of both temporal and aspectual elements. Importantly, assuming Klein's formulation of tense-aspect relations does not mean we have to assume his theory on the present perfect, which was reviewed in chapter one.

Discussion of various structures expressing a plurality of events was included in the previous chapter due to the comparisons made, for example, between the PPC and the imperfective. Given the importance attributed to adverbs in the understanding of the imperfective, they will also be discussed over the course of this chapter. Moreover, the PPC has been considered semantically analogous to aspectual periphrases such as *andar+gerund* and *ir+gerund*. In fact, a recent study on a more restricted version of the PPC claims that the *ter+past participle* structure contributes a pluractional operator similarly to *andar+gerund* (Cabredo-Hofherr et al. 2008). This study will be discussed in section 4.2.

If the semantic comparisons between the PPC and imperfective and aspectual periphrases are more than superficial, it is worth considering the extent to which this is so with a brief comparative overview. Section 4.3 first considers the more common parallel between the present perfect and simple past, using data from English. The tendency of present perfects to shift towards a perfective in many languages is contrasted with the PPC's apparent shift away from it. This is especially remarkable given that the PPC originally expressed resultative and anteriority meanings in recent history, just like its other Romance language counterparts (Boléo 1936, Suter 1984). The PPC will be considered in comparison with the imperfective (including the imperfect and the present tense) and the progressive according to three semantic variables: i) lexical aspect; ii) plurality of arguments; iii) adverbs. Needless to say, these

comparisons will not be exhaustive but are meant merely to reveal some insight into the possible source of the similarities.

Based on the insights gained from section 4.3, section 4.4 investigates the differences in the temporal-aspectual configurations provided by the PPC versus the PrP. These differences lead to a deeper understanding about the different readings available to each language. Section 4.5 provides a brief chapter summary.

4.2 A pluractional approach to the PPC

Cabredo-Hofherr et al. (2008) examine the PPC in a Northeastern Brazilian dialect which is highly restrictive, when compared to the standard PPC investigated in the present work, which is, for the most, part semantically equivalent in the standard varieties of Brazilian and European Portuguese. Aside from the usual restrictions regarding reference to past eventualities, the conditions under which durative readings can arise in the Northeastern variety (from now on, NE-PPC) are very limited. Moreover, the contexts in which the plural reading is acceptable are also very limited. For example, the sentences below, though completely acceptable in standard BP, suggest that the NE-PPC requires more than just mere iteration to be felicitous.

- (4.1) #Maria tem tossido sem parar / muito desde ontem
- (4.2) #Desde que ele conheceu a Maria, ele tem esperado as cartas dela.
- (4.3) ??O nível do rio tem aumentado muito
- (4.4) O número de alunos tem aumentado.
- (4.5) Eu tenho feito as camas desde segunda-feira.

Aside from requiring a plurality of events, felicitous use of the NE-PCC also requires the events to be expressed as discontinuous. This is why stage-level predicates are restricted to only those that are not totally homogeneous, contrary to standard BP which accepts truly durative readings (Ilari 2001).

- (4.6) a. A biblioteca tem ficado fechada (nos domingos).
- b. A biblioteca tem ficado fechada (desde o início da greve).

Both NE and standard varieties accept (4.6a) due to the intermittent reading, but only standard BP accepts a reading such as (4.6b) in which a single durative reading is involved.

The possibility for frequentative, habitual and incremental readings imply that this construction has a pluractional nature. The NE-PPC mirrors certain properties characteristic of other verbal periphrases, such as *andar+gerund*, assumed by Cabredo-Hofherr et al. (2008) to also contribute pluractional operators. For example, the authors claim that there are no multiplication effects on singular indefinite arguments.

- (4.7) a. #Tenho comido uma maçã.
b. #Ando comendo uma maçã.

This kind of example is also restricted in standard BP, however, if one considers events that are repeatable (or their subevents), it is possible to get multiplication.

- (4.8) Tenho tomado um vinho maravilhoso.
(4.9) Maria tem encontrado um erro no manuscrito.

At least in standard BP, given the type-reading of ‘erro’, the restriction in (4.9) may not necessarily be due to the meaning of the PPC per se, but to the meaning of verbs denoting events of consumption, creation or destruction, etc. With some plural arguments, distribution effects arise.

- (4.10) Tenho comido maçãs.
(4.11) Muitas / #Vinte pessoas tem morrido na guerra.

Standard BP is slightly less restrictive with respect to adverbs expressing vague cardinality, while both standard and NE varieties accept adverbs of cyclic frequency and distributivity. Definite cardinal adverbs are unacceptable in both varieties.

- (4.12) Eu tenho visto #várias / #muitas vezes a sua irmã. (both ok in standard BP)
(4.13) #Eu tenho visto três vezes a sua irmã.
(4.14) Tenho visto a sua irmã todo dia.
(4.15) Ela tem ligado uma vez por semana.

The important intuition behind these types of sentences is that mere plurality of events is not sufficient for the correct use of the PPC. The repetition must be distributed regularly throughout the interval. This may also explain the frequent translation of the PPC into the English present perfect progressive. Consequently, data for the NE-PPC lead Cabredo-Hofherr et al. (2008) to propose that this structure contributes a pluractional operator similar to that of *andar+gerund* due to the similarities in frequentative and habitual readings as well as the discontinuous internal structure of the interval. The authors offer the following definition of the NE-PPC (which they refer to as ‘PRES-PERF’):

$$(4.16) \text{ ‘PRES-PERF’}: \lambda P \lambda i \exists \uparrow E \\ \text{card}E > n \ \& \ \forall e, e' \in E [(P(e) \ \& \ P(e')) \ \& \ \neg \tau(e) \circ \tau(e')] \\ \& \ i \subset \tau(\uparrow E) \ \& \ \text{RB}(\tau(\uparrow E)) \not\subset i \ \& \ \text{RB}(i) = \text{Utt-T}$$

The pluractional portion, adapted from Lasersohn (1995), corresponds to the first full line of the representation above, while the second line represents the aspectual and temporal properties. Though admittedly a non-compositional route to providing a logical representation of the NE-PPC structure, the authors assert that there in fact has yet to be a truly compositional analysis proposed in the literature. Cabredo-Hofherr et al. (2008) believe the pursuit of compositionality should be aimed at a deeper investigation of the auxiliary ‘ter’. This is because Portuguese is the only one among Romance languages that uses ‘ter’ instead of the verb corresponding to ‘haver’⁸⁶.

However, given the fact that the plural reading is required only when the auxiliary is in the present tense, the relation between ‘ter’ and the source of the plurality would have to be an indirect one, as the authors claim. After all, it is not only the pluperfect and future perfect that utilize ‘ter’, but the subjunctive tenses and the compound infinitive as well, all of which have resultative/anterior meanings. The adjectival resultative construction with ‘ter’ also still exists today, as in ‘tenho as camisas feitas’. In lieu of the ad-hoc solution of positing two homophonous, but semantically distinct ‘ter’ verbs (See Giorgi and Pianesi 1997), an account based on the diverging grammaticalization paths of ‘ter’ and ‘haver’ would have to depend on a comprehensive

⁸⁶ Spanish ‘haber’, French ‘avoir’ and Italian ‘avere’. French and Italian also have *be*-perfects, using ‘être’ and ‘essere’, respectively.

diachronic investigation⁸⁷. Without historical information on the substitution of ‘haver’ with ‘ter’, any synchronic analysis based on this difference would have to be a clever one indeed, and one which I do not intend to pursue here. Moreover, neither a diachronic nor synchronic analysis of ‘ter’ versus ‘haver’ would explain the differences in restrictions between the PPC in the Northeastern dialect and in standard BP. Finally, due to the non-compositional nature of a pluractional account of the PPC, as well as the claim by Cabredo-Hofherr et al. (2008) that durative readings are not possible, the present work intends to pursue another route based on the singularist perspective.

The next section investigates the extent of comparisons between the PPC and PrP to other structures, based on lexical aspect, plurality of arguments and adverb compatibility.

4.3 Comparing PPC and PrP to other temporal-aspectual structures

Instead of taking broad comparisons made in the literature about the PrP and the PPC at face value, the objective of this section is to consider what has motivated these comparisons in the first place. While there are conceivably many contributing factors to such analogies, this section will focus on three, in line with the topics already covered over the course of this dissertation: i) lexical aspect; ii) plurality of arguments⁸⁸; and iii) adverb compatibility. Of course, no true equivalences are expected between any pair of constructions which is why this particular inquiry does not have the intention of being comprehensive, but merely of affording some insight into the nature of the PPC and PrP.

I will start off with the frequent comparison of the PrP with the simple past tense, given the tendency for many languages to make this semantic shift, though it has not occurred in English. The purpose of including this comparison is to illustrate

⁸⁷ In addition to analyzing the ‘ter’ versus ‘haver’ substitution in search for the appearance of habitual readings in the PPC, it is possible that a diachronic study on the **disappearance** of the present perfect progressive (e.g. *tenho estado fazendo*) could also provide some insight into this topic. I am not aware if this structure is still available in European Portuguese, but it is extremely rare if not extinct in BP. Perhaps this is an additional historical context in which the PPC developed towards habitual uses. Instead of just specializing towards an imperfective meaning, it could be claimed that the PPC also took over the semantic functions of the present perfect progressive.

