

Pluractionality and Aspectual Structure in the Galician Spanish *Tener-Perfect*

Dissertation

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## Abstract

In this dissertation I explore the meaning of the perfect construction *tener* ‘have’ (present indicative) + (non agreeing) *past participle* as used in the Spanish spoken in Galicia (northwest region of Spain), to which I refer as *GaSP* (Galician Spanish Perfect). The goal is to develop a formal analysis that captures the empirical findings of the meanings of Galician Spanish utterances with this construction.

First, temporal reference in *GaSP* utterances is constrained to reference time intervals that include the time of utterance in their denotation and whose length is equal or greater than (roughly) two days stretching from the day of utterance time into the past. Second, *GaSP* utterances express plural eventualities temporally distributed at discontinuous intervals across the reference time interval. And third, in contrast to the so-called prototypical perfects, the range of interpretations of *GaSP* utterances is very limited, exhibiting universal and existential readings with multiple events.

I formally analyze the empirical findings within the Reichenbachian framework of temporality. I specifically capture the temporal relations between the times involved in tense and aspect in Klein’s (1994) theory of temporal interpretation. Tense determines the relation between the time of utterance and the reference time whereas grammatical aspect determines the relation between the reference time and the eventuality time. The meanings of event plurality and temporal distribution of events are explained in terms of

Deo (2009) and Deo and Piñango's (2010) theory of quantificational distributivity through interval partitions.

To Richard

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## Fields of Study

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## Glosses

The glosses enumerated here are used in the Galician Spanish data and in data from other languages that do not come from other authors. The glosses that other authors use are left as in the original and explained in footnotes.

1	first person
2	second person
3	third person
F	feminine
FUT	future
IND	indicative
IPFV	imperfective
OBJ	object
PL	plural
PRS	present
PST	past
PTCP	participle
SBJV	subjunctive
SG	singular

## CHAPTER 1

### INTRODUCTION

#### 1.1 The Galician Spanish *tener*-perfect

The linguistic variety of Spanish spoken in Galicia (Northwestern Spain) is an understudied variety characterized by a great number of linguistic phenomena still to be explored. The focus of this dissertation is one of these phenomena, namely, the perfect construction composed of the auxiliary *tener* ‘have’ in the present indicative plus an invariable past participle, for which I will use the acronym *GaSP* (*Galician Spanish Perfect*) throughout the dissertation.

Native speakers of Spanish from outside Galicia would probably be puzzled if they heard me utter (1) with *GaSP* when talking about one of my favorite restaurants in Vigo:

- (1) Aquí    tengo            comido            las mejores ostras    de mi vida.  
      herehave:PRS.ISG eat:PTCP        the best        oysters of my life  
      ‘Here I have repeatedly eaten the best oysters of my life.’

The construction *tengo comido* translates into English as ‘I have eaten repeatedly’ or ‘I have eaten more than once.’ This is how *GaSP* sentences will be translated throughout the dissertation. Informally speaking, native speakers of Galician Spanish use this form to convey repetition, that is, to express that something has occurred more than one time.

Perfect constructions have received a lot of attention cross-linguistically and cross-dialectally in typological theories (e.g., Comrie 1976, Dahl 1985, 2000). Also, formal semantic research has yielded a great deal of work on the English perfect (e.g., Dowty 1979, Abusch and Rooth 1990, Iatridou et al 2003, Portner 2003, Pancheva and Stechow 2004, a.o.), and the German perfect (e.g. Musan 2001, 2002, Rathert 2004, Stechow 2002), but much less on perfects in other languages. Limited work has been done in Spanish and Portuguese. The Spanish present perfect (with the auxiliary *haber* ‘have’) and the Portuguese present perfect have been formally described for a few varieties (Cabredo Hofherr et al. 2010, Laca 2010), but the Galician Spanish counterpart has received very little attention. Existing research has focused on brief descriptions (e.g., Ramallo 2007).

What makes the *GaSP* construction, which is not found in other varieties of Spanish<sup>1</sup>, valuable for the advancement of our understanding of perfects is that it has not been studied yet. I will show in this dissertation that although this is a perfect construction, it only shares certain properties with perfects cross-linguistically and cross-dialectally. However the most fascinating feature this construction exhibits is that it shares some properties with verbal pluractionals and related pluractional constructions. Verbal pluractionals are generally expressed by morphemes that attach to the verb and denote plurality in the domain of eventualities.

*GaSP* is characterized by the same morpho-syntactic properties as present perfects in other Romance languages: (i) it is composed of a stative auxiliary verb, *tener*

---

<sup>1</sup> The only other variety of Spanish where *tener* (PRS) + (invariable) past participle has been attested is Asturian Spanish, for which Harre (1991) offers a thorough descriptive analysis. Asturias is a region that borders Galicia to the east.



‘have’/‘possess’ in the present indicative and a non-agreeing past participle; and (ii) it does not allow any intervening material between the auxiliary and the past participle, as shown in (2).

- (2) \* Aquí tengo las mejores ostras de mi vida comido.  
 here have:PRS.1SG the best oysters of my life eat:PTCP  
 ‘Here I have the best oysters of my life eaten repeatedly.’

The example in (2) is ungrammatical because the direct object *las mejores ostras de mi vida* ‘the best oysters of my life’ is interpolated between the auxiliary *tengo* ‘have’ and the past participle *comido* ‘eaten’.

The source of the construction *tener* + *past participle* is the Latin *tenere* + (agreeing) past participle. The Latin construction had the meaning of ‘to keep someone or something in a certain condition’ (Arias Álvarez 2005, Pinkster 1987). *Tener* ‘have’ expressed “possession” and indicated duration of the possession, the “retention,” or the “state” of possessing something (Arias Álvarez 2005: 102).

I want to emphasize that the *tener* + (invariable) *past participle* I explore in this dissertation is not the resultative construction familiar to all native Spanish speakers and used in all Spanish varieties, illustrated in (3).

- (3) Tengo preparad-a-s las maletas.  
 have:PRS.1SG prepare:PTCP-F-PL the suitcase:FPL  
 ‘I have the luggage ready.’

The example in (3) shows that the resultative construction differs from *GaSP* in several respects: Morpho-syntactically, the resultative construction always contains a small clause composed of an adjectival past participle, *preparadas* ‘prepared’, and a direct object, *las maletas* ‘the suitcases’. The past participle agrees with the direct object noun phrase in gender and number, the morpheme *-a* encodes feminine, and the morpheme *-s*

encodes plural. Third, the construction allows the direct object to be interpolated between the auxiliary and the past participle, as illustrated in (4).

- (4) Tengo        las maletas        preparadas.  
       have:PRS.1SG the suitcase:FPL prepare:PTCP.FPL  
       ‘I have the luggage ready.’

Semantically, the resultative construction is used to express that at the present there is a resultant state product of a past action that produces a transformation (or a change of state) in the referent of the object noun phrase. This resultative construction represents the cross-linguistic grammatical category *resultative* as described in Bybee *et al.* (1994: chapter 3).<sup>2</sup>

A difference between *GaSP* and perfects in other languages is that there is no evidence for the former to have perfect forms with the auxiliary in other tenses besides the present tense. The absence of other perfect forms for the *tener*-perfect in Galician Spanish is interesting if compared to Galician and Portuguese perfects,<sup>3</sup> both with the auxiliary *ter* ‘have’ from the same Latin source as *GaSP*’s auxiliary, *tenere* ‘keep’ or ‘possess’. Galician and Portuguese have perfect forms with the auxiliary in non-present forms, as illustrated by examples (5a-b) and (6a-b):

- (5) Galician (examples from Álvarez & Xove 2002: 343)<sup>4</sup>

- a. Future perfect  
       Cando    volva                    o    fillo da                    escola  
       when    return:PRS.SBJV.3SG the son from.the        school  
       eu    xa            **terei**            **marchado**.  
       I    already    have:FUT.1SG    leave:PTCP  
       ‘When my son comes back from school I will have left already’

<sup>2</sup> For more references about the Spanish resultative construction see Harre 1994 and Detjes 2000.

<sup>3</sup> Extant studies on the Galician perfect *ter*+ (invariable) past participle analyze it as an aspectual periphrasis rather than as a perfect (e.g., Rojo 1974, Santamarina 1974).

<sup>4</sup> Glosses for the Galician examples are my own.

b. Past perfect

Díxome                    que        **tiña**                    **acabado**        para        as        cinco.  
tell:PST.3SG-me        that        have:PST.3SG        finish:PTCP        for        the        five  
'(S)he told me that (s)he had finished before five.'

(6) Portuguese

a. Future perfect

Maria    **terá**                    **falado**        com        ele        amanhã.  
Maria    have-*FUT*        spoken        with        him        tomorrow  
'Maria will have spoken with him tomorrow.' (Schmitt 2001: 410)

b. Past perfect

Ela    **tinha**    **morrido**        e        eu        não        sabia        o        que        fazer.  
She    had        died                    and        I        not        knew        what        to-do  
'She had died and I didn't know what to do.' (Schmitt 2001: 405)

Something else that sets *GaSP* apart from perfects cross-linguistically is that sentences with this construction must receive an iterative interpretation.<sup>5</sup> That is, *GaSP* requires repetition of the eventuality denoted by the verb over a time interval. Thus, readings involving a single eventuality do not arise from *GaSP* sentences.<sup>6</sup> The *GaSP* requirement of repeated eventualities is what brings it semantically closer to some verbal pluractionals.

In this dissertation, I explore the meaning of *GaSP* and develop a truth-conditional semantic analysis. My research on this construction bears on cross-linguistic form-meaning mapping, specifically on how unrelated constructions may contribute similar meanings to the sentences in which they occur, and how similar constructions

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<sup>5</sup> The only exceptions are the Galician and the Portuguese perfects. The Galician perfect with the auxiliary in the present is an iterative construction. The Portuguese present perfect yields iterative and continuative interpretations. In chapter 4 I discuss the interpretations of perfects cross-linguistically.

<sup>6</sup> To express the occurrence of a single eventuality in the past, native speakers of Galician Spanish would use either the simple past or the present perfect with the auxiliary *haber* 'have'.

contribute different meanings. More generally, this study illustrates how understudied languages and dialectal varieties can inform semantic theories, which are typically based on well-studied languages and dialectal varieties.

## **1.2 Galician Spanish**

Galician Spanish is the variety of Spanish spoken in the Autonomous Community of Galicia, in the Northwestern part of the Iberian Peninsula. Many of the linguistic characteristics exhibited by the Spanish variety spoken in Galicia originated from centuries of linguistic contact between Spanish and the vernacular language of this region, Galician. The Galician language is the product of the development of Latin in the western part of the Iberian Peninsula and was the only language used in this region until the Kingdom of Galicia became one of the territories of the Castilian crown with the crowning of Fernando II in 1230 (Ramallo 2007). From the thirteenth century to today, the Spanish variety spoken in Galicia has been shaped by its coexistence with Galician. Unfortunately, there are very few studies that explore the linguistic features of the Spanish of Galicia. Most of these studies have devoted themselves to describing linguistic phenomena that have their roots in the interference of Galician in Spanish (Álvarez Cáccamo 1983, Monteagudo and Santamarina 1993, Porto Dapena 2001, Castro 2003, Rojo 2004, Ramallo 2007, Geesling and Guijarro-Fuentes 2007). These features are not a product of current interference of Galician in Spanish. Rather, they are features that have been transferred historically from Galician, and are now an integral part of the

Spanish varieties of Galicia, which are acquired as a mother tongue.<sup>7</sup> Here I provide a small sample of features of the linguistic varieties of Spanish spoken by the population that uses Spanish as their first language as described in the aforementioned literature.

At the morphological level we can find the use of the Galician demonstrative forms *estes* ‘these’ and *eses* ‘those’ instead of the standard forms *estos* and *esos*. The Galician diminutive suffixes *-iño* (masc.), *-iña* (fem.) are frequently used instead of the Castilian Spanish suffixes *-ito*, *-ita*, (e.g., *pajariño* vs. *pajarito* ‘little bird’). It is common that the standard present subjunctive forms of *dar* ‘give,’ (i.e., *dé*, *des*,... ) and *estar* ‘be,’ (i.e., *esté*, *estés*,...) be replaced by the Galician forms *dea*, *deas*..., and *estea*, *esteas*... The verb *dar* ‘give’ is exemplified in (7):

(7) Context: The speaker is at the bakery.

a.	No	me	<b>deas</b>	ese	pan.	<i>Galician Spanish</i>
	not	to.me	give:PRS.SBJV.2SG	that	bread	
	Está	muy	tostado.			
	is	very	toasted			
	‘Don’t give me that (loaf of) bread. It’s too toasted.’					

b.	No	me	<b>des</b>	ese	pan.	<i>Castilian Spanish</i>
	not	to.me	give:PRS.SBJV.2SG	that	bread	
	Está	muy	tostado.			
	is	very	toasted			
	‘Don’t give me that (loaf of) bread. It’s too toasted.’					

The locution *¿y luego?*, (*e logo?*, in Galician) ‘and...?’/‘how come?’, is used by speakers of Galician Spanish to express surprise, illustrated in (8a).

(8) Context: Marta expected Laura’s brother to come to her birthday party.

a.	Marta:	¿ <b>Y luego?</b>	¿Por qué	no	vino	tu	hermano?
		and then	for what	not	come:PST.3SG	your	brother
	‘Hey? Why didn’t your brother come?’						

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<sup>7</sup> These features are found across the board in Galician Spanish, and none of them is typical merely of a single subarea.

- b. Laura: Porque está enfermo.  
 because be:PRS.3SG sick  
 ‘Because he is sick.’

However, one of the most salient features of the Spanish varieties spoken in Galicia is the reduction of the verbal paradigm. Many native speakers of this variety use almost exclusively the simple tenses, in detriment of the perfect forms. The simple past and the imperfect subjunctive are used instead of the present perfect and the past perfect indicative respectively, as illustrated in (9a) and (10a).

(9) Context: The interviewer asks what the consultant did that week. The consultant responds:

- a. Estasemana sí, **hice** algo, no recuerdo *Gal. Sp.*  
 this week yes do:PST.1SG something not remember:PRS.1SG  
 qué, pero probablemente he hecho algo.  
 what but probably have:PRS.1SG do:PTCP something  
 ‘This week, yes, I did something, I don’t recall what, but I have probably done something.’ Álvarez Cáccamo (1983: 427)
- b. Estasemana sí, **he** **hecho** algo, no *Cast. Sp.*  
 this week yes have:PST.1SG do:PTCP something not  
 recuerdo qué, pero probablemente he hecho  
 remember:PRS.1SG what but probably have:PRS.1SG do:PTCP  
 algo.  
 something  
 ‘This week, yes, I have done something, I don’t recall what, but I have probably done something.’

- (10) a. Él **estuviera** destinado anteriormente *Gal.Sp.*  
 he be:PST.IPFV.SBJV.3SG destined before  
 en San Sebastián.  
 in San Sebastián  
 ‘He had been sent before to San Sebastián.’ (Ramallo 2007: 26)
- b. Él **había** **estado** destinado anteriormente *Cast. Sp.*  
 he have:PST.IPFV.3SG be:PTCP destined before  
 en San Sebastián.  
 in San Sebastián  
 ‘He had been sent before to San Sebastián.’

The example in (9a) shows how in the response the simple past *hice* ‘did’ alternates with the present perfect *he hecho* ‘have done’ co-occurring with the same time adverbial *esta semana* ‘this week.’<sup>8</sup>

The imperfect subjunctive is also used instead of the past perfect subjunctive, as shown in (11a).

- (11) a. Si **estudiaras**,                      ahora    tendrías                      *Gal. Sp.*  
           if study:PST.IPFV.SBJV.2SG    now    have:COND.2SG  
           una buena    carrera.  
           a    good    career
- b. Si **hubieras**                      **estudiado**,    ahora                      *Cast. Sp.*  
           if    have:PST.IPFV.SBJV.2SG    study:PTCP    now  
           tendrías                      una buena    carrera.  
           have:COND.2SG    a    good    career  
           ‘If you had studied, now you would have a good career.’

The use of verbal periphrases transferred from Galician is another phenomenon found in the Spanish of Galicia. Some examples are the periphrases *dar* + *past participle* ‘give + past participle’, *estar a* + *infinitive* ‘be about to + infinitive’, and *tener* + *past participle* ‘have + past participle’. The last one is the focus of this dissertation, and its use is illustrated in example (1), repeated here as (12). The use of the former two is illustrated in (13) and (14) respectively.

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<sup>8</sup> Speakers of some Spanish varieties other than Galician Spanish (e.g., Asturias, Mexico) also use the simple past for examples like (7). The Spanish Normative Grammar (Alarcos 1999) considers correct only the present perfect in examples like (7). The co-occurrence of the adverbial *esta semana* ‘this week’, which denotes a time interval that includes the present or the time at which the speaker utters (7) requires the use of the present perfect.