⁸⁸ I will only consider definite or bare plurals due to restrictions of space and time. It is assumed that the patterns revealed can be extended to other types of plural arguments as well as mass nouns without too much modification. I will also only consider plural arguments either in subject position or object position, not in both at the same time. Consequently, I will only consider distributive and collective readings and not cumulative ones.

somewhat of a semantic background apart from which the PPC comparisons can be analyzed. This is for two reasons: i) given the original resultative/anterior meaning of the PPC, it reflects the extent to which the PPC meaning has evolved; and ii) the extent of the differences may shed light on the question of whether the PrP and the PPC can be accommodated within a unified semantic framework. The PPC, in turn, will be compared to⁸⁹: i) the progressive, given the sociolinguistic approach by Mendes (2004) in which the author claims that the progressive is being used more and more in contexts where the PPC is usually used⁹⁰; and ii) the imperfective aspect, which includes the past imperfect and the present tense.

4.3.1 The PrP versus simple past

In some Romance languages, the grammaticalization process from the present perfect to a perfective meaning is complete (e.g. French and Italian), while for others, it is incomplete (e.g. Spanish). Germanic languages have also shown perfective uses of the present perfect. The English present perfect, PrP, has often been compared to the simple past with their distinctions being the focus of many semantic and pragmatic studies. The two most commonly investigated distinguishing factors are the notion of current relevance and (in)compatibility with past time adverbs like ‘yesterday’. First, consider the comparisons in table 4.1 with respect to lexical aspect.

Table 4.1 PrP vs. Simple Past: Lexical Aspect

Aspectual Class	English Present Perfect	English Simple Past
Achievement	John has arrived late to work.	John arrived late to work.
Accomplishment	John has painted his house.	John painted his house.
Activity	John has run.	John ran.
Individual-level	John has been smart.	John was smart.
Stage-level	John has been sick.	John was sick.

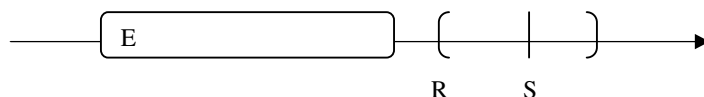
⁸⁹ Given the discussion in the previous section of Cabredo-Hofherr et al.’s (2008) comparison of the PPC with the *andar+gerund*, it will not be covered again here.

⁹⁰ However, I will not consider sociolinguistic factors such as age, gender or frequency of usage, but only the semantic factors listed above.

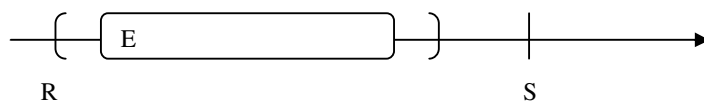
As shown in table 4.1 above, the PrP and the simple past are compatible with all types of aspectual classes. The dynamic predicates – achievements, accomplishments and activities – appear to give rise to a reading where the event denoted by the verb occurs (at least) once in the past. The individual-level predicate (ILP) appears to get a singular eventive reading in both constructions as well in the sense that there was an occasion in the past in which John was smart. With the stage-level predicate (SLP), the true stative nature means that it overflows its location time. With the PrP, this overflow may or may not reach up to speech time. With the simple past, the stative predicate must overflow its event time as well as its reference time in order to reach speech time, which results in its being an unwarranted (but still cancelable) inference. Nothing else in the distribution of the aspectual classes tells us what is different about the PrP versus the simple past.

(4.17) Temporal-aspectual configuration⁹¹ (Klein 1994)

a. PrP = Present: [S \subseteq R], Perfective [E < R]



b. Simple Past = Past: [R < S], Perfective [E \subseteq R]



It can be inferred from the illustrations above that the relation between *E* and *S* is the same in both constructions, the location of the event is before speech time. This is where the semantic overlap between the PrP and the simple past lies, in their aspectual configuration. Their difference, obviously, lies in their temporal configuration, present and past. But this appears to depend solely on the location of reference time. This means that whatever the definition of reference time is, it should be such that it is capable of making a meaningful distinction between the two types of constructions.

Consider now how the PrP and the simple past behave with respect to plural arguments. Table 4.2 illustrates the PrP with plural arguments and table 4.3 illustrates the simple past with plural arguments. With atelic predicates, plural objects are

⁹¹ E = event time; S = speech time; R = reference time. I assume that the event time is the interval within which the eventuality takes place, not necessarily filling up the entire interval. In the literature, this interval has also been called “location time”.

irrelevant and so are not represented. The sentences below are interpreted according to the Schein-Kratzer perspective on distributive and collective readings discussed primarily in chapter two.

Table 4.2 PrP and Plural Arguments

Aspectual Class	PrP + Plural Subject	PrP + Plural Object
Achievement	The climbers have reached the top of the mountain.	The climber has reached the tops of mountains.
Accomplishment	The students have read <i>The Great Gatsby</i> .	The student has read horror novels.
Activity	The criminals have run.	n/a ⁹²
Individual-level	The criminals have been smart.	n/a
Stage-level	The boys have been sick.	n/a

Table 4.3 Simple Past and Plural Arguments

Aspectual Class	Simple Past + Plural Subject	Simple Past + Plural Object
Achievement	The climbers reached the top of the mountain.	The climber reached the tops of mountains.
Accomplishment	The students read <i>The Great Gatsby</i> .	The student read horror novels.
Activity	The criminals ran.	n/a
Individual-level	The criminals were smart.	n/a
Stage-level	The boys were sick.	n/a

In both charts above, plurals in the subject position leads to both distributive and collective readings. The former means that each singular agent of the plural has his own ‘reaching the top of the mountain’ event, or ‘running’ event, etc. The latter reading

⁹² Though there are activities and states with plural objects, considering them separately will not contribute anything unique to the analysis.

means that each singular agent participates in the ‘running’ event or ‘being sick’ state such that there is no subevent or substate in which different agents (or patients, in the case of states) are involved. Thus, the distributive reading is plural and the collective reading is singular. With the plural in object position, there can only be a distributive reading, that is, a reading of plural events. In the case of the telic predicates, different objects may or may not be involved. It can be said, then, that in terms of plurality, the PrP and the simple past behave the same way.

The adverbs ‘before’, ‘already’ and ‘just’ are often used to characterize the nature of some past event in relation to some other eventuality or time. ‘Before’ makes explicit the notion of anteriority by relating the location of the eventuality prior to some other time or eventuality, which is the argument of the adverb. ‘Already’ on its own makes no claim about the closeness of the past eventuality to speech time or any other time or eventuality, but merely cites a previous experience, denoted by the verb. ‘Just’ expresses recency of the past eventuality. Both the PrP and simple past are equally compatible with these three adverbs.

- (4.18) a. John has built a house before / already.
 b. John built a house before / already.
 c. John has just built a house.
 d. John just built a house.

However, there seems to be a sense in which the PrP and simple past are different, a sense that is often attributed to current relevance. With respect to the examples above, the adverbs relate the past eventuality to reference time. For example, (4.18a) means the house was built before reference time which coincides with speech time, while in (4.18b) the reference time is also in the past, leaving the past relevance rather vague. (4.18c) states that the building of the house is recent with respect to speech time, while in (4.18d) the house building is recent with respect to some other contextually determined time in the past. These examples suggest that the reference time can enter into temporal relations with adverbs that can give rise to certain inferences.

As mentioned in chapter one, Smith (1991) proposes that current relevance corresponds to a felicity condition which states that the eventuality expressed by the PrP must be repeatable and the referents of the noun phrase must exist at speech time. This means that, for the PrP examples above, the house and John must still exist at speech

time and it must be possible for John to build another house if necessary. The simple past counterparts make no such claims.

Below we consider adverbs that can directly mark temporal location. Positional adverbs can modify either the event time or the reference time so, given that the distinction between the PrP and simple past is up to reference time, there should be some variability when it comes to adverb compatibility patterns.

- (4.19) a. *John has arrived last week.
 b. John arrived last week.

The problem here arises from the fact that position is already modified in by the reference time in (4.19a), so that only the eventuality could be modified by the adverb, but then this results in two positional modifications for a single event, resulting in a conflict. The simple past counterpart has no restriction with respect to past time positional adverbs.

For the sake of comparison with the PPC in later sections, the examples below illustrate that the PrP and simple past are compatible with both cardinal (e.g. ‘many times’, ‘three times’) and frequency adverbs (‘always’, ‘often’, ‘twice a day’).

- (4.20) a. John has flown a plane often / many times / three times
 b. John flew a plane often / many times / three times

Again, the distinctions between the two constructions are due to current relevance.

To summarize this section, we have seen that the reference time is the only thing that distinguishes the PrP from the simple past and this distinction is made most evident in the context of relational and positional adverbs. The plural readings that arise in the PrP with cardinal and frequency adverbs is parallel to that of the simple past, and not like the plurality of imperfective or habitual readings as discussed in the previous chapter. Accordingly, the plurality of events expressed by the PrP reflects “accidental” generalizations, as opposed to a habitual or “nomic” generalization. Finally, there is no variation between the structures with respect to aspectual classes, and distributive and collective readings arise in the same way in the presence of plural arguments.

4.3.2 The PPC versus the progressive

It is hoped that the following comparisons between the PPC and other constructions with respect to lexical aspect, plural arguments and adverbs in the present and subsequent sections will help elucidate the relevant characteristics of the PPC with the eventual purpose of developing an adequate semantic representation for it.

The comparison in this section is only relevant to the extent that both auxiliaries must be in the present tense, since there are no similarities to be found between any progressive form and any other perfect form except for the PPC.

Table 4.4 PPC versus Progressive (PROG): Lexical Aspect

Aspectual Class	BP PPC	BP PROG
Achievement	João tem chegado atrasado ao trabalho.	João está chegando atrasado ao trabalho.
Accomplishment	João tem lido <i>O Grande Gatsby</i> .	João está lendo <i>O Grande Gatsby</i> .
Activity	João tem trabalhado.	João está trabalhando.
Individual-level	João tem sido esperto.	João está sendo esperto.
Stage-level	João tem sabido aproveitar a vida.	João está sabendo aproveitar a vida.

What are being compared here are the durative and habitual readings of both structures. With respect to achievements, the PPC can only have a habitual reading, where John arrived late an indefinite number of times. In the progressive, there is the additional possibility of a progressive reading, in which John's arriving overlaps with speech time and the actual arrival has not yet occurred. With the accomplishment, both constructions appear to "remove" or "delay" the telic point of having reading the whole book⁹³. The PPC expresses discontinuous events of reading portions of *The Great Gatsby*, while the progressive again can also express a non-habitual, continuous reading. The same interpretations are valid for ILPs which get a dynamic reading. The SLP used in the table above expresses discontinuous or successive subevents of a different nature than the one denoted by 'saber', but which "add up" in a pragmatic way to express the

⁹³ This notion may be similar to that of "detelicization" as described in Bertinetto (2001) and Basso (2007).

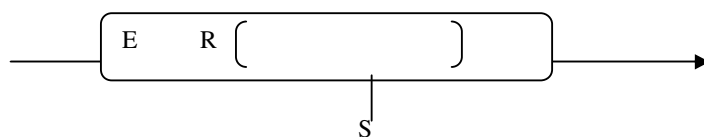
intended meaning. In other words, the subevents represent examples of making the best of life. Admittedly, not all SLPs behave the same way in both constructions. ‘Estar doente’ would be acceptable in the PPC, but not in the progressive, while ‘saber da reunião’ would not be acceptable in the PPC, but would be in the progressive. This is due to the predicate’s ability to give rise to both singular and plural readings. There are cases, particularly with activities, in which the PPC and progressive readings are indistinguishable, as in (4.21).

(4.21) João {tem trabalhado / está trabalhando} pela integração econômica regional.

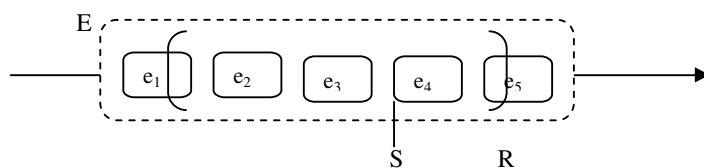
When we consider the temporal-aspectual configuration of these constructions, it is clear that the one provided for the present perfect in Klein’s framework is not suitable. Below we present the configurations that correspond to the two readings of the progressive. It is assumed here, in accordance with Comrie (1976) and Bybee et al. (1996), that the progressive is a subtype of the imperfective.

(4.22) Present progressive configuration: Present: $[S \subseteq R]$, Imperfective: $[R \subseteq E]$ ⁹⁴

a. Durative and continuous readings



b. Habitual reading⁹⁵



⁹⁴ At this point it is relevant to make a clarification about the way we have been talking about E, the event interval. We have not been using it as being equivalent to the underlying eventuality, but as being the location time to which the eventuality is related. This distinction is important for understanding the types of repetition that occurs with the PPC and plural arguments. From this point on, the relation between the eventuality and the event/location time will be discussed in more detail. Therefore, it is worth assuming the term ‘location time’, in the tradition of DRT (Kamp and Reyle 1993), in place of ‘event interval’ to avoid possible confusion, though they mean the same thing. Moreover, it is assumed that dynamic events are included in their location time, while states generally overlap their location time (Kamp and Reyle 1993). I will still use the capital letter ‘E’ for location time and ‘ev’ for events, which include accomplishments, achievements and activities, and ‘st’ for states. Whenever the distinction between the types of events is relevant, I will refer to the type of eventuality directly.

⁹⁵ ‘e₁’, ‘e₂’, ..., ‘e_n’ represent repeating whole events or repeating subevents.

The basic representation of the durative reading in (4.22a) reveals the intuition behind the proposal of the partialization (Bertinetto 1996) or partitivity (Filip 1999) operators discussed in the previous chapter. The reference time represents a part of the whole event denoted by the verb. It must be made clear, though, that in the continuous reading, the relevant relation is between the reference time and the eventuality itself and not necessarily the location time within which it is inserted. This is important because the relation between the reference time and the eventuality is distinct from the relation between the reference time and location time. At any rate, it is in the sense of the continuous reading that the imperfective denotes improper inclusion between reference time and the eventuality, which means that the reference time could potentially overlap completely with the location time as well. However, this alternative may only be available in certain languages (e.g. Slavic languages), whereas in Romance languages, proper inclusion with the durative reading is the most appropriate interpretation. The habitual reading in (4.22b) shows how the events or subevents may repeat before, during and after the reference time. Let us consider now the interaction between the PPC, the progressive (PROG) and plural arguments.

Table 4.5 PPC and Plural Arguments

Aspectual Class	PPC + Plural Subject	PPC + Plural Object
Achievement	Os alpinistas têm alcançado o topo da montanha.	O alpinista tem alcançado os topos das montanhas.
Accomplishment	Os alunos têm lido <i>O Grande Gatsby</i> .	O aluno tem lido romances de terror.
Activity	Os criminosos têm corrido.	n/a
Individual-level	Os criminosos têm sido espertos.	n/a
Stage-level	Os meninos têm sabido aproveitar da vida.	n/a

The structure of the PPC contributes the meaning of a plurality of events without plural arguments, differently from the PrP. Despite the distributive reading with the PrP and plural arguments, the most salient reading is that the plurality of events occurred on a

single occasion, such that it was a truly iterative or repetitive event with different agents, as opposed to expressing some kind of habit. With the PPC, which contributes a plurality of events with respect to different occasions, the presence of a plural argument adds another level of plurality within occasions as well.

With the achievement example, this means that the climbers were distributed within and across the multiple occasions of reaching the top of the mountain. Each climber gets his own reaching event and together, this results in a plurality of climbing events within a larger singular climbing event. This can be more easily illustrated with a manner adverbial, as in ‘Lentamente, os alpinistas têm alcançado o topo da montanha’. Here, the plurality of climbing events, each with its own unique climber as agent, is part of the larger slow event and this slow event is the one that repeats on different occasions. The meaning of plural occasions contributed by the PPC excludes any kind of collective reading.

We can understand these readings of pluralities of events in the sense of Schein (1993). In a similar sense that plural arguments trigger distribution over (sub)events within occasions, it is plausible that there is some trigger in the PPC structure that contributes distribution of plural occasions, involving whole events, throughout the location time. This idea will be taken up again later on in the chapter.

With the other aspectual classes, all that changes is the nature of the event within occasions, compared to the larger event across occasions. For the accomplishment above, there is a plurality of reading events distributed over the students which are related to the larger event of reading *The Great Gatsby*. Activities involve a plurality of subevents of the same nature as the larger event and the stative predicates involve a plurality of subevents that add up to events of being clever or knowing how to make the most of life.

The presence of a plural argument in the object position results in a distributive reading across occasions in which a different mountaintop and a different novel are involved in each occasion.

Table 4.6 PROG and Plural Arguments

Aspectual Class	PROG + Plural Subject	PROG + Plural Object
Achievement	Os alpinistas estão alcançando o topo da montanha.	O alpinista está alcançando os topos das montanhas.
Accomplishment	Os alunos estão lendo <i>O Grande Gatsby</i> .	O aluno está lendo romances de terror.
Activity	Os criminosos estão correndo.	n/a
Individual-level	Os criminosos estão sendo espertos.	n/a
Stage-level	Os meninos estão sabendo aproveitar da vida.	n/a

The PROG construction allows for the same readings described for the PPC. The main difference between the two is that the former allows for collective readings. These readings mean that different subevents of each occasion of reaching the top of the mountain or reading cannot allow for different participants. Again, like the PPC, PROG with plural objects only have a distributive reading.