- (12)a. Aquí **tengo** **comido** las mejores ostras *Gal. Sp.*  
 here have:PRS.1SG eat:PTCP the best oysters  
 de mi vida.  
 of my life  
 ‘Here I have repeatedly eaten the best oysters of my life.’
- b. Aquí **he** **comido** repetidamente *Cast. Sp.*  
 here have:PRS.1SG eat:PTCP repeatedly  
 las mejores ostras de mi vida  
 the best oysters of my life  
 ‘Here I have repeatedly eaten the best oysters of my life.’
- (13)a. No **doy** **hecho** todo el trabajo. *Gal. Sp.*  
 not give:PRS.1SG do:PTCP all the work  
 ‘I can’t complete the work.’
- b. No consigo terminar todo el trabajo. *Cast. Sp.*  
 not manage.to:PRS.1SG finish all the work  
 ‘I can’t manage to complete the work.’ (adapted from Ramallo 2007: 26)
- (14)a. Felisa **está** **a venir**. *Gal. Sp.*  
 Felisa be:PRS.3SG to come  
 ‘Felisa is about to come.’/‘Felisa is coming.’
- b. Felisa **está** **a punto de venir**. (Inchoative) *Cast. Sp.*  
 Felisa be:PRS.3SG to about of come  
 ‘Felisa is about to come.’ (Porto Dapena 2001: 16)
- c. Felisa **está** **viniendo**. (Progressive) *Cast. Sp.*  
 Felisa be:PRS.3SG come:PROG  
 ‘Felisa is coming.’

The periphrasis *doy hecho* ‘can complete’ in (13a) is used instead of the modal periphrasis *soy capaz de/puedo* ‘I’m able to’ (or *consigo* + *infinitive*, ‘I manage to + infinitive’). In (14a), the periphrasis *está a venir* ‘is about to come’ is used instead of the inchoative Castilian Spanish *está a punto de venir* ‘is about to come’, in (14b), and instead of the progressive *estar* ‘be’ + *gerund*, in (14c).



### 1.3 Theoretical approach: Truth-conditional compositional semantics

In this dissertation, I adopt the Montagovian truth-conditional compositional framework. The textbook by Dowty, Wall, and Peters (1981) provides an introduction to the framework and the concepts I use.

Compositional semantics adheres to the Principle of Compositionality (attributed to Frege), which states that the meaning of a complex expression is determined by the meanings of its constituent expressions and the rules used to combine them. Thus, in order to determine the meaning of a sentence, we have to consider the meaning of the smaller meaningful expressions of the sentence, which include phrases and words, and the way they are combined. To give a heads up on the formal analysis of *GaSP* sentences, I illustrate the procedure with a simple example.

The meaning of a sentence can be derived compositionally through *function application*. In (15), the meaning of *Paula canta* ‘Paula sings’ is derived by applying the denotation of ‘canta’ to the denotation of ‘Paula.’ The denotation of the expression ‘Paula’ is the individual Paula, and the denotation of the verb ‘canta’ is a function from individuals to truth-values. If the denotation of ‘Paula’ is in the denotation of ‘canta’ then the meaning of the sentence ‘Paula canta’ is true.

(15) Paula    canta.  
      Paula    sing:PRS.3SG  
      ‘Paula sings.’

## 1.4 The data

The data I analyzed for this dissertation come from several sources. Methodologically I combined introspection as a native speaker of this variety and consultation with five other native speakers for acceptability judgments. Some examples are constructed, others come from overheard conversations or conversations I had myself with other native speakers during visits to my hometown, Vigo, between 2009 and 2011, and from telephone or Skype conversations I have had with my relatives over the last three years. I also collected some examples from different sources on the Internet (mainly blogs). I collected a few examples from the Santiago de Compostela corpus CSC but decided not to include them in the research because I preferred to constrain the study to one Galician Spanish variety, that of Vigo. The examples I selected to present in the dissertation are the constructed ones, except for a few examples taken from some blogs. My motivation for selecting almost exclusively the constructed examples is that they illustrate all the aspects of *GaSP* that are the focus of the dissertation. The constructed examples enable me to more quickly and efficiently explain the phenomenon. However, the naturally occurring data is consonant with the empirical generalizations I establish in the dissertation on the basis of the constructed examples.

The constructed examples were necessary because naturally occurring data alone was not enough to obtain certain judgments on interpretations or compatibility patterns, in particular compatibility with time adverbials, which are very scarce in the naturally occurring speech I collected. Some of the constructed examples were versions of the

naturally occurring data I gathered, in which I changed the context or linguistic material to test whether the new versions were acceptable or grammatical.

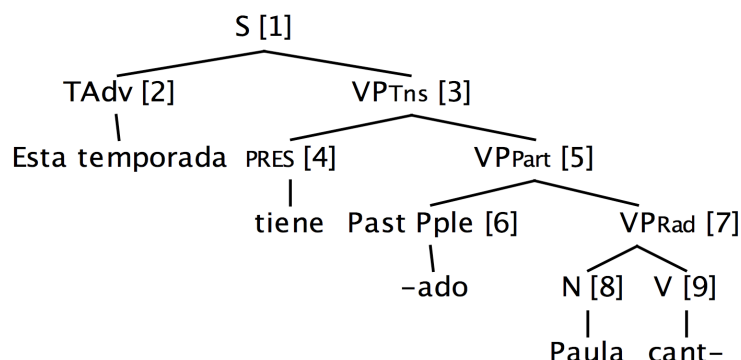
In the analysis of the constructed examples I contrasted my own intuitions with those of five consultants. My consultants are individuals born and raised in Vigo, three women of ages 34, 51, and 73 and two men of ages 34 and 37. All five consultants are bilingual in both Spanish and Galician but the dominant language of one of them is Galician whereas the dominant language of the other four is Spanish. They have varying levels of education. One has an elementary school degree; two have high school degrees and two have professional degrees, one in nursing school and the other in filmmaking.

The use of *GaSP* is generally restricted to colloquial registers. Even Spanish speakers from this region who are not fluent in Galician or are monolingual Spanish speakers use this construction in conversational registers. It is very common for Spanish speakers from Galicia to not use the *haber*-perfect forms. Instead the simple past or certain aspectual periphrases such as *acabar de* ‘to finish of’ + infinitive are the common forms to refer to past and recent past events.

## 1.5 Organization of the dissertation

In this dissertation the structure below (16) is the structure in which the meanings of complex constituents are composed for a *GaSP* sentence, illustrated by example (16). Chapters 2, 3, and 4 provide empirical evidence to support the proposed structure.

- (16) Esta      temporada   Paula   tiene      cantado.  
this      season      Paula   have:PRS.3SG   sing:PTCP  
‘This season Paula has sung repeatedly.’



From the bottom up, the verb phrase radical  $VP_{Rad}$  in [7] is composed of the verb stem *cant-* ‘sing’ in [9] (i.e., without tense and aspect marking), and the subject argument *Paula* in [8]. The syntactic category of *cant-* is V (verb), a one-place predicate. The syntactic category of *Paula* is N (a noun). The next VP is the participial phrase  $VP_{Part}$  in [5] formed by combining the past participle in [6] with the VP radical in [7] to give the aspectually marked VP *Paula cantado* ‘Paula sing:PTCP’. The next VP is the tensed verb phrase  $VP_{Tns}$  in [3], where the auxiliary *tener* in the present tense is combined with the  $VP_{Part}$  to yield a tensed VP, *Paula tiene cantado* ‘Paula have:PRS.3SG sing:PTCP’. The tensed  $VP_{Tns}$  in [3] is then combined with the time adverbial (a frame adverbial) TAdv in [2], *esta temporada* ‘this season’, which constrains the reference time interval. As shown in the tree, I am assuming that the subject argument originates internally in the  $VP_{Rad}$ . The denotation of each constituent will be given in chapter 5.

In chapter 2, I introduce the Reichenbachian framework (Reichenbach 1947) for temporal interpretation and Klein’s (1994) analysis of tense and aspect. The chapter deals with the semantic contribution of the present tensed auxiliary *tener* ‘have’ and TAdv (i.e.,

frame adverbials) located in nodes [3] and [2] of the tree. I discuss the restrictions on the temporal reference of *GaSP*. Specifically, I examine the compatibility of *GaSP* with temporal frame adverbials and identify the frame adverbials that constrain the reference time. I present the restrictions that *GaSP* imposes on the reference time.

In chapter 3, I discuss how *GaSP* constrains the lower  $VP_{\text{Radical}}$  of the tree below (16) and show that *GaSP* modifies the basic eventuality in the same way some verbal pluractionals do. *GaSP* requires that there be a plurality of eventualities of the same type denoted by the verb and that these eventualities hold throughout the reference time interval at discontinuous subintervals. I provide evidence for the pluractional properties of *GaSP* by testing its compatibility with frequency and iterative adverbials.

Chapter 4 deals with the Past Participial in node [6] of tree below (16) and its semantic contribution. The meaning of the past participle is explored in conjunction with the contribution of the present tense of the auxiliary *tener*. I raise the question of whether *GaSP* is a present perfect in all respects. I review the typological and formal semantic literature on present perfects and compare the properties of present perfects cross-linguistically with the properties of *GaSP* to conclude that *GaSP* shares only some of the often-called *prototypical* properties of present perfects.

In chapter 5, I develop a compositional semantic fragment of the *GaSP* construction. I introduce the theories and various analyses of verbal pluractionals and offer a novel account of *GaSP* as a pluractional that builds on Deo's (2009) analysis of imperfective aspect and on Deo and Piñango's (2011) analysis of *for*-adverbials. Chapter 6, the final chapter, summarizes the main claims and discusses how this dissertation

contributes to typological and formal semantic theories. I conclude by presenting some ideas for future research.

## CHAPTER 2

### TEMPORAL REFERENCE RESTRICTIONS OF *GaSP*

#### 2.1 Introduction

The goal of this chapter is to illustrate the temporal reference restrictions of *GaSP* by investigating how *GaSP* constrains the types of time adverbials with which it can co-occur. Consider examples (1a-c), which illustrate that *GaSP* is acceptable with the frame adverbial *este año* ‘this year’ but unacceptable with the frame adverbials *el próximo año* ‘next year’ and *el año pasado* ‘last year.’<sup>9</sup>

- (1) a.        Paula    tiene            corrido   maratones    este año.  
              Paula    have:PRS.3SG   run:PTCP   marathons    this year  
              ‘Paula has run marathons this year.’
- b.    % Paula    tiene            corrido   maratones    el    año pasado.  
              Paula    have:PRS.3SG   run:PTCP   marathons    the   yearlast  
              ‘Paula has run marathons last year.’
- c.    % Paula    tiene            corrido   maratones    el    próximo año.  
              Paula    have:PRS.3SG   run:PTCP   marathons    the   next    year  
              ‘Paula has run marathons next year.’

The example in (1a) says that Paula has run marathons across a year-long interval that includes the present, i.e. *este año* ‘this year.’ The contrast in acceptability between (1a)

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<sup>9</sup> The symbol % means that the example is judged to be unacceptable by native speakers because there is a semantic incompatibility; the symbol # means that the example is pragmatically odd.

on the one hand and (1b) and (1c) on the other indicates that the temporal reference of *GaSP* sentences is restricted to intervals including the time of utterance. The idea is that certain frame adverbials occurring in *GaSP* sentences help to locate the reference time because they constrain it.

In section 2.2 I introduce the terminology and formal framework relevant for this chapter. In section 2.3 I classify temporal frame adverbials according to the temporal relation between the time they denote and the time of utterance. In section 2.4, the data illustrates what frame adverbials are compatible with *GaSP*. In section 2.5 I briefly discuss non-indexical frame adverbials. In section 2.6 I summarize the findings and conclude with a discussion of the temporal semantics of *GaSP*.

## **2.2 Ontology and formal framework**

In this section I introduce the notions and formal framework needed for the purposes of this chapter. I assume a domain of eventualities  $E$  and a domain of time intervals  $I$ . I use the term *eventuality*, coined by Bach (1986) as a cover term for states, and events (i.e., processes, achievements, and accomplishments), and assume that verb phrases make reference to eventualities. Intervals are ordered by the subinterval relation, the proper subinterval relation—both indicated by the set theoretic symbols  $\subseteq$  and  $\subset$  respectively—and the temporal precedence relation, represented by  $<$ . In chapter 5, I will spell out in more detail the definitions of these set-theoretic notions and the formal properties of intervals.



For the analysis of the temporal semantics of *GaSP*, I use the three time intervals involved in temporal reference assumed in the Reichenbachian framework. Reichenbachian analyses of temporal reference involve a relation between three times, the time of utterance, the reference time, and the eventuality time, which I will write as TU, RT, and EvT respectively.

I follow Klein's (1994) and Bohnemeyer and Swift's (2004) analyses of tense and grammatical aspect. In their approaches to temporality, tense establishes the relation between utterance time and reference time, while grammatical aspect determines the relation between reference time and eventuality time. Instead of RT, Klein (and Bohnemeyer and Swift after Klein) uses the pragmatic notion of topic time instead of reference time, and defines it as the time with respect to which an utterance is made, or the time an utterance is about. For instance, in (2) the topic time is delimited by the adverbial *por la tarde* 'in the afternoon' and the time of the letter of recommendation writing is included in the topic time.

- (2) Iván escribió la carta de recomendación por la tarde.  
 Ivan write:PAST.PFTV.3SG the letter of recommendation in the afternoon  
 'Ivan wrote the letter of recommendation in the afternoon.'

In (3) and (4) I show how the temporal relations between utterance time and reference time, and reference time and eventuality time are represented for different tenses and aspects respectively.

(3) Tense

- a. Present: utterance time is properly included in reference time (written as  $TU \subset RT$ )
- b. Past: reference time precedes utterance time (written as  $RT < TU$ )
- c. Future: utterance time precedes reference time (written as  $TU < RT$ )

(4) Aspect

- a. Perfective: eventuality time is included in reference time  
(written as  $EvT \subseteq RT$ )
- b. Imperfective: reference time is properly included in eventuality time  
(written as  $RT \subset EvT$ )

The temporal relations presented in (3) and (4) are illustrated by the examples in (5a), (5b), (5c), and (6).

- (5) a. Joan      vive              en    Londres.  
Joan    live:PRS.3SG    in    London  
‘Joan lives in London.’
- b. Joan      vivi6              en    Londres.  
Joan    live:PST.3SG    in    London  
‘Joan lived in London.’
- c. Joan      vivirá              en    Londres.  
Joan    live:FUT.3SG    in    London  
‘Joan will live in London.’

In (5a), the present tense encodes  $TU \subset RT$ , and imperfective aspect encodes  $RT \subset EvT$ .

In (5b), the past tense encodes  $RT < TU$ , and perfective aspect encodes  $EvT \subseteq RT$ ; the reference time is a past time and the eventuality time is the time. In (5c), the future tense encodes  $TU < RT$ , and perfective aspect encodes  $EvT \subseteq RT$ . In all three examples, the

reference time is the time for which the claim of Joan living in London is made, (i.e., the present, the past or the future), and the eventuality time is the time of Joan living in London.

(6) (Cuando la policía llegó,) los ladrones ya habían escapado.  
 when the police arrive:PST.3SG the thieves already have:IMP.3PL escape:PTCP  
 ‘(When the police arrived,) the thieves had already escaped.’

In (6), in the past perfect, the eventuality time of *habían escapado* ‘had escaped’ precedes the reference time, and the reference time precedes the utterance time (represented as  $EvT < RT < TU$ ). The reference time is set by the when-clause, that is, the time of the police’s arrival. The eventuality time is the time at which the thieves escape, and the time at which the speaker utters (6) is the utterance time. So that in (6) the time when the thieves escape precedes the time when the police arrive, and the time of the police arriving precedes the time of utterance.

In this chapter I will be concerned with how the reference time in *GaSP* sentences is restricted. I will argue that the present tensed auxiliary *tener* ‘have’ in *GaSP* restricts the reference time, requiring the time of utterance to be included in the reference time as a final subinterval. Evidence for this hypothesis is given by the co-occurrence patterns of indexical frame adverbials and temporal adverbials like *desde 1990* ‘since 1990’ and *hasta ahora* ‘until now’. *GaSP* allows co-occurring indexical frame adverbials that include the time of utterance in their denotation and temporal *since*-type adverbials that set the left boundary of the reference time interval in the past of the time of utterance.

### 2.3 Adverb classification in Spanish

In order to capture the temporal reference of *GaSP* sentences, I assess their compatibility with indexical frame adverbials. I take the nomenclature *indexical* from Bennett and Partee (1978). Indexical frame adverbials denote time intervals that are located on the time axis in relation to another time interval, that is, they are anchored<sup>10</sup> to other time intervals. For instance, the adverb *ayer* ‘yesterday’ denotes the interval that is the day before the day that contains the time of utterance. The adverb *mañana* ‘tomorrow’ denotes an interval that is the day after the day including the time of utterance. I offer a classification of frame adverbials based on the contrast between indexical frame adverbials that include the time of utterance in their denotation and indexical frame adverbials that exclude the time of utterance in their denotation. For instance, a frame adverbial expression like *esta semana* ‘this week’ is characterized as denoting a time interval that includes the time of utterance, while *la semana que viene* ‘next week’ denotes a time interval located in the future of the time of utterance.

I include in the classification of frame adverbials non-indexical adverbials and will briefly discuss them in section 2.5. Non-indexical frame adverbials determine temporal reference independently of the utterance time. Instances of non-indexical frame adverbials are *por la tarde* ‘in the afternoon,’ *a las tres en punto* ‘at exactly three o’clock.’

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<sup>10</sup> Lepore and Ludwig (2007: 198) use the term *anchor* in their classification of temporal adverbials as future, past, present, and unanchored adverbials. Future, past, and present temporal adverbials are anchored to the time of utterance, while unanchored adverbials are not anchored to any other time.

Table 2.1 illustrates how frame adverbials are classified. They denote intervals as illustrated by *a las tres en punto* ‘at exactly three o’clock’, and *hoy* ‘today’. The two intervals denoted by the adverbials above differ in length: *a las tres en punto* ‘at exactly three o’clock’ denotes a very short interval compared to *hoy* ‘today.’ For each subgroup of indexicals, the temporal relation with utterance time is given. Past-time denoting adverbials denote an interval that precedes utterance time, future-time denoting adverbials denote an interval that follows utterance time, and non-past/non-future-denoting adverbials specify a time that includes utterance time. Non-indexical frame adverbials will be briefly discussed in this chapter to illustrate that some of them can specify reference time. In chapter 5, they will be addressed more thoroughly as temporal adverbials that specify the time of the eventualities.

FRAME ADVERBIALS			
Indexical			Non-indexical
Past time denoting $i < TU$  <i>ayer</i> ‘yesterday’  <i>la semana pasada</i> ‘last week’	Future time denoting $i > TU$  <i>mañana</i> ‘tomorrow’  <i>la próxima semana</i> ‘next week’	Present time denoting $i \supset TU$  <i>hoy</i> ‘today’ <i>esta semana</i> ‘this week’ <sup>11</sup>	 <i>a las tres</i> ‘at 3 o’clock’   <i>por la mañana</i> ‘in the morning’

Table 2.1. Classification of Frame Adverbials in Spanish

<sup>11</sup> I want to mention that expressions like *estos días* ‘these days,’ *esta semana* ‘this week,’ and *este mes* ‘this month’ may be interpreted as non-indexical. Consider a context in which a couple is planning their vacations for the next year. They have a calendar on the table and one of them points at the month of July with his finger and says:

- (i) Estos días /Esta semana/ Este mes no puedo ir de vacaciones.  
these days this week this month not can:PST.1SG go of vacation  
‘These days/This week/This month I can’t go on vacation.’

In this example, the adverbials do not denote the intervals that are the current days, week, or month within which the speaker utters (i).

That frame adverbials can constrain the reference time becomes apparent if we look at their interaction with different tenses. For instance, in Spanish and in English the past tense is not compatible with future time denoting adverbials, and the future tense is not compatible with past time denoting adverbials, as illustrated in (7a) and (7b) respectively.

- (7) a. \* Mañana leí el periódico.  
           tomorrow read:PST.ISG the newspaper  
           \* ‘Tomorrow I read the newspaper.’
- b. \* Ayer leeré el periódico  
       yesterday read:FUT.ISG the newspaper  
       \* ‘Yesterday I will read the newspaper.’

In contrast to (7a), consider (8), in which *mañana* ‘tomorrow’ co-occurs with the verb *leer* ‘read’ in the future tense:

- (8) Mañana leeré el periódico.  
       tomorrow read:FUT.ISG the newspaper  
       ‘Tomorrow I will read the newspaper.’

In (8) the reference time is located after the time of utterance by tense (Future,  $TU < RT$ ). The adverb *mañana* constrains the reference time to the time interval that is the day after the day that includes the time of utterance.

The next section provides evidence for the argument that only indexical frame adverbials denoting intervals that include the time of utterance are compatible with *GaSP*. I will argue that these frame adverbials constrain the reference time in *GaSP* sentences.

## 2.4. Indexical frame adverbials: overlap with TU and length

### 2.4.1 Overlap with utterance time

In this section, the data presented illustrate what types of indexical frame adverbials, as classified in table 2.1, are compatible with *GaSP* sentences.

Temporal adverbials like *estos días/meses/años* ‘these days/months/years’, *esta semana* ‘this week’, *este mes* ‘this month’ are compatible with *GaSP*. The example in (9) is acceptable because the frame adverbials denote intervals that include TU; since *GaSP* requires RT to properly include TU, the frame adverbials constraining RT must denote intervals that also properly include TU.

- (9) Context: Telephone conversation between Ana and her mother. Ana asks if her father has been going for walks after his surgery.

Mother: Sí, tiene ido estos días/  
yes have:PRS.3SG go:PTCP these days  
esta/ estas semana/ semanas.  
this these week weeks  
‘Yes, he has been going these days/this week/these weeks.’

Frame adverbials like *estos últimos días* ‘these last (few) days,’ *estos tres últimos días* ‘these last three days’ or *últimamente* ‘lately’ are compatible with *GaSP*, as shown in (10a)-(10c).

- (10) a. Estos últimos días tengo fumado mucho.  
these last days have:PRS.1SG smoke:PTCP much.  
‘These last few days I’ve been smoking a lot.’  
b. Estos tres últimos días tengo fumado  
these three last days have:PRS.1SG smoke:PTCP  
mucho.  
much  
‘These three last few days I’ve been smoking a lot.’

- c. Últimamente      tengo      fumado      mucho.  
      lately                have:PR.1SG    smoke:PTCP    much  
      ‘Lately I’ve been smoking a lot.’

The follow up sentences in (11) and (12) serve as a test to verify that in fact the frame adverbials in (10a)-(10c) include utterance time in their denotation. The sentences in (10a)-(10c) may be followed by (11), but not by (12). In (11) the speaker asserts that at some time after utterance time he will quit smoking. In contrast, if the speaker utters (12) as a follow up of (10a)-(10c), he is asserting that he does not smoke at a time that includes utterance time, which contradicts what has already been asserted in (10a)-(10c), that is, that the speaker is a smoker at a time interval which includes utterance time.

- (11) Pero      voy                a      dejarlo.  
      but      go:PRS.1SG      to      quit:OBJ.3SG  
      ‘But I’m going to quit.’

- (12)# Pero      ya                no      fumo.  
      but      already      not      smoke:PRS.1SG  
      ‘But I don’t smoke anymore.’

Examples (13) and (14) show that the time interval denoted by the adverbials *por ahora* ‘for now’ and *hasta ahora* ‘up to now’ include the utterance time. This is verified by the unacceptability of the follow-up adversative clauses with the adverb *ahora* ‘now’ in (13b) and (14), which contradict what is said in (13a) and (14a) respectively. The follow-ups are interpreted as saying that María does not smoke and that Ana does not go to the pool in the morning at a time interval that surrounds the time of utterance.

- (13) Context: Ana and María are smokers. They plan to quit. Ana asks Maria how much she has been smoking lately. Maria says:



- a. Yo por ahora tengo fumado solo  
 I for now have:PRS.1SG smoke:PTCP only  
 un cigarrillo por la noche.  
 a cigarette for the night  
 'For now I've been smoking only one cigarette at night.'
- b. % Pero ahora no fumo.  
 but now not smoke:PRS.1SG  
 'But now I don't smoke anymore.'

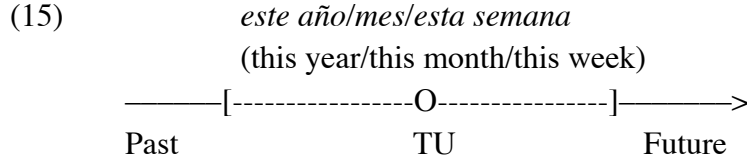
(14) Context: Ana goes to the pool and her friend, Maria, wants to sign up to join her.  
 Maria asks at what time Ana has been going to the pool. Ana says:

- a. Hasta ahora/ hoy tengo ido por la mañana.  
 until now today have:PRS.1SG go:PTCP for the morning  
 'Up till now/today I've been going in the morning.'
- b. % Hasta ayer tengo ido por la mañana.  
 until yesterday have:PRS.1SG go:PTCP for the morning  
 'Up till now/today I've been going in the morning.'

Examples (13) and (14) strongly support the hypothesis that RT includes TU as its right boundary.

### Summary

This section has provided evidence for the compatibility of indexical frame adverbials denoting intervals that include the time of utterance with *GaSP* sentences. The figure in (15) illustrates how frame adverbials like *este año* 'this year,' *este mes* 'this month' and *estos días* 'these days' denote intervals that surround the time of utterance in the time axis. The interval between brackets [---] represents the intervals denoted by these adverbials; the time of utterance represented by O falls within the interval of the adverbials:



## 2.4.2 Past-time and future-time denoting adverbials

In section 2.3 past-time and future-time denoting frame adverbials were defined as denoting time intervals located before and after utterance time respectively. This subsection illustrates that these types of adverbials cannot co-occur with *GaSP*, which confirms the hypothesis made in the introduction of the chapter that adverbials specifying the reference time of *GaSP* sentences must include utterance time in their denotation.

### 2.4.2.1 Past-time denoting frame adverbials

Past-time denoting frame adverbials<sup>12</sup> like *ayer* ‘yesterday,’ *la semana pasada* ‘last week’ and *el mes pasado* ‘last month’ shown in (16a), or *el año pasado* ‘last year’ and *en el pasado* ‘in the past’ shown in (16b) are not acceptable in *GaSP* sentences.

<sup>12</sup> These adverbials are also referred to as “specific” or “definite-time” adverbial expressions in Dahl 1985:137, and the literature after him.

(16) Context: Ana and Paula live far away from their families so they talk on the phone frequently. Ana says:

- a. % Ayer/ La semana pasada/ El mes pasado  
 yesterday the week past the month past  
 tengo hablado con mi familia.  
 have:PRS.1SG talk:PTCP with my family  
 ‘Yesterday/Last week/Last month I have talked with my family repeatedly.’
- b. % El año pasado/ En el pasado  
 the year past in the past  
 tengo hablado con mi familia.  
 have:PRS.1SG talk:PTCP with my family  
 ‘Last week/Last month I have talked with my family repeatedly.’

*En aquellos días/tiempos* ‘in those days/times’ are not acceptable because they denote time intervals in the past of utterance time. In (17), they refer to the speaker’s childhood.

(17) Context: Conversation about the time the speaker lived in her grandmother’s house.

- % En aquellos días / tiempos tengo ido a la playa  
 in those days/ times have:PRS.1SG go:PTCP to the beach  
 con mis vecinas.  
 with my neighbors  
 ‘In those days/times I have gone repeatedly to the beach with my neighbors.’

*GaSP* cannot combine with adverbial expressions such as *recientemente* ‘recently’, *hace poco* ‘a little (while) ago,’ which indicate anteriority with respect to the time of utterance, illustrated in (18).

(18) Context: Paula looks very tanned. Ana asks her if she has gone to the beach that day. Paula says:

- % Hoy no. Pero tengo ido recientemente/ hace poco.  
 today not but have:PRS.1SG go:PTCP recently ago little  
 ‘Not today. But I have gone repeatedly recently/ a little ago.’

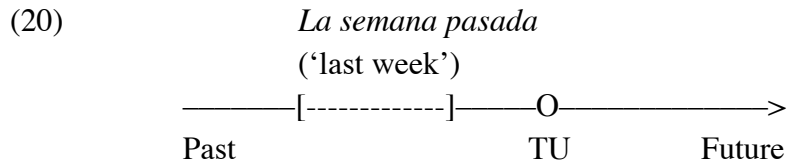
The adverb *antes* ‘before’ has a different semantics from the former two adverbials. It indicates anteriority with respect to any contextually given time. It may be anchored to a time in the future or a time in the past of the time of utterance, like *antes del año que viene* ‘before next year’ or *antes de que llegaras* ‘before you arrived.’ In (19) *antes* ‘before’ takes the time of utterance as the time to which it is anaphoric to give rise to the meaning *antes de ahora* ‘before now,’ and as expected, it is not acceptable in *GaSP* sentences.

(19) Context: Ana and Paula are discussing what to cook for a dinner party. They want to be safe and prepare something they know how to make.

Ana: % Tengo preparado langosta antes.  
 have:PRS.1SG prepare:PTCP lobster before  
 ‘I have prepared lobster repeatedly before.’

### Summary

The data presented in this section illustrate the unacceptability of past-time denoting frame adverbials in *GaSP* sentences. The figure in (20) shows the temporal location of the interval denoted by the adverbial expression *la semana pasada* ‘last week’ represented by [---]. The interval is located in the past of the utterance time O and denotes the week before the week of the time of utterance.



### 2.4.2.2 Future-time denoting frame adverbials

Adverbials denoting a time in the future of utterance time are not compatible with *GaSP*. Some examples are *mañana* ‘tomorrow,’ *la semana que viene* ‘next week,’ both illustrated in (21), *el año que viene* ‘next year.’

- (21) % Tengo            llamado a    mi   madre  
         have:PRS.1SG call:PTCP to   my   mother  
         mañana /    la   semana que viene.  
         tomorrow /   the   week    that comes  
         ‘I have called my mother repeatedly tomorrow/next week.’

The adverbial expression *desde ahora* ‘from now on’ denotes an interval that has the time of utterance as its left boundary and continues into the future. The example in (22) shows the unacceptability of *desde ahora* ‘from now on’ with *GaSP*.

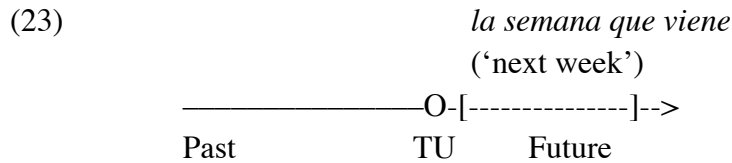
- (22) % Desde   ahora   tengo            llamado  
         from    now    have:PRS.1SG call:PTCP  
         a    mi madre    por la   noche.  
         to   my mother   for the night  
         ‘From now on I have called repeatedly my mother at night.’

*Desde ahora* ‘from now on’ is not compatible with *GaSP* because even though it includes the time of utterance in its denotation, the interval denoted extends from the utterance time into the future.

### Summary

The data from this section illustrate the unacceptability of future-time denoting frame adverbials in *GaSP* sentences. Figure (23) illustrates the location of the interval denoted

by *la semana que viene* ‘next week’ with respect to the time of utterance. The time of utterance is before the interval denoted by the adverbial O-[-----].



### 2.4.3 Frame adverbials: Length of the interval

This section is devoted to illustrating how *GaSP* further restricts the co-occurrence of frame adverbials denoting an interval overlapping with utterance time. Overlap with the time of utterance is not a sufficient condition for the acceptability of frame adverbials in *GaSP* sentences. In addition to the overlap, *GaSP* only allows the co-occurrence of adverbials denoting an interval of a certain minimum length. The required minimum length is around a two-day period from the day including the time of utterance into the past. Adverbials denoting intervals whose lengths are greater than two days from the day of utterance into the past are accepted by all consultants, as illustrated by (24).

(24) Context: Marta is a heavy smoker.

Estos	tres	últimos	días	tengo	tosido	mucho.
these	three	last	days	have:PRS.1SG	cough:PTCP	much

‘These last three days I’ve been coughing a lot.’

In (24) Marta’s coughing has occurred repeatedly for the last three days. The example is acceptable because the frame adverbial *estos tres últimos días* ‘these last three days’ denotes an interval of three days from the day of utterance into the past.

In contrast to adverbials denoting intervals greater than two days, adverbials denoting intervals shorter than two days are unanimously rejected in *GaSP* sentences. Some examples are *desde anoche* ‘since last night,’ as in (25a), hodiernal expressions like *hoy* ‘today,’ as in (25b).

(25) Context: Ana is a smoker. She has been working on a paper all night.

- a. % Tengo fumado mucho desde anoche.  
have:PRS.1SG smoke:PTCP much since last.night  
‘I’ve been smoking a lot since last night.’
- b. % Hoy tengo fumado mucho.  
today have:PRS.1SG smoke:PTCP much  
‘Today I’ve been smoking a lot.’