The temporal-aspectual configuration of PROG shows that the event interval, whether expressing a durative or habitual reading, overlaps both reference time and speech time. This means the eventuality denoted by PROG must be true at speech time. In the case of the habitual reading, it is not the case that an individual subevent must overlap speech time, but that the habit must be ongoing at speech time. The question then, is whether this is true for the PPC as well. This can be tested with adverbs that explicitly mark the right boundary, such as ‘até agora’ and ‘até ontem’. PROG and the PPC are compatible with the first and reject the latter.

(4.23) a. João tem trabalhado no escritório até agora.

John has worked in the office until now.

b. João está trabalhando no escritório até agora.

John is working in the office until now.

c. *João tem trabalhado no escritório até ontem.

John has worked in the office until yesterday.

d. *João está trabalhando no escritório até ontem.

John is working in the office until yesterday.

With respect to adverbs marking duration, such as ‘desde’ or ‘por’, there is no universal-existential ambiguity due to the fact that the PPC is incapable of expressing an inclusive, existential reading and because PROG is incapable of expressing a past event that does not somehow include speech time.

(4.24) a. João tem trabalhado no escritório desde fevereiro / por dois meses.

John has worked in the office since February / for two months.

b. João está trabalhando no escritório desde fevereiro / por dois meses.

John is working in the office since February / for two months.

(4.24a) and (4.24b) have the same meaning with respect to the ‘desde’ adverbial. There is some dispute, however, about the possibility of canceling speech time inclusion. Without direct evidence about the truth of the event at speech time, it is possible to continue the sentence with ‘desde’ with ‘mas não sei se ainda trabalha lá’ (Móia 2000). This continuation is not possible for PROG. With respect to ‘por’, the primary meaning is that the working started two months ago, continues up to and includes reference time. In this interpretation, the two months ends at speech time, so at least in the case of the PPC, there is the possibility of canceling inclusion with speech time. Cancellation is never an option for PROG because it properly includes⁹⁶ the reference time, so the eventuality is understood as necessarily overlapping it. Given this, there is another reading PROG has with ‘por’ that is not available to the PPC. For example, in a context where John frequently changes locations in the company he works at, one could utter (4.24b) with ‘por’ in a context where he already began working for, say, one month, and there is one month left before he moves again to another sector of the company. What this data tells us is that the eventuality’s inclusion of the right boundary, marked by speech time, is obligatory for PROG, but not for PPC. This tells us further that the PPC event does not properly include reference time, but may partially overlap it.

⁹⁶ In languages like English and Portuguese.

This ambiguity with respect to speech time inclusion is excluded by two other adverbs, derived from the main verbs ‘haver’ and ‘fazer’, which Portuguese uses to express durativity that starts in the past.

(4.25) a. João tem trabalhado no escritório há / faz dois meses.

John has worked in the office since / for two months.

b. João está trabalhando no escritório há / faz dois meses.

John is working in the office since / for two months.

PROG and PPC also show the same pattern when it comes to cardinal and frequency adverbs. Cardinal adverbs are only acceptable in an expression of cyclic frequency.

(4.26) a. João tem trabalhado {muito / *três vezes} no escritório.

John has worked {a lot / three times} in the office.

b. João está trabalhando {muito / *três vezes} no escritório.

John is working {a lot / three times} in the office.

(4.27) a. João tem trabalhado três vezes por semana no escritório.

John has worked three times a week in the office.

b. João está trabalhando três vezes por semana no escritório.

John is working three times a week in the office.

We can conclude that PROG and PPC share the ability to express habitual and durative readings. We have seen that the PPC excludes overall collective readings due to the inherent plurality contributed by the construction itself, and in the presence of plural arguments, another dimension of plurality is added to the structure of the individual events. Given PROG’s ability to express continuous events, ongoing at speech time, collective readings are also possible.

Concerning the temporal-aspectual configuration, the two structures differ with respect to the event interval and its relation to reference time and speech time. The event in a PROG sentence includes reference time, which in turn includes speech time. Consequently, it is not possible to suggest that the eventuality denoted in a PROG sentence does not include speech time as well. With the PPC, it seems that part of its meaning is that the event interval must include speech time, but the underlying

eventuality may not necessarily include speech time as well. This is true for both durative and habitual readings⁹⁷. PPC and PROG are similar with respect to how they can fill up the event interval but differ on how the underlying event relates to the reference time and consequently speech time. The idea that the event interval, but not necessarily the eventuality itself, must overlap speech time suggests that the PPC must also be compatible with the felicity condition stated earlier for the PrP. The eventuality must be repeatable and the referents must exist at speech time, but nothing is said of whether the eventuality actually repeats at speech time.

4.3.3 The PPC versus the imperfective

It is often said that the PPC has imperfective qualities, but this assertion is rarely accompanied by any kind of explanation as to why or how. If anything, the imperfectivity of the PPC is the result of a process of elimination with respect to typically perfect or perfective properties and, by accumulating enough parallel behaviors to the imperfective, it is treated as such. The focus here will be on differences as well as similarities between the PPC and the imperfective. Let us first consider the past imperfect, in table 4.7.

Table 4.7 PPC versus Imperfect (IMP): Lexical Aspect

Aspectual Class	BP PPC	BP IMP
Achievement	João tem chegado atrasado ao trabalho.	João chegava atrasado ao trabalho.
Accomplishment	João tem lido <i>O Grande Gatsby</i> .	João lia <i>O Grande Gatsby</i> .
Activity	João tem corrido.	João corria.
Individual-level	João tem sido esperto.	João estava esperto.
Stage-level	João tem estado doente.	João estava doente.

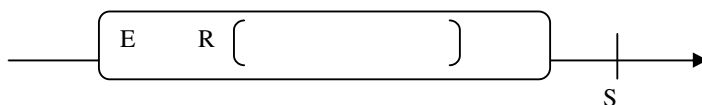
The comparison here is similar to the one in the previous section, since the progressive is considered a subtype of the imperfective. Both the PPC and the imperfect have durative and iterative readings, but only the latter has a continuous reading as part of its

⁹⁷ Consider 'João tem estado doente, mas talvez agora já esteja melhor'.

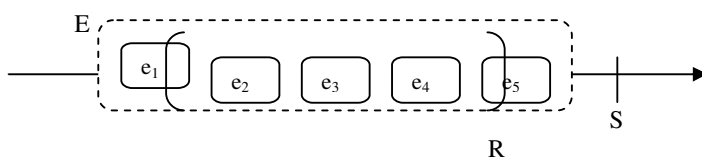
assertion, in which a singular event is ongoing at reference time⁹⁸. The difference with the imperfect is that the reference time does not include speech time, but precedes it. Below is the Kleinian temporal-aspectual configuration of the imperfect.

(4.29) Past Imperfect configuration: Past: $[R < S]$, Imperfective: $[R \subseteq E]$

a. Durative and continuous readings



b. Habitual reading



This way, the imperfect, for languages that do not morphologically present the perfective-imperfective opposition, can be considered somewhat of a past progressive. The habitual readings in PPC and IMP both express an indefinite number of occurrences spread out over the event interval. Durative readings are also possible with atelic predicates and express a succession of subevents. Assuming tentatively that the inferences between the PPC and IMP are the same except for the location of reference time, we may predict that the structures will also behave similarly with respect to plural arguments and adverbs. Now, let us consider another structure with an imperfective value, the present tense.

Table 4.8 PPC versus Present Tense: Lexical Aspect

Aspectual Class	BP PPC	BP Present tense
Achievement	João tem chegado atrasado ao trabalho.	João chega atrasado ao trabalho.
Accomplishment	João tem lido <i>O Grande Gatsby</i> .	João lê <i>O Grande Gatsby</i> .

⁹⁸ Recall that a durative reading is one in which the eventuality is ongoing within the location time and the location time necessarily overlaps with reference time, but the eventuality itself remained undetermined with respect to overlapping reference time. In continuous readings, the eventuality itself must overlap with reference time.

Aspectual Class	BP PPC	BP Present tense
Activity	João tem corrido.	João corre.
Individual-level	João tem sido esperto.	João é esperto.
Stage-level	João tem estado doente.	João está doente.

The present tense, unlike some of its Romance counterparts, does not have a continuous reading in which an event denoted by the telic predicate is seen as ongoing at speech time. There is the default habitual reading and the marginal possibility of a reportive reading, which occurs in restricted contexts such as sportscaster language and narratives employing the historical present. SLPs result in durative readings, while ILPs result in durative readings with potentially no temporal limitation.

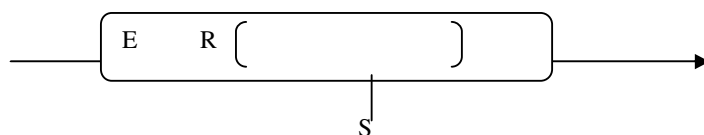
With activities, the present tense allows for an inference of habit or disposition, such that John is capable of running. Both ILPs and SLPs express their prototypical meaning in the present tense, such that John has the allegedly permanent characteristic of being clever and is in the temporary state of being sick. The accomplishment example is understood in both the PPC and present tense as referring to (sub)events of reading, excluding the inherent endpoint of reading the whole book from its claim. This way, only the activity portion is in focus. With achievement predicates, both the PPC and simple present express habituality, but they do not seem to be of the same kind. The PPC expresses a recent habit such that, for example, some occurrences of John arriving late to work have taken place. With the present tense, on the other hand, the expression seems to suggest something about John, independently of whether late arrivals have taken place or not. In this sense, it is more a reportive reading about John rather than an existing habit that he has.