Not all consultants, however, accept co-occurrence of frame adverbials denoting just a minimum of two days from the day of utterance into the past. Acceptability judgments with respect to these temporal adverbials show that the length requirement is speaker-dependent. Some speakers accept *GaSP* sentences with adverbial expressions like *desde ayer* ‘since yesterday’, *ayer y hoy* ‘yesterday and today’ or *estos dos últimos días* ‘these last two days’, shown in examples (26a-b), while others reject them because they only consider acceptable adverbials denoting greater intervals than two days.<sup>13</sup>

- (26) a. Desde ayer/ Ayer y hoy  
since yesterday yesterday and today  
tengo fumado mucho.  
have:PRS.1SG smoke:PTCP much  
‘Since yesterday/Yesterday and today I have been smoking a lot.’
- b. Estos dos últimos días tengo fumado mucho.  
these two last days have:PR.1SG smoke:PTCP much  
‘These last two days I’ve been smoking a lot.’

<sup>13</sup> I haven’t found any apparent correlation between the consultants’ age/gender and the contrast in acceptability/rejection of these cases.

Since there is variation among speakers in terms of acceptability of co-occurring time adverbials denoting intervals of two days (from the day of utterance into the past), I will set a two-day length as the critical length of time adverbials allowed in *GaSP* sentences without forgetting that their acceptability is speaker-dependent.

The restriction of *GaSP* on the length of the interval denoted by frame adverbials is independent of whether an eventuality may be naturally or feasibly repeated during a period of time shorter than two days. Let's consider examples (27a-b).

(27) Context: Marta is a heavy smoker.

- a.        Estos    últimos días    tengo        tosido        mucho.  
           these    last        days        have:PRS.1SG cough:PTCP    much  
           'These last few days I've been coughing a lot.'
  
- b.    %    Hoy        tengo        tosido        mucho.  
           today    have:PRS.1SG cough:PTCP    much  
           'Today I've been coughing a lot.'

Coughing repeatedly may take just a few seconds or a few minutes. However, *GaSP* requires a greater interval across which distinct coughing eventualities hold. Greater intervals than two days may be required for the repetition of eventualities that take longer to carry out—e.g., building houses. Consider the contrast between (28a) and (28b). The oddity of (28a) is not related to any *GaSP* requirement but to our knowledge of how things work in the world.

(28) Context: Ana's father is a builder. Ana says:

- a.    #    Mi padre    tiene        construido    varias    casas  
           My father    have:PRS.3SG build:PTCP    several    houses  
           estos    últimos días.  
           these    last        days  
           'My father has built several houses over these last few days.'



- b.        Mi padre tiene        construido varias casas.  
           My father have:PRS.3SG build:PTCP several houses  
           estos últimos años  
           these last years  
           ‘My father has built several houses over these last few years.’

Example (28a) says that the building of several houses by Ana’s father took the last few days. World knowledge tells us that building houses takes longer than just a few days. Example (28b) is okay because a few years seem an appropriate time span to build several houses.

## Summary

The data in this section provided evidence that supports the hypothesis that the reference time in *GaSP* sentences must have a length of roughly two days from the time of utterance back into the past. Since frame adverbials constrain the reference time, *GaSP* only allows the co-occurrence of adverbials denoting intervals of two days or longer from TU into the past.

I will call the restriction on the length of the frame adverbials interval the *two-day constraint* of *GaSP*, with the proviso that this constraint is speaker-dependent because of the variation in the speakers’ acceptability of co-occurring frame adverbials denoting intervals of a two-day length.

## 2.5 Non-indexical adverbials

Non-indexical adverbials denote time intervals or moments of time without locating them in the time axis as preceding, overlapping or following the time of

utterance. The intervals they denote are unanchored and therefore context-dependent for their temporal location. Compare the non-*GaSP* examples in (29a) and (29b).

(29) Context: Martha's grandmother is a practicing Catholic. She goes to church every week.

- a. Mi abuela        va                a    misa        por la    mañana.  
     My grandmother go:PRS.3SG    to    mass        for the morning  
     'My grandmother goes to church in the morning.'
  
- b. Ayer            mi abuela        fue            a    misa        por la    mañana.  
     Yesterday    my grandmother go:PST.3SG    to    mass        for the morning  
     'Yesterday my grandmother went to mass in the morning.'

In (29a), Marta's utterance may be interpreted as saying that whenever Martha's grandmother goes to church she goes in the morning. The interval denoted by the frame adverbial *por la mañana* 'in the morning' does not locate the reference time of the utterance, but rather locates the individual going-to-church eventualities. In contrast, in (29b) the adverbial *ayer* 'yesterday' temporally constrains the reference time of Marta's assertion to the day before the day of utterance, and *por la mañana* 'in the morning' further constrains the reference time.

Non-indexical frame adverbials like *por la mañana* 'in the morning' are compatible with *GaSP*, as illustrated in (30). Generally they do not constrain the reference time of *GaSP* sentences but rather they temporally locate the individual eventualities. Their temporal interpretation will be discussed in chapter 3 since this chapter deals with frame adverbials that specify the reference time.

(30) Context: Martha's grandmother is a practicing Catholic. She goes to church every week.

Mi abuela tiene ido a misa por la mañana.  
my grandmother have:PRS.3SG go:PTCP to mass for the morning  
'My grandmother has gone to church in the morning repeatedly.'

Yet, there are non-indexical adverbials like *toda mi vida* 'all my life' that can specify the reference time when the time interval they denote overlaps with the time of utterance, as exemplified in (31).

(31) Context: Ana believed that Sandra does not generally do any exercise but she sees Sandra playing tennis with a friend in the neighborhood courts. Ana approaches Sandra and says that she didn't know that she played tennis. Sandra replies:

Tengo jugado al tenis todami vida.  
have:PRS.1SG play:PTCP at.the tennis all my life  
'I've played tennis all my life.'

In (31), Sandra asserts that she has played tennis throughout a time interval that may have started when she was a child and that continues up to the present. In contrast to (31), consider example (32).

(32) Context: Sandra's father has been dead for a year now. Ana asks Sandra who taught her how to play tennis. Sandra says that her father taught her. She adds:

# Tiene jugado al tenis toda su vida.  
have:PRS.3SG play:PTCP at.the tennis all his life  
'(My father) has played tennis all his life.'

The contrast in acceptability between (31) and (32) lays in that in (31) *toda mi vida* 'all my life' denotes an interval that includes the time of utterance, whereas in (32) *toda su vida* 'all his life' denotes an interval that does not include the time of utterance. In (32), *toda su vida* 'all his life' denotes an interval that only stretches up to the time Sandra's father died, i.e., last year, which requires the use of the simple past, as illustrated by (33).

- (33) Jugó            al            tenis    toda    su    vida.  
       play:PST.3SG   at.the    tennis   all       his   life  
       ‘(My father) played tennis all his life.’

## Summary

In this section, the hypothesis that *GaSP* requires RT to include TU is further supported by the co-occurrence of non-indexical adverbials. When these adverbials constrain the reference time, they must specify intervals that include the TU in their denotation.

## 2.6 Summary and conclusions

Below I summarize the restrictions *GaSP* imposes on adverbials constraining the reference time that support my analysis on temporal reference in *GaSP*.

- (34) a. *GaSP* is only compatible with indexical frame adverbials whose denotation properly includes the time of utterance in their denotation.
- b. The interval denoted by an indexical frame adverbial compatible with *GaSP* cannot have the time of utterance as its initial subinterval (see example (22), p. 31).
- c. *The two-day constraint*: Indexical frame adverbials compatible with *GaSP* must denote intervals with a minimal length of two days.

In the introduction, I briefly presented Klein’s approach to how temporal reference may be encoded in natural languages. For my analysis I follow Klein’s proposal that tenses encode the relation between utterance time and reference time. I make two claims in relation to the empirical observations presented in (34a-c) above:

*Claim 1:* The auxiliary *tener* ‘have’ of *GaSP* in the present tense, *tiene* ‘has’ encodes the following temporal relation between the time of utterance (TU) and the reference time (RT): the time of utterance is a final proper subinterval of the reference time interval. Thus, the reference time in *GaSP* sentences is an interval that stretches from some time in the past up to the utterance time. This characterization of the reference time explains why a frame adverbial like *este año* ‘this year’ is compatible with *GaSP* sentences, whereas frame adverbials like *el año pasado* ‘last year’ and *el próximo año* ‘next year’ are not, as illustrated in the introduction by (1a-c), and repeated here as (35a-c).

- (35) a.        Paula    tiene            corrido maratones    este año.  
               Paula    have:PRS.3SG run:PTCP marathons    this year  
               ‘Paula has run marathons this year.’
- b.    % Paula    tiene            corrido maratones    el    año pasado.  
                   Paula    have:PRS.3SG run:PTCP marathons    the   yearlast  
                   ‘Paula has run marathons last year.’
- c.    % Paula    tiene            corrido maratones    el    próximo año.  
                   Paula    have:PRS.3SG run:PTCP marathons    the   next    year  
                   ‘Paula has run marathons next year.’

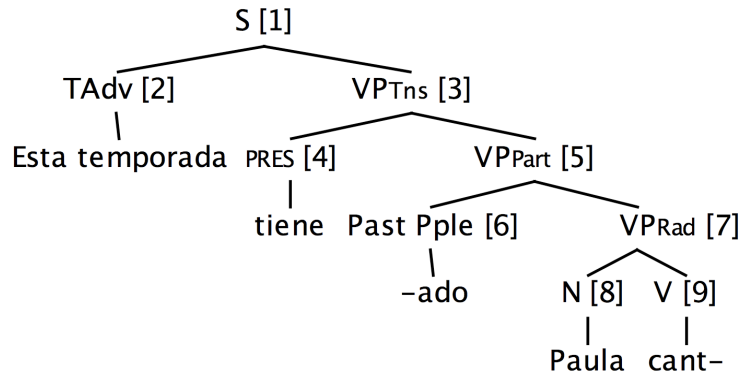
In example (35a), it is asserted that Paula has run marathons repeatedly across a time interval within which the time of utterance is located. Examples (35b) and (35c) the assertion of Paula having run marathons repeatedly is made about intervals preceding and following respectively the time of utterance.

This analysis also accounts for the unacceptability of adverbials like *desde ahora* ‘from now on’ with *GaSP*. Even though the interval denoted by *desde ahora* includes the time of utterance it extends into the future rather than into the past as required by *GaSP*.

*Claim 2:* The reference time interval needs to have a minimum length of roughly two days from the time of utterance into the past, which predicts the unacceptability of frame adverbials denoting intervals shorter than two days.

In the formal analysis developed in chapter 5 the semantic representation of the present tense auxiliary *tiene* ‘has’ contains these two properties, the time of utterance is a final proper subinterval of the reference time and the reference time interval has a minimum length of two days. In other words, the present tense sets the time of utterance as the right boundary of the reference time. Consider again the example (16) from chapter 1 upon which the analysis of *GaSP* will be modeled, repeated here as (38) with its corresponding syntactic representation below:

- (38) Esta      temporada    Paula    tiene            cantado.  
       this        season        Paula    have:PRS.3SG   sing:PTCP  
       ‘This season Paula has sung repeatedly.’



The tensed auxiliary *tiene* below [4] combines with the  $VP_{part}$  *Paula cantado* in [5] to form a  $VP_{Tns}$ , in [5], *Paula tiene cantado*. The frame adverbial *esta temporada* ‘this season’ sits in the TAdv node and combines with the  $VP_{Tns}$ . The present tense requires

that the interval denoted by frame adverbials that specify reference time overlap with the time of utterance; the frame adverbial *esta temporada* ‘this season’ meets this requirement.

In this chapter, I provided evidence to argue that the present tense in *GaSP* restricts the type of indexical frame adverbials that can occur in *GaSP* sentences because these adverbials specify the reference time. I made two claims about the temporal semantics of the auxiliary *tener* in the present tense. These claims are built upon minimal theoretical assumptions about temporal reference and tense. I used the Reichenbachian notions of reference time and time of utterance and Klein’s approach to tense to account for the temporal semantics of the auxiliary *tiene* ‘has.’

## Chapter 3

### Eventuality Plurality and *GaSP*

In this chapter empirical evidence is supplied in support of the following claims about the semantic contribution of *GaSP*: (i) *GaSP* denotes a plurality of eventualities of the same type. (ii) *GaSP* is compatible only with separate-in-time readings, that is, the denoted eventualities occur at discontinuous subintervals across the reference time interval. To illustrate claims (i) and (ii), consider the contrast in acceptability between the two *GaSP* sentences in (1a) and (1b):

(1) a. Context: Ana has read Hopscotch once.

% Ana tiene leído Rayuela.  
Ana have:PRS.3SG read:PTCP Hopscotch  
'Ana has read Hopscotch repeatedly.'

b. Context: Ana has read Hopscotch several times.

Ana tiene leído Rayuela.  
Ana have:PRS.3SG read:PTCP Hopscotch  
'Ana has read Hopscotch repeatedly.'

While example (1a) is not acceptable, (1b) is acceptable. These two examples provide support for the hypothesis that *GaSP* denotes a plurality of eventualities.

Specifically, I argue that it is the participial verb phrase (i.e., the  $VP_{part}$ ) that denotes a plurality of eventualities instantiated across the reference time interval. This hypothesis is in accordance with the assumption I made in chapter 2 about the semantic



contribution of grammatical aspect. Grammatical aspect determines the temporal relation between the reference time and the eventuality time. In *GaSP*, the perfect aspect contributed by the past participle determines the relation between these two times by mapping the eventuality time of each atomic eventuality onto subintervals of the reference time interval.

The instantiation of eventualities of the same type over discontinuous intervals has been called iterative or frequentative aspect (cf. van Geenhoven 2004, 2005). *GaSP*'s requirement of separate-in-time or iterative occurrences of eventualities of the same type is found across expressions in other languages that encode plurality in the domain of eventualities such as verbal pluractionals (Newman 1980, 1990). Given that properties (i) and (ii) are reminiscent of certain verbal pluractionals and other expressions involving eventuality plurality, in this chapter I will draw parallels between *GaSP*, verbal pluractionals, and a variety of expressions in other languages that encode plurality in the domain of eventualities. These parallels provide evidence to posit similar semantics among diverse expressions. The chapter ends by summarizing the empirical generalizations that have to be accounted for in the formal analysis of *GaSP* developed in chapter 5.

### **3.1 Eventualities and Aktionsart**

This section presents assumptions about eventualities. I assume a Davidsonian event semantics in which verbs take event arguments in addition to their nominal arguments (Davidson 1967). In classical Davidsonian event semantics, verbs denote

relations between their nominal arguments and events. The transitive verb *read* in sentence (2) denotes a three-place relation between an event and the arguments ‘John’ and ‘a book.’

(2) John read a book.

I assume that verbs take stative and non-stative eventualities as their arguments. Eventualities are ‘happenings’ or ‘states of affairs’ that the verb phrases and the sentences that contain them describe. The typology of eventualities I use follows Bach (1981, 1986), which includes states, processes, and instantaneous and protracted events. For the last two I will use Vendler’s (1957) terms achievements and accomplishments respectively, which are more widely used in the literature. The Spanish examples in (3a-d) illustrate each type of eventuality:

- (3) a. Ana está en Nueva York. (State)  
 Ana be:PRS.3SG in NY  
 ‘Ana is in New York.’
- b. David corrió esta mañana. (Process)  
 David run:PST.3SG this morning  
 ‘David ran this morning.’
- c. David construyó una cabaña. (Accomplishment)  
 David build:PST.3SG a cabin  
 ‘David built a cabin.’
- d. Ana abrió la caja fuerte. (Achievement)  
 Ana open:PST.3SG the box safe  
 ‘Ana opened the safe.’

Predicates, which are verb phrases with their arguments saturated (and complements), are classified taxonomically as belonging to a particular Aktionsart according to the types of eventualities they denote. Several syntactic and semantic tests are used to distinguish

between Aktionsarten (Vendler 1967, Dowty 1979). The acceptability and interpretation of sentences in the progressive distinguishes statives from non-statives. The Spanish examples in (4a-d) illustrate these properties.

- (4) a. \* Ana está estando en Nueva York.  
           Ana be:PST.3SG be:PROG in NY  
           \* ‘Ana is being in New York.’
- b. David estaba corriendo esta mañana.  
       David be:PST.IMPFV.3SG run:PROG this morning  
       ‘David was running this morning.’
- c. David estaba construyendo una cabaña.  
       David be:PST.IMPFV.3SG build:PROG a cabin  
       ‘David was building a cabin.’
- d. Ana estaba abriendo la caja fuerte.  
       Ana be:PST.IMPFV.3SG open:PROG the box safe  
       ‘Ana was opening the safe.’

In (4a), the example with a stative predicate is ungrammatical because stative predicates like ‘be in NY’ do not generally occur in the progressive. Since the progressive is a stativizer, it cannot make stative a predicate that already has this property. Examples in (4b-c) show that processes, accomplishments, and achievements can occur in the progressive.