This distinction regarding habits was less salient in the comparison with the imperfect above since that construction appears to include both types. The kind of habit expressed by the PPC appears to be inductive in nature, in the sense that there is a requirement on the existence of events, while the present tense expresses deductive habituality, in which there is no existence requirement. So, if we are to treat the PPC as an imperfective, it would be one that only chooses inductive interpretations.

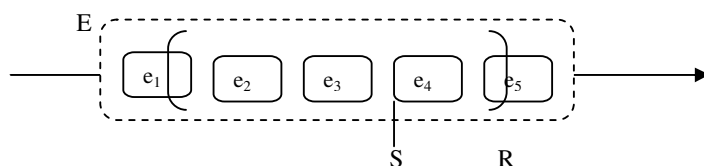
Despite having the same configuration as the present progressive, as seen in (4.30) below, the inferences revealed in the sentences of the table above show some differences with respect to aspectual restrictions and interpretations.

(4.30) Present tense configuration: Present: $[S \subseteq R]$, Imperfective: $[R \subseteq E]$

a. Durative and reportive readings



b. Habitual reading



Unlike the progressive, durative readings are only possible with states, and telic predicates in the present tense elicit only a marginal reportive reading. So, while the more common reading of the progressive may be the durative or continuous one, for the present tense, the default interpretation is of habituality. This may be due to the differences in how the imperfective viewpoint is introduced into the overall temporal-aspectual configuration. With the progressive, it is introduced morphologically by the gerund, whereas with the present tense, it is implicit. This explains why, despite the common assumption that the present tense contributes an imperfective viewpoint, this information is rarely included in its overall temporal-aspectual configuration. However, Klein (1994) claims that all structures expressing temporality possess both temporal and aspectual properties. The traditional assumption regarding the present tense, which excludes the reference time, is often represented as something along the lines of $[S \subseteq E]$ or $[S = E]$ (Kamp and Reyle 1993, Bertinetto 1991). Despite this, given the intuition above about how the imperfective viewpoint is introduced, the present work continues to follow Klein's conception of the tense-aspect system, including the above representation of the present tense. Now consider the present tense with plural arguments.

Table 4.9 Present Tense and Plural Arguments

Aspectual Class	Present Tense + Plural Subject	Present tense + Plural Object
Achievement	Os alpinistas alcançaram o topo da montanha.	O alpinista alcança os topos das montanhas.

Aspectual Class	Present Tense + Plural Subject	Present tense + Plural Object
Accomplishment	Os alunos leem <i>O Grande Gatsby</i> .	O aluno lê romances de terror.
Activity	Os criminosos correm.	n/a
Individual-level	Os criminosos são espertos.	n/a
Stage-level	Os meninos estão doentes.	n/a

Interestingly, the presence of a plural in the subject position of a telic verb predicate or an activity appears to suppress the saliency of the habitual reading, giving equal footing to a reportive “newspaper headline” type of interpretation. This suggests a collective reading in which the climbers and the students participate in a singular event of reaching the top and reading *The Great Gatsby*, respectively. The interpretations of plural distributions of plural events that are salient with the PPC seem marginal with the present tense. ILPs and SLPs, on the other hand, maintain their prototypical meaning, while plurals in object position suggest a (potentially deductive) habit attributed to the subject.

Like the imperfect and progressive, the present tense is incompatible with cardinal adverbs and compatible with frequency adverbs.

- (4.31) a. João tem trabalhado { muito / *três vezes } no escritório.
 b. João trabalha { muito / *três vezes } no escritório.

- (4.32) a. João tem trabalhado três vezes por semana no escritório.
 b. João trabalha três vezes por semana no escritório.

These adverbs show that the present tense does in fact have an inductive reading, which is brought out by the presence of a quantificational adverb, in accordance with Lenci and Bertinetto (2000) and Krifka et al. (1995). This also seems to be the case with durative adverbs and the resulting durative readings. Like the PPC counterparts, the present tense examples have an interpretation where there were subevents of working in a larger working event that lasted since February or for two months.

- (4.33) a. João tem trabalhado no escritório desde fevereiro / por dois meses.
 b. João trabalha no escritório desde fevereiro / por dois meses.

The present tense also allows for the underlying eventuality to have its left boundary marked by a durative adverb.

- (4.34) a. João tem trabalhado no escritório há / faz dois meses.
 b. João trabalha no escritório há / faz dois meses.

The ability of the present tense in Portuguese to express duration explicitly marked as starting in the past, leading up to and including speech time distinguishes it from the English present tense, for example.

- (4.35) a. *John works in the office since February / for two months⁹⁹.
 b. John has worked in the office since February / for two months.
 c. John has been working in the office since February / for two months.

The meanings that (4.33b) and (4.34b) express in fact would require the use of the PrP, or the perfect progressive, and with only ‘since’ and ‘for’ adverbs, as there are no counterparts to the ‘haver’ and ‘fazer’ adverbs. While ‘since’ selects for the perfect, as shown above, ‘desde’, ‘há’ and ‘faz’ can occur with a variety of tenses, even with the last two remaining in the morphological present tense (Móia 2000, 2004, 2006).

4.3.4 Summary of semantic comparisons

The comparative data from the previous three sections provide some insight into the nature of the PPC as well as into the feasibility of a unified framework for English and Portuguese. Three semantic variables were used as the points of comparison: lexical aspect, plural arguments and adverbs.

Lexical aspect has an effect on what types of readings are available. All predicates except SLPs are capable of giving rise to a habitual interpretation for the PPC, progressive and imperfect. Durative readings are possible with atelic predicates

⁹⁹ With ‘for two months’, the present tense can have a futurate reading, but this is not relevant here.

for all Portuguese structures considered. The PPC is compatible with continuous interpretations, but it is never part of the assertion one makes when using this structure. Only the progressive and the imperfect can assert continuous readings, those in which the eventuality itself overlaps with reference time. As is well-known, the PrP can have resultative or anteriority interpretations with all types of eventualities. Durative readings are possible with SLPs and occasionally with activities.

The present tense in Portuguese revealed a deductive versus inductive distinction within habitual interpretations. The PPC and the progressive can express inductive habituality only while the imperfect can express both. The present tense appears at first to only have deductive readings, but in the presence of quantificational and durative adverbs, only inductive readings are possible.

For the PPC, present progressive and imperfect structures, plurals in subject position lead to a distribution of plural (sub)events related to a larger event, which itself repeats as well. This means there is plurality within and across occasions. This is not the case for the present tense, whose habitual reading is most salient with singular arguments. Collective readings are only available to the progressive, imperfect and present tense (with plural arguments). In addition to collective readings, the PrP and simple past only get simple distributive readings with plural arguments. That is, the plural events occur only with respect to a single occasion. This means the plurality of the PrP, like the simple past, reflects “accidental” generalizations and not habituality of any kind. Plurals in object position always seem to result in simple distributive readings.

The PPC, progressive, imperfect and present tense all behave the same with respect to incompatibility with cardinal adverbs and compatibility with frequency adverbs. These structures also reflect the same compatibilities with durative adverbs. The compatibility of the present tense with durative adverbs suggests that we should perhaps take a closer look at the meaning of adverbs ‘desde’, ‘haver’ and ‘fazer’ to understand the present tense better, since the English present tense is not capable of expressing such a meaning.

Overall, the properties inferred about the nature of the PPC point towards an account as some kind of imperfective, confirming the intuitive claims made in the previous literature. At this point, however, we only have analogies to go on, with no information about the possible source(s) of the imperfective properties of the PPC, especially since the parts that compose the PPC – present tense, ‘ter’ auxiliary and past participle – appear to tell us a different story. Or do they?

We have seen that the English PrP always seems to occur in the presence of adverbs and these adverbs are often responsible for distinguishing the types of readings that are available, universal versus existential. It has often been considered a property unique to the PPC that it can express a plurality of events without any kind of adverbial modification. If we assimilate the PPC as another subtype of the imperfective, then it is plausible that the indefinite plurality is due to the presence of a covert generic operator, which is a common treatment for the imperfect as discussed in the previous chapter.

If we assume that the PPC has some covert operator that gives rise to habitual readings, it cannot be the generic/habitual operator 'Gen', the one used for the imperfect. This is because the type of habituality that occurs with the PPC and, for that matter, with the progressive, is different from the kind that occurs with the imperfect. It would have to be an operator that chooses only inductive interpretations of habituality. Perhaps the nature of this operator should be understood along the lines of some kind of quantificational adverb, since they always lead to inductive interpretations. The immediate problem, though, is that the Gen operator is triggered by imperfect morphology. What piece of morphology would trigger the habitual PPC operator? And even if we had the answer to this question, the next would be, how then, do we derive the durative readings? Finally, is it possible to achieve Ilari's suggestion in which a single semantic rule can derive both readings merely by distinguishing telic from atelic predicates?

One possible source of the PPC habitually that has yet to be considered in previous literature is the semantics of the present tense. After all, placing the source in the participle or in the semantics of the 'ter' auxiliary runs the risk of having to provide a special treatment for the PPC that is completely at odds with the rest of the perfect system as well as with other Romance and Germanic languages. As the data in the previous section have shown, particularly with regard to compatibility with durative adverbs such as 'há' and 'faz', the semantics of the present tense is not as straightforward as the '[S \subseteq E]' configuration often assumed in the literature leads us to believe. Another piece of support for this pursuing this course is the fact it is only with the auxiliary in the present tense that the obligatory reading of repetition occurs.

The imperfectivity of constructions like the past imperfect and progressive is contributed morphologically, but the imperfectivity of the present tense has no morphological requirement which, if this reasoning is correct, could explain why the PPC has no overt imperfective marker despite its imperfective interpretation. Moreover,

the default imperfective interpretation of the present tense is that of habituality, while the imperfectivity of the past imperfect and the progressive necessarily includes the continuous interpretation.

Based on the discussion of the previous sections, the next section is focused on a more in-depth analysis of what the correct temporal-aspectual configuration for the present tense should be, assuming the Kleinian view. This may provide the key towards the role of the present tense in the PPC and thus, towards a compositional understanding of this construction as well as the potential for a unified framework within which to treat the present perfect of other languages.

4.4 Towards a compositional analysis of the PPC

Going back to comparisons with the PrP, the reader may recall the different types of readings for the English present perfect and the fact that they are often distinguished according to the presence of different types of adverbs. Consider the examples below.

- (4.36) a. Experiential: John has visited Paris **once / before**.
 b. Resultative: John has **now** arrived.
 c. Recent past: Mary has **just** graduated from college.
 d. Persistent situation: Mary has lived in New York **for 4 years**. (Universal)
- } (Existential)

Previous theories on the PrP have shown that adverbs play an important role in deriving the different readings. In fact, certain theories, such as the PTS theory discussed in chapter one, claim that a universal reading can only arise in the presence of a durative adverb. Otherwise, it is existential. The PPC, on the other hand has been considered unique in comparison to other present perfects, since it appears to express only universal readings and without any adverbial modifiers. However, the universal readings of the PPC do not include just stative predicates denoting a persistent situation. Its more salient reading is that of indefinite repetition, regardless of the predicate used. This is why comparisons have often been made between the PPC and the English present perfect progressive (Cabredo-Hofherr et al. 2008). If the PPC can only express universal readings, it may thus be fruitful to consider what structures in BP are used to express existential readings.

In general, resultative, recent past and experiential readings are expressed by using the perfective together with some kind of adverb.

- (4.37) a. Experiential: João **já** visitou Paris (**uma vez**).
 b. Resultative: João **acaba / acabou de** chegar.
 c. Recent past: Maria **recém** se formou na faculdade.
 d. Persistent situation: Maria mora em Nova York **há / faz** quatro anos.

(4.37a) uses the adverb ‘já’ to express a past experience while the resultative in (4.37b), can be expressed with the construction *acabar de*+infinitive in which the auxiliary can be in the present or past tense with the same meaning. (4.37c) uses ‘recém’ to express recency. What is interesting about (4.37d) is that Portuguese has another way to express universal readings of persistent situation, and that is with the present tense together with a backward measuring adverb, ‘há’ or ‘faz’, which are derived from the main verbs ‘haver’ and ‘fazer’. This is a construction that is not available in English, not only with respect to the present tense expressing a situation whose left boundary is explicitly marked as beginning in the past, but also with respect to the adverbs, which have no counterpart in English.

For this reason, the analysis of the present tense in Portuguese will be accompanied by a discussion of such backward measuring durative adverbs¹⁰⁰. This will be discussed in the next section.

4.4.1 The semantics of the present tense (and durative adverbs)

The present tense in both English and Portuguese have more or less the same types of interpretations. Activities, as in (4.38), prefer habitual interpretations over continuous ones, while states prefer continuous readings over habitual ones. Both accomplishments and achievements appear to be restricted in the present tense, with the only possible reading being a continuous one in the sense of a newspaper headline for (4.40), or sportscaster style reporting in (4.41).

¹⁰⁰ It is defended here that the source of the plural readings in the PPC is due to the semantics of the present tense. There are a variety of ways one could go about this approach and what follows by no means represents a definitive solution. The purpose of my proposal, whether correct or not, is to provoke further ideas and research that derives an analysis of the PPC from the semantics of the present tense.

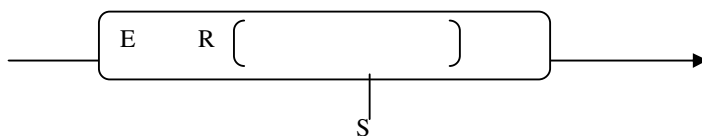
- (4.38) a. Eu assisto tv (*agora)
 b. I watch tv (*now)
- (4.39) a. João ama Maria (agora)
 b. John loves Mary (now)
- (4.40) a. ?João constrói uma casa (agora)
 b. ?John builds a house (now)
- (4.41) a. ?Maria chega ao topo da montanha. (now)
 b. ?Maria reaches the top of the mountain. (now)

However, only in Portuguese can the present tense express a universal reading marked by a durative adverb.

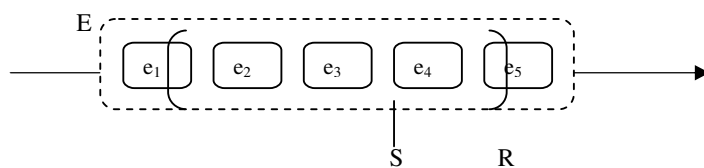
- (4.42) a. Eu dirijo este táxi há 50 anos.
 b. *I drive this taxi for 50 years.
- (4.43) a. Eu moro em Nova York faz quatro anos.
 b. *I live in New York for four years.

There must be something about the semantics of the present tense that permits this type of interpretation as well as something about the semantics of the durative adverbs ‘há’ and ‘faz’ that enable them to use the present tense as an anchor for expressing a durative interval that starts in the past. What is it about the present tense configuration that we have been assuming so far, repeated below, that allows the readings in (4.42) and (4.43) for one language and not for another?

- (4.30) Present tense configuration: Present: $[S \subseteq R]$, Imperfective: $[R \subseteq E]$
 a. Durative and reportive readings



b. Habitual reading



As previously mentioned, the above configuration is not the mainstream assumption regarding the semantics of the present tense. Except for Klein (1994), I have yet to encounter in the literature a representation that includes more than just the *S* and *E* variables, as in $[S = E]$ ¹⁰¹, along the lines of the Reichenbachian tradition (1947).

(4.44) Traditional Present Tense



The classical paper by Bennett and Partee (1978) assumes the above representation of the present tense, which is understood as the reportive interpretation, while the more salient habitual, or non-reportive, reading must be arrived at indirectly, through some semantic operation such as coercion. Given the unintuitive means for attaining the default interpretation of the present tense, Gonçalves (2006, 2007) proposes an alternative theory in which the habitual reading is favored as default and the marginal, reportive reading is derived by an extra pragmatic operation.

Gonçalves' (2006) "minimal conversational background test" is used to determine which eventuality types are compatible with the present tense. For example, person A may ask: "Tell me something about yourself / John / Mary" and person B uses the sentences in (4.38) – (4.41) above as answers. This is sufficient to reveal the way in which the present tense patterns with different aspectual classes.

Gonçalves eliminates the $[S = E]$ condition in favor of $[S \subset E]$. The author claims that this representation allows for repetition of the eventuality within the location time. For a sentence such as 'John swims', an event with the representation $[ev \subseteq E]$ used in the present tense, we get the following meaning: "somewhere within an arbitrarily long interval (*t*) which properly includes the utterance time (*n*), there was at

¹⁰¹ The relevant literature often uses 'n' ('now') to represent speech time and 't' to represent the eventuality's location time. I will maintain the Reichenbachian variables 'S', 'R' and 'E' for sake of consistency.

least one piece of evidence that supports the existence of events of swimming by John throughout the interval” (2006, p. 180). As suggested by the quotation, Gonçalves appeals to evidentiality for the determination of the two types of readings. But first, it is important to note that this representation of the present tense makes two other types of interpretations possible as well.

In addition to the habitual and reportive readings, the ‘[S \subset E]’ relation allows for a past reading in which the eventuality precedes speech time and a futurate reading in which the eventuality occurs after speech time. The latter interpretation is common, as can be seen in the sentence ‘John leaves tomorrow’. However, it is the past reading that is remarkable, but is not discussed in any detail. This reading will be taken up again near the end of this section.

With respect to the habitual and reportive readings, principles of informativeness based on Grice’s Maxims, are responsible for determining which one arises. What is required is some minimal amount of evidence that could make the present tense sentence true. Any kind of evidence is valid and any number of occurrences is valid as well, since one time occurrences are not excluded due to dispositional readings. The eventualities may or may not overlap with speech time. For example, assuming that the speaker is truthful, saying ‘John swims’ without visual evidence at speech time automatically results in a habitual interpretation. The reportive reading arises by accommodating a presupposition about the eventuality overlapping with speech time, which is a more costly inferential process than the one used to arrive at habituality. The semantic-pragmatic operations involved in determining the two types of readings are made more explicit with principles from Blutner’s (2000) OT Semantic theory¹⁰².