There exists a different classification distinguishing between atelic and telic predicates based on tests such as the (un)acceptability of predicates with adverbials like *for an hour* and *in an hour*. State and process predicates are atelic because they do not have a culmination. Atelic predicates can combine with *for-* adverbials, but not with *in-* adverbials, as illustrated in (5) and (6). Achievements and accomplishments are said to be telic because they have a terminal point. Telic predicates are compatible with *in-*

adverbials but not with *for*-adverbials, as illustrated in (7) and (8).

- (5) a. Ana está en Nueva York por un mes. (state-atelic)  
 Ana be:PRS.3SG in NY for a month  
 ‘Ana is in New York for a month.’
- b. % Ana está en Nueva York en un mes.  
 Ana be:PRS.3SG in NY in a month  
 % ‘Ana is in New York in a month.’
- (6) a. David corrió por una hora esta mañana. (process-atelic)  
 David run:PST.3SG for an hour this morning  
 ‘David ran for an hour this morning.’
- b. % David corrió en una hora esta mañana.  
 David run:PST.3SG in an hour this morning  
 % ‘David ran in an hour this morning.’
- (7) a. % David construyó una cabaña por un mes.  
 David build:PST.3SG a cabin for a month  
 % ‘David built a cabin for a month.’
- b. David construyó una cabaña en un mes. (accomplishment-telic)  
 David build:PST.3SG a cabin in a month  
 ‘David built a cabin in a month.’
- (8) d. % Ana abrió la caja fuerte por un minuto.  
 Ana open:PST.3SG the box safe for a minute  
 % ‘Ana opened the safe for a minute.’
- b. Ana abrió la caja fuerte en un minuto. (achievement-telic)  
 Ana open:PST.3SG the box safe in a minute  
 ‘Ana opened the safe in a minute.’

The progressive and the *for*- and *in*-adverbials tests are not categorical since under certain contexts atelic/telic predicates can receive different interpretations. There are stative predicates that can occur in the progressive. For instance, the predicate *vivir en Columbus* ‘live in Columbus’ can be in the progressive, as shown in (9):

- (9) Ana      está              viviendo      en Columbus.  
       Ana      be:PRS.3SG      live:GER      in Columbus  
       ‘Ana is living in Columbus.’

In the progressive, predicates like the one in (9) imply a temporary or changed state. The implication in (9) is that Ana lived somewhere else before living in Columbus and that her living in Columbus is temporary. Example (6b) may be acceptable if coerced into telic by the existence of an implicit measure. For instance, if David regularly runs ten miles, then the sentence may be understood as David running his habitual ten miles in an hour. The predicate in (7a) can also be coerced into atelic if David has not finished building the cabin, but has worked on the cabin for a month. In (8a), the predicate can be atelic if the sentence with the *for*-adverbial is interpreted as indicating the duration of the result state of a telic event: the safe was open for a minute. Dowty (1979, 1987) provides an extensive and detailed discussion of these non-default interpretations in English that arise under special contexts.

### 3.2 Pluractionality

This section explores the semantic contributions of a variety of verbal pluractionals, which will then be compared with the semantics of *GaSP* in section 3.3. I give an overview of pluractionality and types of pluractional meanings verbal pluractionals contribute to their sentences.

Pluractionality is often defined as the pluralization of the event argument of a predicate (e.g., Lasnik 1995, Landman 1996, among others). The concept of pluractionality is generally used in relation to languages that mark event plurality by

means of morphological marking in the verb or verbal root (e.g., affixes, vowel alternations, etc.).

Newman (1980) was the first to make a clear distinction between verbal pluractionality and verbal plural agreement. Plural agreement refers to number agreement marked inflectionally, whereas pluractionality indicates “plurality or multiplicity of the verb’s action” by grammatical means like verbal affixes, reduplication, and similar devices (Newman 1990: 53-54). Spanish is a language where number agreement with nominal arguments is marked in the verbal morphology, as illustrated in (10).

- (10) La-**s**      soprano-**s**      cantaro-**n**    un    aria de    Madam Butterfly.  
       the-PL    soprano-PL      sing:PAST-3PL    an    aria of    Madam Butterfly  
       ‘The sopranos sang a Madam Butterfly aria.’

In (10) plural agreement with the subject noun phrase *las sopranos* ‘the sopranos’ is marked in the verb *cantaron* ‘sang’ with the morpheme *-n*, which encodes third person plural. And, crucially, this plural marking does not require event plurality but only indicates that the subject denotes a plurality of entities.

The Chechen examples in (11a-b) show that the verb *ai’ira* ‘lift.WP’ is not marked for agreement with the subject. In both (11a) and (11b), the subject of the sentence *as* ‘1SG.ERG’ is singular; as for the verb, in (b) *ai’ira* ‘lift.WP’ is pluractionally marked with vowel alternation *ii’ira* ‘lift.PRL.WPI’ to convey repeated events, which are performed by the same participant (Wood 2007: 212-213).

- (11) a.    As      jashchik      hwala- **ai’ira**  
           1SG.ERG    box                    up- lift.WP  
           ‘I lifted the box once.’

- b. As            jashchik            hwala-**ii'ira**  
                  1SG.ERG   box                   up- lift.PRL.WPI  
                  'I lifted the box repeatedly.'

The Hausa<sup>14</sup> examples below have both plural subject noun phrases and the verb is not marked for number agreement with the plural subject noun phrase. The verb *fita* 'went out' in (12a) is not pluractionally marked while in (12b) *fīrfita* 'went out' is pluractionally marked with *fīr-* 'PLR' to indicate event repetition (Newman 2000: 423):

- (12) a. mutàne sun fita  
                  'The men went out.'
- b. mutàne sun fīrfita  
                  'The men went out (one by one or going in and out)

Newman (1980) coined the term 'pluractional' to refer to plurality of eventualities in order to make clear the distinction between this type of plurality and inflectional agreement with plural arguments. Verbal pluractionals encode a wide range of meanings with respect to plurality of eventualities, as noted in Lasersohn's definition of pluractionals:

"Pluractionals may express notions such as actions performed by more than one individual, temporally or spatially repeated actions, etc. But their main purpose is to indicate a plurality of events, whether they involve multiple participants, times, or locations." (Lasersohn 1995: 240)

Lasersohn suggests that event plurality may be realized in many different ways, among which temporal, spatio-temporal, or participant-based distribution of eventualities are common.<sup>15</sup> In Papago verbs are classified in three classes that make distinctions with respect to spatio-temporal distribution (Ojeda 1998). For instance, verbs belonging to

<sup>14</sup> Hausa is an Afro-Asiatic language of the Chadic group spoken as a first language in Cameroon and Sudan.

<sup>15</sup> Cusic (1983) and Wood (2007) provide an extensive typology of pluractionality based on more parameters than the ones I discuss in this dissertation. I do not include these parameters in the dissertation because they are not relevant to the pluractional meaning of *GaSP*.

class one make three semantic distinctions as illustrated by the verb translated as ‘say’ in (13a-c) (in Ojeda 1998: 250-251):

- (13) a. *Unitive* indicates a single eventuality at a single locus.  
habéʔi  
‘to say something for the first time once at one location’
- b. *Repetitive* indicates several eventualities of the same type at a single locus.  
habcecé  
‘to say something for the first time more than once at one location’
- c. *Distributive* indicates several eventualities of the same type at several loci.  
habceccé  
‘to say something for the first time more than once at more than one location’

Before discussing the semantics of verbal pluractionals in subsection 3.2.3, I provide background information about individual and event mereology in subsection 3.2.1, and distributivity and collectivity in subsection 3.2.2. Notions of individual and event mereology as well as distributivity and collectivity are relevant to the semantics of both verbal pluractionals and *GaSP* because their pluractional meaning is related to distributional patterns in connection with individual or atomic parts of plural entities denoted by noun phrases and plural events. Collectivity is related to pluractional meaning with respect to the involvement of plural entities in atomic and plural events.

### **3.2.1 Individual and Event Mereology**

Mereological semantics will be useful to understand pluractionality because pluractional meanings have entailments that the event mereology allows us to capture. In the event mereology, entailments relate a plural event to its atomic parts (or subevents in



set theoretical terms). In the individual mereology, entailments relate plural individuals to their atomic parts. Pluractional sentences with plural events and plural participants may have distributive entailments in which individual parts of a plural entity are related to individual parts of a plural event.

In mereological event semantics eventualities form a mereology (Bach 1986, Lasnik 1995). Any two eventualities combine to form another eventuality, a plural eventuality, which is formed by the join operation of the two eventualities (Bach 1986). Let us suppose that Mary lifted a piano in an event  $ev_1$  and Mary lifted another piano in an event  $ev_2$ , then the join of  $ev_1$  and  $ev_2$  is a complex event of Mary lifting two pianos. The join operation is  $\cup$ , where  $ev_1 \cup ev_2$  is a plural eventuality formed by joining two atomic eventualities. The join operation imposes a part-whole structure on the domain of eventualities by which the atomic eventualities  $ev_1$  and  $ev_2$  are related to the plural eventuality by the individual part relation (written  $\leq_i$ ). Then,  $ev_1$  is an individual part of  $ev_1 \cup ev_2$  if the individual join (i-join) of  $ev_1$  and  $ev_1 \cup ev_2$  is  $ev_1 \cup ev_2$  itself.

The domain of individuals contains singular (atomic) individuals and plural individuals. Two atomic individuals form a plural individual by the join operation. Let us suppose that there is a set of individuals containing *John* and *Mary*, then the join operation of *John* ( $j$ ) and *Mary* ( $m$ ) forms a plural individual (i.e.  $j \cup m$ ). Then, *John* ( $j$ ) is an individual part (i-part) of the plural individual *John and Mary* ( $j \cup m$ ) just in case the i-join of *John* and *John and Mary* is *John and Mary* itself.

Landman (1996) proposes the operation of group formation, which maps a sum<sup>16</sup>

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<sup>16</sup> The algebraic sum operation is used in Link (1983) and other authors instead of the join operation in the formation of plural eventualities or plural individuals.

onto an atomic (group) individual. Landman proposes the distinction between plurals and groups to account for the collective and distributive readings of sentences. For instance, consider the sentences in (14):

- (14) a. John and Mary lifted a piano.
- b. John lifted a piano.
- c. Mary lifted a piano.

The sentence in (14a) can have a collective reading in which there is an atomic event of lifting one piano by the group formed by the individuals *John* and *Mary*, who collectively participate in a lifting event. The collective reading is contrasted with the distributive reading illustrated by (14b) and (14c), where John and Mary each lifted a different piano. In section 3.2.2 I discuss distributivity and collectivity and their relation to individual and event mereology.

### **3.2.2 Pluractionality and its relation to distributivity and collectivity**

The goal of this section is to provide background information for the discussion on how pluractionals interact with the semantics of predicates and nominal arguments. Since pluractional markers can yield pluractional meanings based on whether participants are distributed to events or collectively participate in the events, I will define the notions of distributivity and collectivity before I discuss the data.

My discussion on distributivity and collectivity draws primarily on the work of Champollion (2010). Champollion (2010) explains that distributivity generally indicates the application of a predicate to the parts of an entity. Distributivity is identified by

entailments licensed from larger to smaller parts. The English examples in (15a-c) illustrate these part-whole entailments. Sentence (15a) entails sentences (15b) and (15c), that is, the predicate *ran* applies to the individual parts *Peter* and *Mary* of the entity *Peter and Mary* (a plural entity).

(15)a. Peter and Mary ran.

b. Peter ran.

c. Mary ran.

In Champollion (2010) distributivity can be a property of quantifiers (*quantificational distributivity*), a property of predicates (*predicative distributivity*), and a property of constructions (what he calls *distributive constructions*).

Quantificational distributivity involves entailments connected to quantificational noun phrases headed by quantifiers like *each* or *every*. The truth conditions of a sentence with a quantified noun phrase require the application of the predicate to each member of a plural entity, as illustrated in (16).

(16) Every kid did the homework.

Champollion (2010: 71) defines predicative distributivity as a property of certain verbs such as *smile*, *run* or *sing*. When these verbs co-occur with plural definites, noun phrases headed by *every*, and coordinated noun phrases they lead to (near-)equivalent sentences, as in (17):

(17) The children smiled  $\Leftrightarrow$  Every child smiled.

In contrast to predicative distributivity, in which a verbal predicate applies to the individuals that form a plural entity, collective predication requires that a verbal predicate

apply to a plural entity as a whole. Thus, collective predicates do not pattern with distributive predicates with respect to distributive entailments. In examples (18) and (19), the (a) sentences do not entail the (b) sentences:

(18) a. All the children gathered.

b. \* Every child gathered.

(19) a. John and Mary met.

b. \* John met.

Winter (2001) notes that definite plurals (see example (17)), conventionalized coordinations (e.g., *Simon & Garfunkel*), and group nouns (e.g., *the committee*) allow for exceptions, that is, the predicate does not always apply to all subparts of the plural entity. For instance, in (17) not every individual in the denotation of *the children* has to participate in the event denoted by *smile*. In contrast to (17), in (20) the universal quantifier *all* does not allow exceptions to the plural predication and all subparts of the plurality are involved in the event, as illustrated in the entailment relation between (20a) and (20b):

(20) a. All the children smiled.

b. Every child smiled.

Winter refers to the phenomenon of exception tolerance as *nonmaximality*. He observes that nonmaximality makes the truth conditions of sentences like (17) weaker because their truth is not falsified if one child is not involved in the event. Nonmaximality effects of definite plurals and group nouns also affect the interpretations of *GaSP* sentences, but they are independent from the semantics of *GaSP*.

Schwarzschild (1996) notes that distributive relations are not always obligatory but rather context dependent. Consider examples (21a) and (21b) from Schwarzschild (1996: 58)

- (21) a. John and Mary moved the car.  
b. John moved the car and Mary moved the car.

In (21a) the distributive interpretation is not obligatory. If interpreted distributively then (21b) follows from (21a). But if interpreted collectively, that is if John and Mary moved the car together then (21b) does not follow from (21a) because neither John moved the car by himself nor did Mary.

Distributive constructions are defined in Champollion (2010) as lexicosyntactic configurations that obligatorily establish distributive relations between two of their constituents. Adverbial-*each*, *for*-adverbials, and pseudopartitives (e.g., *three litters of water*) are instances of distributive constructions.

The sentence in (22), involves distributive entailments in which the predicate *laughed* applies to each individual part of the plural referent of *three boys*.

- (22) Three boys each laughed. (Champollion 2010: 81)

Example (23a) shows that *for*-adverbials are distributive constructions because the sentence refers to an event *ev* whose eventuality time is five minutes and entails (23b) and (23c). (23a) entails the existence of an event *ev'* in which John ran for four minutes in (23b), and entails the existence of an event *ev''* in which John ran for three minutes in (23c).

(23) a. John ran for five minutes. (Champollion 2010: 75)

b.  $\Rightarrow$  John ran for four minutes.

c.  $\Rightarrow$  John ran for three minutes.

In (24), the sentence has the distributive entailments that there exist two liters of water, one liter of water, and so on. These entailments are due to the pseudopartitive construction *three liters of water*.

(24) Three liters of water are sufficient. (Champollion 2010: 76)

Summarizing, this section has presented the notions of distributivity and collectivity as properties of certain constituents. Section 3.2.3 will illustrate that temporal distributivity of eventualities, distributivity of participants to eventualities or collective participation of plural individuals in eventualities are also properties of verbal pluractionals.

### **3.2.3 Verbal pluractionals**

In this section I discuss the notions of distributivity and collectivity presented in section 3.2.2 in relation to pluractionality. At the beginning of section 3.2, I introduced the typology of pluractionality based on Lasersohn's (1995) discussion, where pluractional meanings were correlated with four parameters: (i) pluractional meanings can be based on the distributive application of the predicate to the individual members of a plural entity; (ii) pluractional meanings can be based on the temporal distribution of eventualities; (iii) pluractional meanings can be based on spatial distribution of events; (iv) pluractional meanings can be based on a combination of any of the parameters in (i),

(ii), and (iii). I will focus the discussion on pluractionality on parameters (i) and (ii). I will leave spatial parameter out of the discussion since it is not relevant to the meaning of *GaSP*.

### Pluractionality based on participant distribution

In Chechen<sup>17</sup> pluractionality is expressed by vowel alternations in the verb such as *a*, *aa* ~ *ie*, *ow* ~ *ii*, and *aa*, *a* ~ *i* (Yu 2003, Wood 2007). In (25a) and (25b) the pluractional marker glossed as PLR occurs on the verbs *xoekhku* ‘lie.PLR.PRES’ and *marlilkhira* ‘hug.PLR.WP’. Yu argues that these pluractionally marked verbs yield pluractionality based on participant distribution rather than on temporal distribution of subevents since all subevents of the plural eventuality occur simultaneously.<sup>18</sup>

- (25) a. diizhina **xoekhku** tkho  
           D.lie.PP **lie.PLR.PRES** 1PL.EX  
           ‘We are lying down.’ (Yu 2003: 296)
- b. ceera duezalsh takhana duqa hxaalkhie ghittira  
     their members-of-family today very early wake.up.PLR.WP  
     ‘Their family members woke up very early.’ (Yu 2003: 296)

In (25a), the eventuality of lying down consists of subevents that are individuated according to distribution of participants. Each individual member of the plural individual denoted by ‘we’ participates in a subevent of the plural eventuality of lying down. The sentence in (25a) is true if and only if the plural eventuality can be divided into subevents each of which is an eventuality of lying down by an individual member of the referent of ‘we’. Yu argues that example (25b) does not have a temporal distribution reading, where

<sup>17</sup> Chechen is a Nakh language spoken in the eastern central part of the North Caucasus.

<sup>18</sup> The only gloss that Yu offers is PLR, which stands for ‘pluractional marker’.

each family member woke up at different times. The sentence means that all the family members woke up around the same time. Thus, in (25a-b) event plurality is induced by distribution over participants rather than over time intervals.

## Pluractionality based on temporal distribution

There are two patterns of temporal distribution of eventualities. One is iterativity (or frequentativity in van Geenhoven 2004, 2005), which requires that the subevents of a plural eventuality occur at discontinuous intervals, giving rise to ‘separate-in-time’ readings. The second pattern is continuativity. Continuous readings arise with states or processes, which can be instantiated at all subintervals of the relevant interval. Pluractionals involving continuative readings are based on distributive entailments. That is, the predicate of a pluractional sentence with a continuative reading also applies to all parts of the denoted plural eventuality.

In West Greenlandic Eskimo (henceforth WG) the pluractional marker *-tuar-* ‘continuously’ expresses continuativity, as illustrated in (26):

(26) Unnuaq            tamaat    erinarsort**tuar**poq.  
      unnuaq          tama-at    irinarsur-**tuar**-puq  
      night.ABS      all-3SG   sing-**continuously**-IND.[-tr].3SG  
      ‘He sang continuously all night long (without a break, nonstop).’  
(van Geenhoven 2005:109)

In (26), the eventuality of singing all night can be divided into parts that are themselves singing eventualities by the individual denoted by the subject pronoun.

WG has two distinct verbal affixes that express iterativity (or temporal distribution). One is *-tar-* ‘repeatedly’ and the other one is *-quattaar-* ‘again&again’. The latter differs from the former in that it expresses high frequency. Consider examples



(27a-b):<sup>19</sup>

- (27) a. Nuka ullaap tungaa tamaat  
 Nuka ullaa-p tunga-a tama-at  
 N.ABS morning-ERG direction-3SG.SG.ABS all-3SG  
 sanioquttarpoq.  
 sanioquttar-puq  
 go.by-**repeatedly**-IND.[-tr].3SG  
 ‘Nuka went by repeatedly the whole morning.’ (van Geenhoven 2005: 109)
- b. Nuka ullaap tungaa tamaat  
 Nuka ullaa-p tunga-a tama-at  
 N.ABS morning-ERG direction-3SG.SG.ABS all-3SG  
 sanioquttqattaarpoq  
 sanioqutt(i)-qattaar-puq  
 go.by-**again&again**-IND.[-tr].3SG  
 ‘Nuka went by again and again the whole morning.’ (van Geenhoven 2005: 110)

In example (27a), the affix *-tar-* translated as ‘repeatedly’ yields an iterative reading; the sentence asserts the occurrence of several events of Nuka going by at separate-in-time intervals across the morning. In (27b), the affix *-qattaar-* ‘again&again’ contrasts with *-tar-* in that the former conveys that the number of events of Nuka going by is high.

Karitiana<sup>20</sup> uses reduplication of the verbal root (Müller & Sanchez-Mendez 2008). In (28a), *kot* ‘break’ is reduplicated as *kot-kot* ‘break-RED’ to convey that more than one breaking event has taken place at different times. Compare (28a) and (28b):

- (28) a. Õwã nakokonat sypomp opokakosypi  
 õwã ø-na-kot-kot-a-t sypom-t opokakosypi  
 kid 3-DECL-break-RED-verb-NFUT two-OBL egg  
 ‘The kid broke two eggs’ (Müller & Sanchez-Mendez 2008:448)  
 Context: one at a time

<sup>19</sup> The glosses in van Geenhoven are ABS = absolutive, ERG = ergative, IND = indicative, INS = instrumental, PL = plural, SG = singular, and [±tr] = (in)transitive.

<sup>20</sup> Karitiana is the only surviving language of the Arikén family, Tupi stock. The glosses for Karitiana are NFUT = non future, DECL = declarative, 3 = 3<sup>rd</sup> person, RED = reduplication, OBL = oblique suffix.

- b.    *Ōwā*    *nakakot*                      *sypomp opokakosypi*  
       *ōwā*    *ø-naka-kot-ø*                *sypom-t opokakosypi*  
       *kid*    *3-DECL-break-NFUT*        *two-OBL egg*  
       ‘The kid broke two eggs’                      (Müller & Sanchez-Mendez 2008:447)  
       Context: the two eggs at the same time

In (28a), the pluractional verb yields an interpretation in which two eggs were broken one after the other, while (28b), where the verb is not marked, says that the two eggs were broken simultaneously. Thus, the pluractional meaning of (28a) arises by temporal distribution of subevents. Distribution of plural participants to events is not a necessary condition for pluractionality in Karitiana, as illustrated in (29):

- (29) *Inacio*    *namangatmangadn*                      *Nadia*    *ka’it*.  
       *Inacio*    *ø-na-mangat-mangat-ø*                *Nadia*    *ka’it*  
       *Inacio*    *3-DECL-lift-RED-NFUT*                *Nadia*    *today*  
       ‘Inacio lifted Nadia today (more than once)’ (Müller & Sanchez-Mendez 2008: 448)

In Chechen pluractional markers can yield iterative interpretations. Consider example (30):

- (30)    *adama*            *takhan*    *duqqa*    ‘a chai    ***miilira***  
       *Adam.ERG*    *today*    *many*    *tea*        ***drink.PL.R.WP***  
       ‘Adam drank a lot of tea over and over again today.’                      (Yu 2003: 294)

In (30) the form *miilira* ‘drink.PL.R.WP’ marked with *-ii-* expresses multiple eventualities of drinking big amounts of tea by Adam at discontinuous intervals of the interval denoted by *takhan* ‘today.’

In Squamish<sup>21</sup> pluractional marking is made by CVC reduplication on the verb as illustrated by *sek’-sak-an* ‘REDUP-cut-TR’ in (31b) (Bar-el 2008):

<sup>21</sup> Squamish is a Central Salish language spoken in British Columbia. The abbreviations for Squamish are DET = determiner, REDUP = reduplicant, S = subject, SG = singular, TR = transitivity.

(31)a. chen sak'-an ta seplin  
 1s.SG cut-TR DET bread  
 'I cut the bread' (Bar-el 2008: 35)  
*Speaker's comments: "just once"*

b. chen **sek'**-sak'-an ta seplin  
 1s.SG REDUP-cut-TR DET bread  
 'I sliced the bread' (Bar-el 2008: 35)  
*Context: I cut it more than once or entire loaf is cut up in pieces.*

In (31a), where the verb is not pluractionally marked, there is just one eventuality of cutting the bread. In (31b), the verb sak 'cut-TR' is pluractionally marked as sek'-sak' 'REDUP-cut-TR' to express iterativity: separate in time occurrences of a plurality of events of cutting the bread occur across a time interval.

Squamish does not allow distribution over plural arguments. Example (32) illustrates pluractionality based on the repeated instantiations of the event denoted by 'we jump', rather than on participant distribution. The group denoted by *chet* 'we' participates collectively in all subevents of the plural event of jumping.

(32) chet **xwet**-xwit-im  
 1s.PL REDUP-jump-INTR  
 (i) We are jumping'  
 (ii) \*/? 'We jumped' (Context: "we each jumped once") (Bar-el 2008: 43)

Bar-el argues that (32) has the reading in (i) but that it cannot have the one in (ii). In (i), there are multiple jumping eventualities effected by the plural participant denoted by *chet* 'we'. The example in (32) cannot have the interpretation in (ii), where each individual part of the referent of *we* jumps once.

### 3.2.4 Summary

The data from WG, Karitiana, Chechen, and Squamish have illustrated that both distributivity and collectivity are involved in the expression of pluractional meanings. The truth of a pluractional sentence in these languages depends on the temporal distribution of eventualities. Distribution of participants is allowed in some languages but not in others. In Squamish pluractionality is derived by the distribution of eventualities of the same type of the plural eventuality denoted by the predicate across a time interval is instantiated; the referent of the subject collectively participates in several jumping events. The WG, Chechen, and Karitiana data illustrated pluractionality based on temporal distribution of events; Karitiana pluractional markers do not convey distribution of atomic parts of plural participants. WG also exhibits a pluractional marker that conveys incremental or gradual change on the nominal referent. The data in section 3.2.3 has illustrated how different languages convey a variety of pluractional meanings through morphological marking on the verb.

### 3.3 Pluractionality of *GaSP*

This section explores the pluractional meaning of *GaSP* according to the taxonomy of pluractionals sketched in section 3.2. In that section we saw that in different languages pluractionally marked sentences may encode eventuality plurality based on specific kinds of distribution. I will focus on distribution of participants to events and distribution of eventualities to intervals, i.e., iterativity and continuativity.

As it was argued in the introduction of this chapter, *GaSP* denotes eventuality plurality therefore *GaSP* sentences are not acceptable to refer to singular eventualities. Consider the examples in (33) and (34). In (33), the context provides background information about Mar's habit of going to church.

(33) Context: Mar goes to church several days a week.

Ana: ¿Tienes ido a misa esta semana?  
 have:PRS.2SG go:PTCP to mass this week  
 'Have you gone repeatedly to mass this week?'

Mar: Esta semana tengo ido.  
 this week have:PRS.1SG go:PTCP  
 'This week I have gone repeatedly.'

Both Ana's question and Mar's answer are acceptable in the provided context. It would be odd for Mar to utter (34) even if she generally goes to church several times a week, but this week she went once:

(34) Context: This week Mar has gone to church once.

# Esta semana tengo ido a misa.  
 this week have:PRS.1SG go:PTCP to mass  
 'This week I have gone to mass repeatedly.'

These examples provide evidence for the hypothesis that *GaSP* denotes a plurality of eventualities. Now that it has been established that *GaSP* is a pluractional construction, the remainder of this section explores with which of the various pluractional readings discussed in section 3.2 *GaSP* is compatible. Consider the contrast between examples (35a) and (35b):

(35) Context: A group of students saw a film for a class all together one time.

- a. % Tenemos visto la película.  
have:PRS.1PL see:PTCP the film  
'We have watched the movie repeatedly.'
- b. Vimos la película.  
see:PST.1PL the movie.  
'We saw the movie.'

Example (35a) is not acceptable, which supports the hypothesis that the pluractionality of *GaSP* cannot be satisfied by situations in which a plurality of participants is distributed over temporally co-occurring subevents. In contrast to (35a), the simple past sentence in (35b) is acceptable, which can refer to an event of watching the movie in which the students participated collectively. In contrast to example (35a), the *GaSP* example in (36) is acceptable because there are several events of watching the movie by the students. The acceptability of this example is consistent with the requirement of temporal distribution imposed by *GaSP*.

(36) Context: A group of students saw a film for a class all together several times.

Tenemos visto la película.  
have:PRS.1PL see:PTCP the film  
'We have watched the movie repeatedly.'

The contrast between (37a) and (37b) is similar to the contrast in acceptability of examples (35) and (36):

- (37) a. % Este año los manzanos tienen florecido  
this year the apple.trees have:PRS.3PL bloom:PTCP  
de una vez.  
of one time  
'This year the apple trees have bloomed at once.'

- b.        Estos   últimos años   los manzanos   tienen   florecido  
              these   last   years   the apple.trees   have:PRS.3PL   bloom:PTCP  
              de una vez.  
              of one time  
              ‘These last few years the apple trees have bloomed at once.’

Example (37a) is unacceptable because the eventuality of all apple trees blooming at once is incompatible with pluractionality based solely on distribution of participants to subevents. That is, distributivity of individual apple trees to atomic events of blooming does not lead to the acceptability of *GaSP*. In contrast with (37a), in (37b) there are multiple eventualities of the apple trees blooming, each occurring every year during the last few years, which shows that *GaSP* requires the distribution of eventualities of ‘the apple trees blooming’ across the time interval denoted by *estos últimos años* ‘these last few years’. The contrast between (35a) and (36), and (37a) and (37b) provide evidence that *GaSP* requires temporal distribution of eventualities.

Temporal distribution of eventualities may be instantiated by continuous readings, where a single eventuality holds at all subintervals of a relevant interval. The following data test if continuous readings can arise in *GaSP* sentences. Consider examples (38) and (39):

- (38) % Tu        hijo tiene        crecido        mucho.  
              your        son have:PST.3SG   grow.up:PTCP   much  
              ‘Your son has grown up a lot.’

- (39)        Context: Ana has been continuously sick for a while now.

- % Ana        tiene        estado        muy        enferma.  
              Ana        have:PRS.3SG   be:PTCP   very        sick  
              ‘Ana has been very sick.’

Examples (38) and (39) are not acceptable because *GaSP* is not compatible with

continuous readings. In contrast to (39), in example (40) several discontinuous occurrences of Ana being sick are asserted:

(40) Context: Ana has been sick several times this year.

Ana      tiene            estado   muy    enferma.  
Ana      have:PRS.3SG   be:PTCP   very    sick  
'Ana has been very sick repeatedly.'

Summarizing, in this section it has been shown that pluractionality in *GaSP* is based on iterativity. That is, *GaSP* requires the temporal distribution of the denoted subevents giving rise only to separate-in-time readings. This section has shown that *GaSP*'s pluractionality cannot be satisfied by participant distribution to subevents.

### 3.4 *GaSP* and distributivity and collectivity

The purpose of this section is to investigate how the involvement of participants is constrained in *GaSP* sentences. In particular, I explore the interaction of *GaSP* with distributivity and collectivity. I specifically look at data where *GaSP* sentences contain (i) predicates with distributive verbs (e.g., *correr* 'run') and coordinated, plural, and quantified definite nominal arguments, and (ii) predicates with collective verbs (e.g., *reunirse* 'gather').

In *GaSP* sentences with definite singular arguments, the *GaSP* predicate applies repeatedly to the atomic participants denoted by the singular arguments, as illustrated by (41):



(41) Context: Marta has read Hopscotch several times.

Marta tiene leído Rayuela.  
Marta have:PRS.3SG read:PTCP Hopscotch  
'Marta has read Hopscotch repeatedly.'

In (41) *GaSP* distributes eventualities of Marta reading Hopscotch over subintervals. The same participants, the individual Marta and the novel Hopscotch, are involved in all subevents.

### 3.4.1 Predicates with distributive verbs

Verbs like *sonreír* 'smile' or *correr* 'run' are distributive; the sentences in which they occur have entailments that involve individual parts of the plural entity they are part of. The *GaSP* sentence in (42) with a coordinated noun phrase subject has the distributive entailments in (a) and (b) because *correr* 'run' is distributive.

(42) Juan y Luis tienen corrido veinte millas.  
Juan and Luis have:PRS.3SG run:PTCP twenty miles  
'Juan and Luis have run twenty miles repeatedly.'

a. Juan tiene corrido veinte millas.  
Juan have:PRS.3SG run:PTCP twenty miles  
'Juan has run twenty miles repeatedly.'

b. Luis tiene corrido veinte millas.  
Luis have:PRS.3SG run:PTCP twenty miles  
'Luis has run twenty miles repeatedly.'

*GaSP* sentences in which distributive verbs co-occurring with coordinated noun phrases can give rise to different readings with respect to the exact distribution of the participants. Sentence (42) is acceptable under the following possible scenarios in (43). I provide a

context below each possible reading:

(43) a. *Collective reading*

Context: Juan and Luis always practice together for marathons. They practice on Tuesdays, Thursdays, Saturdays, and Sundays.

Juan y Luis tienen corrido veinte millas.  
Juan and Luis have:PRS.3SG run:PTCP twenty miles  
'Juan and Luis have run twenty miles repeatedly.'

In (1-4), I represent the collective reading, where the individuals Juan *j* and Luis *l* make up the plural individual *jUl* and both individuals are collectively involved in the running events on Tuesdays, Thursdays, Saturdays, and Sundays.

1. *jUl* run on Tuesdays
2. *jUl* run on Thursdays
3. *jUl* run on Saturdays
4. *jUl* run on Sundays

b. *Mixed reading*

Context: Juan and Luis run together on the weekends but alone during the week days because they have conflicting schedules.

Juan y Luis tienen corrido veinte millas.  
Juan and Luis have:PRS.3SG run:PTCP twenty miles  
'Juan and Luis have run twenty miles repeatedly.'