Gonçalves’ account of the present tense is appealing primarily due to the preference given to the habitual reading, which is indeed the default interpretation of the present tense, at least in languages like BP and English. The fact that the proposed representation of the present tense is also compatible with a past reading merits further attention. However, before turning to this, let us consider how Gonçalves’ proposal can be adapted to the framework assumed in the present study. To do so, I first argue for keeping reference time in the temporal-aspectual configuration.

As previously mentioned, the simple tenses are often represented without a reference point, since it is allegedly only relevant in the compound tenses. However, if

¹⁰² See Gonçalves (2006, 2007) for details and references therein.

we understand the reference time in the sense of Klein, as a topic time, or a time at which the eventuality is evaluated, it may be worth maintaining in the temporal configuration of the simple tenses. Topic time explains why the second sentence in the example below cannot mean that the book is no longer in Russian at speech time.

(4.45) I saw a book on the table. It was in Russian.

The seeing event occurred in the past, but the book's being in Russian is not something that "occurred" in the past and it is probably still in Russian at speech time. However, the past tense use is to mark the reference time, in relation to the seeing event. In other words, the 'was' of the second sentence does not mark the temporal location of the book's being in Russian, it marks the temporal location of the speaker's claim about the book being in Russian.

Furthermore, the adverbs 'há' and 'faz'¹⁰³ discussed at the beginning of this section require a reference time in order to properly measure the eventuality in question (Móia 2000). This backward measurement denoted by these adverbs must be anchored at reference time and it is parting from this anchor time that the measuring begins. Aside from time measurement, the adverb can count temporally ordered eventualities from the anchor point (Móia 2006).

(4.46) a. O Paulo não vai à igreja há três semanas.

Paul doesn't go to church for three weeks.

b. O Paulo não vai à igreja há três domingos.

Paul doesn't go to church for three Sundays.

With respect to the present tense, the 'há' adverbial is only capable of measuring situations involving atelic predicates. 'Faz' works in more or less the same way. It measures duration parting from the reference point.

(4.47) Faz (amanhã) dois anos que a Ana está em Paris.

¹⁰³ Literally, 'there are' and 'makes', respectively.

Differently from ‘há’, the ‘faz’ expression allows for the reference point to be explicitly modified by a positional adverb such as ‘amanhã’ or ‘hoje’, but this is more common in European Portuguese (Móia and Alves 2004). The closest English counterpart to these adverbial expressions is ‘for’, which, however, is not temporally anchored and cannot be used with the present tense.

- (4.48) a. *Paul does not go to church for three weeks.
 b. *For two years Ana lives in Paris.

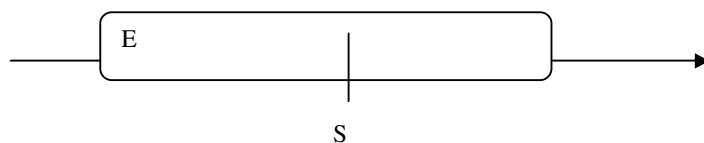
Given that these adverbial expressions occur primarily with atelic predicates, it is not the case that the present tense is expressing an eventuality that occurs in its entirety prior to speech time. The interval being measured must include reference time, which in turn includes speech time. However, the fact that a portion of the underlying eventuality necessarily holds before speech time is significant.

The modified semantics for the present tense proposed by Gonçalves (2006, 2007) and the data above regarding present tense sentences with left boundaries marked in the past by backward measuring adverbials leads the present work to make an additional claim about the present tense. Contrary to Gonçalves’ claim that the $[S \subset E]$ relation is adequate for both Portuguese and English as well as other Romance languages, I propose that English and Portuguese have different semantic representations of the present tense and that this distinction can only be discerned if we assume a reference time. I continue to follow the Kleinian approach to temporal-aspectual configurations and adapt Gonçalves’ claim accordingly to the framework assumed here.

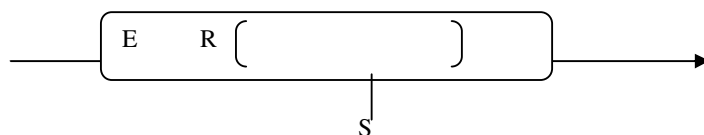
4.4.2 A different semantics for English and Portuguese present tense

Having assumed that the semantics of the present tense is not as straightforward as it appears and that we want to keep reference time, what will this mean for our assumptions about the present tense configuration? Below is a visual comparison of Gonçalves’ and Klein’s representations of the present tense.

(4.49) Gonçalves' Present Tense: $[S \subset E]$



(4.50) Klein's Present Tense: Present: $[S \subseteq R]$; Imperfective: $[R \subseteq E]$



Since reference time mediates between speech time and location time, it is not immediately clear which condition should be modified in the case of assuming Gonçalves' amendment of the present tense. However, we need to capture the ability of the present tense in Portuguese to be modified by adverbs which are anchored at reference time and stretch back into the past to mark the beginning of the eventuality, since this property is primarily what distinguishes it from the English present tense. In this case, the relevant condition to be modified is the one that expresses the imperfective relation, $[R \subseteq E]$.

In order to represent the meaning contributed by these backward measuring adverbs, it is required that R be properly included in E so that we can get the reading in which at least some part of the eventuality denoted by the verb in present tense is claimed to be true prior to reference time. We thus change the aspectual portion of the present tense configuration from $[R \subseteq E]$ to $[R \subset E]$.

The inference about the location and duration of an eventuality modified by a time-anchored adverbial is unaffected by whether the temporal part corresponds to $[S \subseteq R]$ or $[S \subset R]$. As previously mentioned, time-anchored adverbials can also occur with positional adverbials marking the right boundary. In the example below, the right boundary, marked by 'hoje', corresponds to the reference time, which properly or improperly includes speech time.

(4.51) *Faz hoje dois anos que moro em Nova York.*

For two years I live in New York.

The living in New York may continue beyond reference time, and hence, beyond speech

time, but the meaning of ‘faz’ and ‘hoje’ means there is a portion of the eventuality that is in the present tense and it occurs within an interval that has both its left and right boundaries demarcated.

The revised temporal-aspectual configuration of the present tense is as follows: Present: $[S \subseteq R]$; Imperfective: $[R \subset E]$. The proper inclusion relation in the imperfective condition is weaker¹⁰⁴ in that it makes an underspecified claim about how the eventuality can be related to the reference time and consequently, how it can be fixed onto the location time. This weaker claim results in more possible interpretations available. The English present tense has fewer interpretations available to it and so must maintain the stronger claim of improper inclusion. Therefore, the English configuration remains unchanged. However, this does not mean that we lose the intuitions with respect to the similarities between the present tense in the two languages. This is due precisely to the presence of the reference time in the inclusion relation as opposed to the speech time.

The conversational background and evidential information necessary for inferring habituality are “embedded” in the reference time, otherwise known as the time for which the claim is made. Moreover, it is assumed here, following Klein (1994), that habituality results in an indefinite number of occurrences within the location time, and each occurrence is associated with its own unique reference time. This repeating reference time can be modified, as in ‘Once a week, I get my nails done’. This way, not only does the reference time mediate between the location time and speech time, it also mediates between the location time and the eventualities themselves.

There are other consequences for the proposal presented above. If we assume, as we have been, that all temporal markers possess both tense and aspect conditions, then for constructions which involve more than one temporal marker, incompatibilities may arise with respect to the strength or weakness of certain conditions. This can result in variations regarding which elements contribute to the overall temporal-aspectual configuration and which do not.

Recall the discussion by Filip (1999, 2001) in the previous chapter on the imperfective in Slavic languages. The progressive/continuous reading of Slavic imperfectives presents a weak relation of improper inclusion between the reference

¹⁰⁴ The use of ‘strong’ and ‘weak’ here is not to be confused with strong and weak features as used in syntax (see Chomsky 1995). In the present discussion, weaker claims or conditions on temporal-aspectual configuration result in a greater availability of interpretations, while the opposite is true of stronger claims.

time, which corresponds to a partitive portion of the eventuality, and the eventuality as whole. This results in the possibility of a perfective interpretation of a sentence with imperfective morphology. Since this type of reading does not occur, for example, with the English progressive, a stronger relation of proper inclusion between the partitive portion and the eventuality is expressed¹⁰⁵. So, if different languages can show variation with respect to strength or weakness of a temporal relation, such as the imperfective, it is plausible that variation occurs within languages as well. This is reflected in subtle differences in interpretations in the various different structures in which imperfective (or perfective) viewpoints are contributed. For example, the strong inclusion relation of the progressive in the configurations for both English and Portuguese confirms the fact that there are no semantic differences with respect to the imperfective viewpoint in progressive sentences. This may be due to the fact that the imperfective viewpoint is introduced by morphological elements in both.