1. a. *j* run alone on Tuesdays  
b. *l* run alone on Tuesdays
2. a. *j* run alone on Thursdays  
b. *l* run alone on Tuesdays
3. *jUl* run on Saturdays
4. *jUl* run on Sundays

c. *Distributive reading*

Context: Juan and Luis live in different cities and can never run together. Each has run alone 20 miles more than once.

Juan y Luis tienen corrido veinte millas.  
Juan and Luis have:PRS.3SG run:PTCP twenty miles  
'Juan and Luis have run twenty miles repeatedly.'

In context (c), (42) is interpreted as having each individual participating in more than a subevent of the plural event of running twenty miles. The fact that the distributive reading is dependent on context corroborates the findings in section 3.3, where the pluractionality of *GaSP* is not satisfied by participant distribution.

*GaSP* sentences with plural definite noun phrases and quantified noun phrases headed by *todos/as* 'all,' *todo/a* 'every,' *cada uno/a* 'each one' also allow collective, mixed, and distributive readings. While plural definite noun phrases tolerate exceptions,<sup>22</sup> quantified noun phrases require the participation of all individuals denoted by the quantified NP in more than one subevent. The utterances in both (44a) with a plural definite NP and (44b) with a quantified NP are acceptable in all three contexts provided in (45a-c).

(44) Context: Ana has been in the hospital for a while. She has ten cousins who have a close relationship with her and live in the same city. Her friend Pablo is with her and asks who has come to visit. Ana says:

a. Me tienen visitado los primos.  
me have:PRS.3PL visit:PTCP the cousins  
'My cousins have visited me repeatedly.'

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<sup>22</sup> *GaSP* sentences with plural NPs whose referents contain large groups, allow for exceptions. This nonmaximality effect is a common effect of plural NPs and collective nouns, as pointed out by Winter (2001) and discussed in section 3.2.2. In (44), it is possible that one of the ten cousins has never visited Ana.

- b. Me tienen visitado todos los primos.  
 me have:PRS.3PL visit:PTCP all the cousins  
 ‘All my cousins have visited me repeatedly.’

Suppose that there is a total of five visiting events at times  $t_1$ ,  $t_2$ ,  $t_3$ ,  $t_4$  and  $t_5$ . (51a-c) illustrate how collective, mixed or distributive readings may arise depending on the particular distribution of the participants to the events.

(45) a. *Collective reading*

Context: All ten cousins have visited Ana together.

The utterances in (44a-b) are acceptable in this context, where all cousins have participated collectively in multiple visits. Below, (1-4) illustrate their collective participation in all five visiting events at five different times  $t_1$ - $t_5$ .

1. All ten cousins visit at  $t_1$
2. All ten cousins visit at  $t_2$
3. All ten cousins visit at  $t_3$
4. All ten cousins visit at  $t_4$
5. All ten cousins visit at  $t_5$

b. *Mixed reading*

Context: All ten cousins have visited Ana more than once, but they visited her one time all together and the other times in smaller groups and individually.

Ana’s utterances in (44a-b) are acceptable under this context. (1-5) illustrates a collective visit by the plural individual composed of all ten cousins at  $t_1$  in (1), a visit by a subset of five cousins at  $t_2$  in (2), a visit by another subset of five cousins at  $t_3$  in (3), a visit by cousin  $k$  at  $t_4$  in (4), and a visit by cousin  $a$  at  $t_5$  in (5).

1. All ten cousins  $\{a, b, c, d, f, g, h, i, j, k\}$  visit at  $t_1$
2. Cousins  $\{a, b, c, d, f\}$  visit at  $t_2$
3. Cousins  $\{g, h, i, j, k\}$  visit at  $t_3$
4. Cousin  $k$  visit at  $t_4$
5. Cousin  $a$  visit at  $t_5$

c. *Distributive reading*

Context: Each of the ten cousins visited Ana at least two times individually.

Ana's utterances in (44a-b) are acceptable in the distributive reading, where each cousin has participated in at least two visits to Ana by him/herself. In this reading the sum of all atomic visiting events would make a plural event containing at least twenty visiting events with one participant for every two events. My consultants felt very strong about the requirement that every individual participant be involved in more than one visiting event. They remarked that Ana would be lying if she uttered (44a) or (44b) in a context where each cousin went to visit her only once, as illustrated by the unacceptability of (46a-b):

(46) Context: All ten cousins have visited Ana once each. Ana says:

- a. % Me tienen visitado los primos.  
me have:PRS.3PL visit:PTCP the cousins  
'My cousins have visited me repeatedly.'
- b. % Me tienen visitado todos los primos.  
me have:PRS.3PL visit:PTCP all the cousins  
'All my cousins have visited me repeatedly.'

Summarizing, two empirical generalizations are derived from the interaction of *GaSP* with predicates containing distributive verbs with coordinated, plural definite, and quantified noun phrases. These two generalizations are summarized in (47a-b):

(47) a. Three types of readings may arise in *GaSP* sentences depending on the context:

*collective, mixed, and distributive.*

- b. In all three readings, *collective, mixed, and distributive*, *GaSP* requires the individual participants in the denotation of coordinated noun phrases (with proper names), plural definites, and quantified noun phrases to be involved in

more than one eventuality denoted by the *GaSP* predicate.

### 3.4.2 Predicates with collective verbs

Verbs like *congregarse* or *reunirse* ‘gather,’ ‘meet,’ and *encontrarse* ‘meet,’ ‘run into each other’ are collective because they must involve plural participants. Unlike distributive verbs, they do not lead to entailments in which the predicate applies to atoms of the plural entity. Consider the examples in (48):

- (48) a.      Los alumnos universitarios      se congregaron      en la Plaza Mayor.  
         the students college              congregate:PST.3PL      in the Plaza Mayor  
         ‘College students congregated at the Plaza Mayor.’
- b.      \* El alumno universitario se congregó              en la Plaza Mayor.  
                 the student college              congregate:PST.3SG      in the Plaza Mayor  
                 \* ‘The college student congregated at the Plaza Mayor.’

In (48a), there is an event of the college students congregating. The referent of the subject noun phrase participates collectively as a group in a single event. Collective verbs do not lead to distributive entailments of eventualities to atomic individuals as illustrated by the ungrammaticality of (48b).

Collective verbs in *GaSP* sentences require that the plural participant as a group be involved in all subevents denoted by the predicate. The example in (49a) can only be interpreted as having the plural referent of the plural noun phrase participate in all subevents of congregating at the Plaza Mayor. The sentence in (49a) cannot not entail (49b) because the latter is ungrammatical.

(49) Context: There has been a series of protests by college students against raising tuition fees by the government. The students have held several protests at the Plaza Mayor.

- a. Los alumnos universitarios se tienen congregado en la  
the students college have:PRS.3PL congregate:PTCP in the  
Plaza Mayor.  
Plaza Mayor.  
‘College students have congregated repeatedly at the Plaza Mayor.’
- b. \* El alumno universitario se tiene congregado en la  
the students college have:PRS.3PL congregate:PTCP in the  
Plaza Mayor.  
Plaza Mayor.  
\* ‘The college student has congregated repeatedly at the Plaza Mayor.’

In (49a) it is asserted that the group of college students denoted by the subject noun phrase has participated in more than one gathering event at the Plaza Mayor.<sup>23</sup>

In sum, collective verbs in *GaSP* sentences require the participation of all parts of a plural individual denoted by the subject noun phrase in all subevents of the plural eventuality denoted by *GaSP*.

### 3.4.3 Interactions with *only-once* verbs

Certain achievements, often referred to in the literature as *only-once* verbal predicates (Laca 2010, Cabredo-Hofherr et al. 2010, among others), are exceptional when occurring in *GaSP* sentences. Because of their semantics, they do not allow interpretations in which the same individual is affected more than once. Verbs like *morir*

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<sup>23</sup> In *GaSP* sentences with collective verbs nonmaximality effects are possible. That is, collective verbs allow for interpretations in which not all the students in the denotation of the NP participate in all gathering events.

‘die’ or *matar* ‘kill’ have distributive properties requiring the distribution of atomic parts of a plural participant. *Morir* ‘die’ is distributive with respect to the subject’s referent, and *matar* ‘kill’ is distributive with respect to the object’s referent. Example (50) shows that *GaSP* is compatible with this type of achievements when they apply to plural arguments:

(50) Context: Speaker is commenting the news about the Middle East.

Tienen        muerto miles        de civiles en los últimos meses.  
 have:PRS.3PL die:PTCP thousands of civilians in the last months  
 ‘Thousands of civilians have died in the last few months.’

In (50), each member of the plural referent of *miles de civiles* ‘thousands of civilians’ can only participate in one dying event. Cases like (50) are acceptable by native speakers despite the fact that the same atomic individuals cannot be involved in more than one event. *GaSP* sentences with once-only verbs are acceptable provided that there is a plural participant the atomic parts of which are involved in one subevent. *GaSP* sentences with singular argument NPs yield odd interpretations, as illustrated by (51):

(51) Context: Speaker is commenting the news about the Middle East.

# Tiene        muerto un civil en los últimos meses.  
 have:PRS.3SG die:PTCP one civilian in the last months  
 ‘One civilian has died in the last few months.’

The way in which *GaSP* interacts with ‘once-only’ verbs is not an isolated phenomenon. The behavior of only-once predicates with singular arguments is a cross-linguistic phenomenon found in unrelated expressions denoting eventuality plurality. Verbal pluractionals and other expressions that involve eventuality plurality behave similarly when ‘once-only’ verbs (e.g., *explode*, *die*) co-occur with singular argument



noun phrases (Dowty 1979, van Geenhoven 2004, Laca 2006, Cabredo Hofherr et al. 2010, a.o.). Consider the contrast between examples (52a) and (52b) from WG (van Geenhoven 2004) in which the verb *qaarpug* ‘explode’ is marked with the pluractional affix *-qattaar-* ‘again & again:’

The example in (52a) is odd because the same bomb can only explode once. This example is parallel to the *GaSP* example in (51) in that both are odd for the same reason that is, the denoted eventualities cannot be performed over the same participant. In (52b), the plural subject noun phrase allows the predicate to distribute over individual bombs such that each bomb explodes once.

Expressions exhibiting similar restrictions to the one illustrated by WG *-qattaar-* in (52a) are also found in Spanish. An instance is the Spanish periphrasis composed of the auxiliary *andar* ‘walk’ plus a main verb in the progressive. Laca (2006) analyzes it as a periphrastic construction with pluractional properties. *Andar* ‘walk’ + Prog is similar to some verbal pluractionals in that it encodes iterativity, as illustrated in (53):<sup>24</sup>

<sup>24</sup> Glosses: PR = present tense, 3S = 3<sup>rd</sup> person singular

- (53) Anda molestando a la gente.  
 walk.PR.3S disturbing to the people  
 ‘S/he is giving people trouble.’ (Laca 2006: 192)

Laca (2006) observes that sentences with *andar* ‘walk’ + Prog where once-only verbs co-occur with singular noun phrases are not acceptable. Consider the contrast between (54a) and (54b):

- (54) a. ? El zorro anduvo matando una gallina.  
 the fox walk:PST.3SG kill:PROG a hen  
 ‘The fox has been killing a hen [repeatedly/intermittently] (Laca 2006: 202)
- b. El zorro anduvo matando gallinas. (Laca 2006: 202)  
 the fox walk:PST.3SG kill:PROG hens  
 ‘The fox has been killing hens.’

Example (54a) is not acceptable because the meaning of the periphrasis is not compatible with an event of killing a single hen. In (54b) each individual hen part of the plural individual denoted by the plural NP participates in one killing event; the occurrence of a plural NP allows the temporal distribution of the atomic eventualities of killing a hen by the fox.

*GaSP* sentences with ‘once-only’ verbs and singular arguments are regarded as odd when they are out of the blue, as illustrated by (55a) and (55b):

- (55) a. # Mi abuela tiene matado una gallina.  
 my grandmother have:PRS.3SG kill:PTCP a hen  
 ‘My grandmother has killed a hen repeatedly.’
- b. # Tengo bebido una copa de vino.  
 Have:PRS.1SG drink:PTCP a glass of wine  
 ‘I have had a glass of wine repeatedly.’

The source of the oddity in (55a) and (55b) is the same as in (52a) and (54a) for WG and Spanish *andar* + Prog. *GaSP* requires multiple events to which it can distribute

the atomic participants. But having unique objects as the referents of the arguments of predicates with once-only verbs does not allow for multiple occurrences.

Sentences like (55a) and (55b) become acceptable when appropriate intra- or extra-linguistic contextual information is provided. Consider example (56):

(56) Context: Ana is with her doctor. The doctor asks her what she has been drinking with her meals. Ana says:

Tengo        bebido        una copa    de vino.  
 Have: PRS.1SG drink:PTCP   one glass    of   wine  
 ‘I have had a glass of wine repeatedly.’

Given the context in (56), Ana’s utterance means that she has had a different glass of wine at each meal. In (57), the co-occurrence of the frequency adverbial *de vez en cuando* ‘once in a while’ allows an interpretation in which a different glass of wine is consumed from time to time.

(57) Context: Have you ever had wine?

Tengo        bebido        una copa    de vino    de        vez en cuando.  
 have:PRS.1SG drink:PTCP   one glass    of   wine    from    timein   time  
 ‘I have had a glass of wine once in a while.’

Similar restrictions have been observed in *for*-adverbials in English with only-once verbs (Dowty 1979, Zucchi & White 2001, Deo & Piñango 2011). The oddity of data like (58) is due to the fact that singular noun phrases take wide scope over the *for*-adverbial.

(58) ?? John found a flea for ten minutes. (Zucchi & White 2001: 225)

Like *GaSP* sentences, sentences with *for*-adverbials with only-once verbs and singular indefinites become acceptable with the appropriate intra-linguistic or extra-linguistic context. These contexts are characterized by their ability to allow narrow scope

readings of the singular noun phrases distributing the indefinites over subevents.

Consider example (59):

(59) John found a flea on his dog every day for a year. (Zucchi & White 2001: 240)

In (59) the frequency adverbial *every day* specifies the temporal location of the eventuality; (60) is acceptable given the contextual information that patients take medication for a period of time:

(60) Context: Discussing the daily intake of patients.

The patient took a pill for a month.

(Adapted from Champollion 2010: 181, and Champollion 2011: 3)

The absence of narrow scope for indefinites in out of the blue sentences is a feature that characterizes a variety of distributive expressions. Wide scope for indefinites results from uniqueness of participants (Krifka 1992). The availability of narrow scope of indefinites with *GaSP* is dependent on pragmatics. *GaSP* requires contextual information, whether intra-linguistic or extra-linguistic, for indefinites to take narrow scope.

### 3.5 Counting eventualities

*GaSP* patterns with some verbal pluractionals in not allowing the overt expression of the exact number of eventualities denoted by the pluractional verb.<sup>25</sup> Yu (2003) has observed that in Chechen the specification of the exact number of repetitions prohibits the use of a pluractional verb, as he illustrates by the contrast between the pair of

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<sup>25</sup> Xrakovskij (1997) has argued that the incompatibility of verbal pluractionals with the explicit mention of the number of eventualities is a cross-linguistic feature. However, in recent research (Cabredo-Hofherr 2010) it has been observed that pluractionals can be classified according to whether they allow or not counting the number of eventualities.

examples (61a) and (61b):

- (61) a.        adama        takhan    **yttaza**        chai        **melira**  
                  Adam.ERG    today    **ten times**    tea        **drink.WP**  
                  ‘Adam drank tea ten times today.’ (Yu 2003: 303)
- b.    \*        adama        takhan    **yttaza**        chai        **miillira**  
                  Adam.ERG    today    **ten times**    tea        **drink.PLR.WP**  
                  ‘Adam drank tea ten times today.’ (Yu 2003: 303)

In (61a) the verb *melira* ‘drink’ is not marked for pluractionality, which allows the occurrence of *yttaza* ‘ten times.’ In contrast to (61a), in (61b) the verb *melira* ‘drink’ is marked for pluractionality with vowel alternation, *miillira* ‘drink.PLR.WP’, not allowing the occurrence of *yttaza* ‘ten times.’

The occurrence of expressions that count the exact number of eventualities denoted by *GaSP* is not allowed, as illustrated by the contrast between (62a) and (62b).

(62) Context: The speaker has read Hopscotch five times.

- a.        Tengo        leído        Rayuela.  
                  have:PRS.1SG    read:PTCP    Hopscotch  
                  ‘I have read Hopscotch repeatedly.’
- b.    #        Tengo        leído        Rayuela        cinco        veces.<sup>26</sup>  
                  have:PRS.1SG    read:PTCP    Hopscotch    five        times  
                  ‘I have read Hopscotch five times.’