The next section discusses how the assumptions made up until this point affect the understanding of the inference patterns with respect to the PPC and PrP.

4.4.3 Consequences for the PPC and PrP

The imperfective relation in the Portuguese present tense is weak, which is responsible for the availability of both habitual and left-boundary-marked readings. Being weak, it is compatible with a wider variety of unmodified interpretations than, for example, the perfect and so it is the default feature of the present tense that dominates the one provided by the perfect, that of anteriority. Since the default reading of the imperfective is habituality, this is the reading we get for the PPC. Also, this approach makes no claims that would affect the interpretation of perfects in other constructions, such as the pluperfect and future perfect.

The reason why the source of the imperfectivity of the PPC is the present tense as opposed to the imperfect or progressive is due to the fact that these latter two constructions contribute the imperfective viewpoint morphologically, while the present

¹⁰⁵ Notice that, with respect to the overall temporal-aspectual configuration, the weaker relation is represented by proper inclusion between reference time and location time, since eventualities can occur anywhere before, during or after reference time. With respect to the specific progressive reading of the imperfective, however, the relation at stake is that between the reference time and a singular eventuality, in which case the weaker relation is that of improper inclusion, since the eventuality can be seen either as a part or as a whole. In other words, weaker relations are those that lead to more possible interpretations, while stronger relations are those that lead to less possible interpretations. This is the case independent of the type of inclusion relation.

tense does not. This implicit imperfectivity means explains why a structure like the PPC, composed of a present tense auxiliary and a past participle, can still have an imperfective meaning. Moreover, the default reading of the present tense is habituality while, for the imperfect and progressive, continuous and habitual readings are equally possible.

The result is an indefinite repetition of occurrences inside the location interval. Since the occurrences can take place anywhere inside the location time, there is no requirement that the actual eventuality overlap with speech time, but the ability to do so is guaranteed by its inclusion in the reference time, which is, in turn, included in the location time. As suggested earlier, this proposal also distinguishes the different types of pluralities of events that can occur in the PPC. In line with Schein's (1993) treatment of plural NPs as triggers for distributing over a plurality of subevents within occasions, the present tense acts as a trigger for distributing over a plurality of events across occasions within the location time. Thus, the PPC with plural arguments results in an interpretation with two dimensions of plurality, within and across occasions.

Furthermore, assuming that each occurrence gets its own reference time, the past participle, then, contributes a culmination point¹⁰⁶ which is associated to the reference time of each of these occurrences. This way, the past participle makes an aspectual contribution only at the eventuality level and not at the overall temporal-aspectual level. This is because the temporal-aspectual configuration is provided by the present tense and imperfective viewpoint. Moreover, given the assumption that events are included in their location time and states overflow it, durative readings achieved with SLPs or ILPs do not necessarily involve the repetition or culmination of occurrences. However, this explains the potentially ambiguous example of the library that is closed either for a single durative interval, or for intermittent intervals. The former situation is associated with one reference time, while the latter is associated with many. This means the distinction is ultimately determined by context.

Recall that, if we were to assume an intensional treatment of the PPC, habitual readings can be understood as deductive or inductive, but with the PPC they are only inductive. Deductive interpretations are excluded due to the contribution of the past participle. The fact that some occurrences have culminated within the event interval

¹⁰⁶ The culmination point is not to be confused with a telic point. The former refers to the completion of the eventuality regardless of the type of underlying predicate, while the latter is a property of VPs referring to an inherent endpoint independent of temporal modification.

means we are only dealing with sets of actual worlds.

In English, the imperfective viewpoint in the present tense is strong, resulting in less available unmodified interpretations, which leads to the perfect contributing to the overall temporal-aspectual configuration with the condition '[E < R]'. This means that reference time is no longer properly included in the location time, but merely locates its right boundary, at speech time. The default interpretations of anteriority and resultativity are thus the main readings of the PrP while adverbs can be used to distinguish more specific readings. Moreover, the repetition that may occur is similar to that of the simple past with the only difference being that of current relevance.

The present proposal thus provides support for the presence of reference time in the representation of simple tenses, which enables use to consider both the temporal and aspectual information contributed by each structure. The role of the reference time as mediator between the eventuality and the location time means the eventuality can be “embedded” in different ways according to contextual and other pragmatic factors. Consequently, it is the reference time that provides us with a means for determining the availability of different kinds of readings in the present perfect of the different languages, namely, habituality, durativity and anteriority. The reference time’s ability to multiply according to the number occurrences allows for each occurrence to be modified temporally as well.

Ultimately, a better understanding of the temporal-aspectual configurations provided by the PPC versus the PrP, in addition to the contribution of the semantics of the aspectual classes, are sufficient for deriving the differences between the two constructions.

4.5 Chapter summary

The purpose of the present chapter was to investigate the comparisons that have often been made with respect to the PPC and the PrP. The PrP was compared with the simple past while the PPC was compared to a variety of structures involving imperfectivity and habituality. Based on the variables of lexical aspect, plural arguments and adverbs, we arrived at a better understanding of what kind of repetition was at stake with respect to the PPC versus the PrP, for example. Moreover, adverb compatibility revealed a semantic distinction between the present tenses in English and Portuguese, which lead to a closer examination of the temporal and aspectual properties contributed by each

structure. The result was a unified semantic account of the different interpretations available for both constructions. While the present proposal does not intend to be a definitive solution in any way, it is hoped that the ideas expressed here may provoke future research on the PPC, particularly with respect to a deeper analysis of the semantics of the present perfect as the source of the plural readings, as opposed to the semantics of the auxiliary ‘ter’ or the past participle. This is motivated by the desire for a compositional analysis over appealing to pluractional operators that are not capable of distinguishing between the subtle meanings of different tense-aspect structures. Future investigation towards a more complete account include: i) a formal implementation, which may turn out to be compatible with a PTS-style theory; and ii) a more precise account of the role of reference time explored within a formal pragmatic theory.

Conclusion

The general objective of this dissertation was to follow a particular methodological approach based on the construction of interfaces from the level of foundations to the final level of analysis, with the specific objective of analyzing the corresponding present perfect structures in Portuguese and English, namely, the PPC and the PrP, respectively.

The investigation began by first considering three contemporary theories used to account for the present perfect in a variety of languages. These included the following: i) the Priorian Past theory; ii) the Stative Perfect theory; and iii) the Extended Now/PTS theory. The last of these theories has been successful in treating a broad range of languages, but due to foundational limitations, could not adequately account for the obligatory plurality of events expressed by the PPC. These limitations motivated a start from a different point of departure.

In line with the foundational perspective, the philosophical foundations of plurals and events were discussed. It was concluded in this portion of the analysis that the problem of identity and individuation criteria should not be an impediment to theorizing about events and plurals. Moreover, while philosophers agreed that individual objects and events could be treated on a par, they disagreed with respect to plurals. Singularists, defenders of plural objects, and pluralists, defenders of plural predicates, ultimately converged in the linguistic domain with respect to their treatment of collectivity, distributivity and cumulativity. Schein (1993) and Kratzer (2003) both opted for a treatment of plurals that depended primarily on event mereology and thematic relations between participants and their events. In sentences with plural arguments, the plurality is always shifted to the event. Distributive readings involve a plurality of events, each with its own unique agent, while collective readings involve an event in which subevents are restricted from having different agents.

At the theoretical level, the topics of lexical aspect and grammatical aspect were discussed at length in the singularist perspective. Mereological relations were assumed for lexical aspect and grammatical aspect. Telicity was represented by notions of atomicity and the perfective-imperfective opposition was represented by totality and partitivity, respectively. Habituality was treated as involving a covert operator with a similar meaning to adverbs of quantification. Aspectual periphrases were understood as contributing a pluractional operator in the sense of Lasnik (1995). Nominal-verbal

analogies were evidenced at every level of the singularist investigation. Independently of the singularist view, it was also assumed that temporal markers contribute elements of tense as well as aspect.

Assuming the singularist framework for analyzing the PPC and PrP, a comparative analysis was conducted with other temporal-aspectual constructions, such as the simple past, the progressive, the imperfect and the present tense. These structures were compared with respect to the readings available according to aspectual class, plural arguments and adverbs. The Schein-Kratzer view of plural readings enabled a better understanding of how a plurality of events is expressed by the PPC and PrP. The unmodified PPC expresses a plurality of events that is distributed over occasions while the unmodified PrP is most compatible with a reading of anteriority plus current relevance. The addition of plural arguments to a PPC sentence led to a reading of plurality within and across occasions, while with the PrP, plurality distributed only over subevents within a single occasion. Adverb compatibility in the present tense revealed that the Portuguese present tense is capable of expressing so-called universal readings with backward measuring adverbials, which is not possible in the English present tense. As a result, it was proposed that English and Portuguese have different temporal-aspectual configurations for the present tense, assuming the Kleinian representation of temporal markers. Consequently, this distinction also resulted in a modification of the temporal-aspectual configuration for the present perfect in each language. These independently motivated differences explained the variability in the readings available to each language, while still maintaining a unified semantic account for both present perfect structures.

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