Example (62a) simply states that the speaker has read Hopscotch more than once, without explicit reference to the number of eventualities of reading Hopscotch. Example (62b) is not acceptable because *GaSP* cannot co-occur with the exact cardinal adverbial *cinco veces* ‘five times.’ However, *GaSP* sentences can contain vague cardinals, as illustrated

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<sup>26</sup> The symbol # indicates that in this context the example (42b) is not felicitous because *cinco veces* ‘five times’ is interpreted as the total number of times Hopscotch has been read. If the iterative adverbial is interpreted as five times per some implicit unit of time like ‘five times a year’ then (42b) becomes felicitous.

in (63):

- (63) Paula    me tiene            visitado        varias/ muchas veces.  
Paula    me have:PRS.1SG visit:PTCP    several many times  
'Paula has visited me several/many times.'

Examples (64) and (65) illustrate the unacceptability of *GaSP* when the eventualities are counted by the occurrence of cardinal determiners in the object noun phrase *dos novelas* 'two novels' and the subject noun phrase *doscientas personas* 'two hundred people'.

(64) Context: the speaker has read each of the two novels once.

- a. # Estasemana        tengo        leído        dos novelas.  
this week        have:PRS.1SG read:PTCP    two novels  
'This week I have read two novels.'
- b. Estasemana        tengo        leído        novelas.  
this week        have:PRS.1SG read:PTCP    novels  
'This week I have read novels.'

The contrast between (64a) and (64b) shows that bare plurals like *novelas* 'novels' in (64b) are compatible with *GaSP*. Bare plurals allow for distribution of their referents without any specification of the exact number of eventualities.

(65) Context: Said after reading a report on death toll on the road for the current year.

- # a. Tienen        muerto doscientas personas en accidentes de  
have:PRS.3PL die:PTCP two.hundred people in accidents of  
carretera.  
road  
'Two hundred people have died in road accidents.'
- b. Tienen        muerto cientos de personas en accidentes  
have:PRS.3PL die:PTCP hundreds of people in accidents  
de carretera.  
of road  
'Hundreds of people have died in road accidents.'

In (65a), each individual is distributed to a single dying event, which makes a total of two hundred atomic dying events. In (65b), the quantified noun phrase *cientos de personas* ‘hundreds of people’ gives a vague number of dying events. The vagueness in the denotation of the noun phrase makes sentence (65b) acceptable as opposed to (65a).

### 3.6 Summary

In this chapter I have identified four main properties of *GaSP* that parallel the properties of certain verbal pluractionals and expressions of plurality in the domain of eventualities. These properties are outlined below:

- (66) a. *GaSP* denotes a plurality of eventualities.
- b. *GaSP* only yields iterative readings: it requires temporal gaps between the denoted atomic eventualities. Continuous readings, which are characterized by the occurrence of a single state or process across the relevant interval, are not possible in *GaSP* sentences.
- c. *GaSP* interacts with definite and quantified noun phrases, and with distributive and collective predicates by requiring that atomic participants be involved in more than one subevent. Co-occurring once-only verbs are the exception to this requirement.
- d. Counting the number of eventualities is not possible in *GaSP* sentences.

In section 3.3, we observed that *GaSP* sentences assert the occurrence of plural eventualities but that the expression of eventuality plurality is not based on participant distribution, incremental change, or continuous instantiation of a stative or process

predicate across the reference time interval. Rather the pluractional properties of *GaSP* are based on iterated temporal distribution of subevents.

The data from section 3.4 shows three different patterns with respect to the participation of the atomic individuals that are part of the plural entity denoted by the nominal arguments. The interaction of *GaSP* with distributive predicates co-occurring with coordinated noun phrases, definite and quantified plurals yields three readings depending on the context: collective, mixed, and distributive. Collective verbs in *GaSP* sentences require the participation of the denoted plural entity in all subevents. And finally, only-once predicates block repeated participation of atomic individuals because of their lexical semantics. Only-once predicates require a one-to-one distribution of participants to subevents.



## CHAPTER 4

### *GaSP* CONSTRUCTION IN THE PERFECT TYPOLOGY

#### 4.1 Introduction

In this chapter I compare the meaning and morphology of *GaSP* to the meaning and morphology of present perfects cross-linguistically. This comparison reveals that *GaSP* shares only some properties with other present perfects. For example, the *GaSP* sentence in (1c) has the same interpretation as the English and Castilian Spanish sentences in (1a) and (1b).

- (1) a. Paula has smoked occasionally.
- b. Paula    ha                fumado        ocasionalmente.  
Paula    have:PRS.3SG   smoke:PTCP   occasionally  
‘Paula has smoked occasionally.’
- c. Paula    tiene                fumado        ocasionalmente.  
Paula    have:PRS.3SG   smoke:PTCP   occasionally  
‘Paula has smoked occasionally.’

In contrast to the parallel between the English, Castilian Spanish and Galician Spanish perfect sentences shown in (1a)-(1c), other perfect sentences completely acceptable in English and Castilian Spanish, as shown in (2a) and (2b) do not have a *GaSP* counterpart, illustrated by the unacceptability of (2c).

- (2) a. Today Paula has smoked only one cigarette.
- b. Hoy Paula ha fumado solo un cigarrillo.  
today Paula have:PRS.3SG smoke:PTCP only one cigarette  
‘Today Paula has smoked only one cigarette.’
- c. % Hoy Paula tiene fumado solo un cigarrillo.  
today Paula have:PRS.3SG smoke:PTCP only one cigarette  
‘Today Paula has smoked only one cigarette repeatedly.’

This chapter provides evidence that *GaSP*, when compared to other present perfects, is a perfect construction but a very restrictive one with respect to the range of interpretations it exhibits and its use in discourse.

First, *GaSP* is compared to present perfects as described by typological studies. Then, I introduce formal semantic analyses of perfects and discuss why none of them can wholly account for the semantics of *GaSP*. The notions of utterance time, reference time, and eventuality time—the three time intervals involved in temporal interpretation introduced in chapter 2—are used here to account for the temporal interpretations of *GaSP* sentences. In chapter 2 I argued that the tense component of *GaSP* sets the time of utterance as a final proper subinterval of the reference time (represented as  $TU \subset_{\text{final}} RT$ ). This chapter adds to the analysis of the tensed auxiliary *tener* ‘have’ proposed in chapter 2 by looking at how the eventuality time is related to the reference time. The meaning of *GaSP* is compared to the meanings of present perfects cross-dialectally and cross-linguistically.

## 4.2 Typological studies: morphology and meanings of perfects

Typological studies have identified a cross-linguistic grammatical category of perfect. In Dahl's (1985) research project, more than sixty languages were analyzed and it was found that a cross-linguistic category PERFECT<sup>27</sup> can be postulated. This category is morphologically periphrastic in around 85% of the languages studied in Dahl's project. In these languages the form has a copula or some other auxiliary form combined with a past participle or a similar form (see table 5.1 in Dahl 1985: 130). The definition for PERFECT generally agreed upon—given in e.g. Dahl's (1985) universal prototype—is that it denotes an eventuality occurring at a time before reference time that is related to the discourse at utterance time.

There are four meanings or interpretations typically found across perfects, which have been called 'prototypical' (Comrie 1976, Anderson 1982, Dahl 1985, among others). These meanings are labeled *perfect of result*, *universal perfect*, *existential perfect*, and *recent past* or *hot news perfect*.<sup>28</sup> In some languages perfects exhibit all four meanings, while in others they only display some of them. For instance, in English and in some Spanish varieties present perfects exhibit these four meanings (for English see McCawley 1972, 1981, Portner 2003, Iatridou *et al.* 2003; for Spanish see Schwenter 1994, Howe 2006, Howe and Schwenter 2008, Laca 2010, a.o.), illustrated in the

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<sup>27</sup> In Dahl (1985) the cross-linguistic grammatical category is written with capital letters, PERFECT (PFCT),

<sup>28</sup> The terminology used to refer to these four meanings of perfects varies among different authors. In Comrie (1976: chapter 3), they are referred to as *perfect of persistent situation*, *experiential perfect*, *perfect of result*, and *perfect of recent past* respectively. In the dissertation I use the terms *universal*, *existential*, *perfect of result* or *resultative perfect*, and *recent past* or *hot news perfect* and refer to them as interpretations or meanings of perfects.

examples below. The English examples are taken from McCawley (1981: 81), and the examples in Spanish are adapted from Laca (2010: 2).<sup>29</sup>

### *Perfect of Result*

- (3) a. I can't come to your party tonight—I've caught the flu.
- b. No puede correr porque se ha roto  
 not can:PRS.3SG run because him/herself have:PRS.3SG break:PTCP  
 una pierna.  
 a leg  
 'S/he cannot run because s/he has broken her/his leg.'

### *Universal Perfect*

- (4) a. I've known Max since 1960.
- b. Ha vivido solo desde la muerte de su padre.  
 have:PRS.3SG live:PTCP alone since the death of his father  
 'He's lived alone since his father died.'

### *Existential Perfect*

- (5) a. I have read *Principia Mathematica* five times.
- b. Ha ido dos veces a Buenos Aires  
 have:PRS.3SG go:PTCP two times to Buenos Aires  
 (en su vida/ este año).  
 in his/her life / this year  
 'S/he's gone twice to Buenos Aires (in his/her life / this year).'

### *Recent Past/ Hot News*

- (6) a. Malcom X has just been assassinated.
- b. ¡Se ha escapado el perro!  
 itself have:PRS.3SG escape:PTCP the dog  
 'The dog has run away!'

In examples (3a-b) with the perfect of result the past eventualities of catching the flu and

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<sup>29</sup> Glosses for the Spanish examples are my own.

breaking a leg have the results in the present of having the flu and having a broken leg. These present results lead to the consequences of not being able to attend the party in (3a), and to run in (3b). In (4a-b), with the universal perfect, knowing Max and living alone start at some point in the past and continue to the present. In (5a-b), reading *Principia Mathematica* five times and going to Buenos Aires two times occurred at different time intervals before the time of utterance. In (6a-b), the assassination of Malcom X and the escaping of the dog are presented as unexpected and recent with respect to the time of utterance.

Present perfects in other languages only exhibit some of the four interpretations presented in (3)-(6) for English and Spanish. For instance, the Greek present perfect does not have the universal reading (Iatridou et al. 2003:171). Iatridou et al. argue that the lack of the universal reading is due to the fact that the past participle of the Greek present perfect is based only on perfective morphology. In Greek perfect sentences like (7) have only an existential interpretation.

- (7) O Γιάννης έχει αγαπήσει την Μαρία  
the Jannis has-3sg loved the Mary  
‘John has started loving/fallen in love with Mary.’ (Iatridou et al. 2003: 171)

Yet in other languages the only available reading is the universal. Such is the case of the Portuguese variety spoken in Natal (northeastern of Brazil), which exhibits a universal perfect that requires iteration of the eventuality, as argued by Hofherr et al. (2010) in their study on the Portuguese present perfect as used in this variety. The example in (8) represents the universal reading of the present perfect as used in Natal.<sup>30</sup>

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<sup>30</sup> The glosses for the Natal present perfect examples are mine.

- (8) Pedro tem dormido na varanda o inverno inteiro.  
 Pedro have:PRS.3SG sleep:PTCP on;the balcony the winter whole  
 ‘Pedro has been sleeping on the balcony this entire winter.’  
 (Hofherr et al. 2010: 72)

The example in (8) is interpreted as Pedro sleeping on the balcony every night throughout the current winter. In (9a) and (9b) I provide examples taken from Hofherr et al. (2010: 69-70) as evidence that the present perfect of Natal lacks resultative readings. Example (9c) is taken from Laca (2010: 12) to illustrate the lack of the existential interpretation.

- (9) a. Eu não encontro ela.  
 I not find:PRS.1SG her  
 # Ela tem saído.  
 she have:PRS.3SG leave:PTCP  
 ‘I don’t find her. She has left.’  
 b. Pedro está entrando pela porta de trás.  
 Pedro be:PRS.3SG enter:PROG by;the door of back  
 # Eu já tenho desarmado o segurança.  
 I already have:PRS.1SG disarm:PTCP the alarm  
 ‘Pedro is coming in through the backdoor. I have already disarmed the alarm.’  
 c. # Eu tenho visitado os pais, mas não vou mais.  
 I have:PRS.1SG visit:PTCP the parents but not go:PRS.1SG more  
 ‘I have been visiting my parents regularly, but I don’t go there anymore.’

Typological studies have characterized the four meanings of perfects as follows (see Comrie 1976, or Dahl 1985):

- (a) The *Universal perfect* expresses that a state or an event-in-progress holds throughout a time interval that stretches from some point in the past up to the present (Utterance Time). The time of utterance is included in the interval across which the eventuality holds.  
 (b) *Existential perfects* require that the eventuality has held at least once in the past over

a period of time that extends up to the present.

(c) The *perfect of result* obtains when a past eventuality yields a resultant state that holds at utterance time. In perfects of result the predicate denotes a change of state and entail the existence of a result state at the time of utterance.

(d) The *perfect of recent past* or *Hot News* is used to refer to an eventuality that relates to utterance time by temporal proximity and is “salient due to its surprise value” (Schwenter 1994: 997). Hot news perfects are typically used in newspaper headlines and news broadcasts as a way to report recent information.<sup>31</sup>

In addition to these four meanings, prototypical perfects have a special role in narrative discourse when compared to perfective aspect and past tense. Bybee et al. (1994) and Dahl (1985) note that perfective aspect and past tense are used to narrate sequences of events thus advancing the storyline. Perfects are used to insert background information into the narrative (Givón 1982, Schwenter and Cacoullos 2008).

Howe (2006) observes that this distribution between the simple past and the present perfect appears in most varieties of Spanish. Howe (2006: 49) illustrates this contrast between the simple past tense and the present perfect in his examples (42a) and (42b), presented here as (10a) and (10b).

(10) a.       David   salió           de       su   oficina   a       las   cinco.  
              Dave   leave:PST.3SG from   his   office   at   the   five  
              Llegó               a   su   casa.   Bebió               una   cerveza.  
              arrive: PST.3SG   at   his   house   drink: PST.3SG   a   beer  
              ‘Dave left his office at five. He arrived at his house. He drank a beer.’

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<sup>31</sup> The hot news perfect is the most neglected in the literature about the readings of perfects. The interested reader is referred to the works of Schwenter (1994) for the Spanish present perfect and Ritz (2011) for the English present perfect. These authors discuss how hot news readings are pragmatically motivated, and not part of the core semantics of perfects.

- b. # David ha salido de su oficina.  
 Dave have:PRES.3SG leave:PTCP from his office  
 Ha llegado a su casa.  
 have:PRES.3SG arrive:PTCP at his house  
 Ha bebido una cerveza  
 have:PRES.3SG drink:PTCP a beer  
 ‘Dave has left his office. He has arrived at his house. He has drunk a beer.’

In (10a), the temporal interpretation of the three sentences in the narrative is that the eventualities of Dave leaving the office, arriving home and drinking a beer are temporally sequenced. Example in (10b) is not acceptable because the present perfect is not used to present sequenced eventualities. This contrast between perfective aspect and past tense on the one hand and perfect on the other is connected to how eventuality time and reference time are related in discourse narratives. While perfectives and past tenses shift the reference time forward, sentences with perfects have the reference time overlapping with utterance time; therefore sequencing of events is not possible because the reference time stays at utterance time (de Swart 2007).<sup>32</sup>

The occurrence of tense in *when*-clauses is a test used for narrative uses of tenses (de Swart 2007). Examples in (11a) and (11b) show that the English present perfect cannot occur in subordinate clauses introduced by *when*, while the simple past can.

- (11)a. # When John has seen me, he has gotten/got frightened.

- b. When John saw me, he got frightened. (de Swart 2007: 2274)

Another feature of prototypical perfects is what Klein has called the “present perfect puzzle” in his 1992 article on the English present perfect. Klein observes that in

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<sup>32</sup> In some varieties of Spanish, German, French, Italian and Romanian, present perfect constructions are used in narrative discourses. For the Spanish varieties I refer the reader to Howe & Schwenter 2008, Schwenter & Torres Cacoullous 2008; for French and German see de Swart 2007; and for French, Italian, and Romanian see Squartini & Bertinetto 2000, and references therein. In Australian English Engel & Ritz 2000, and Ritz & Engel 2008 have found that the present perfect is also used for narrative progression.



English present perfect sentences, time adverbials cannot locate the eventuality time in the time axis. Consider examples in (12a-b):

(12) a. % Mary has left at six o'clock.

b. Mary has left today.

In (12a) the time adverbial *at six o'clock* temporally locates the event of Mary's leaving, while in (12b) the adverbial *today* locates the reference time—the time within which the eventuality of Mary's leaving takes place.

Some authors (e.g., Bennett & Partee 2004, Kiparsky 2002) have related the incompatibility of present perfects with adverbials that locate the event time to the fact that these adverbials must modify instead the reference time. Since reference time overlaps with utterance time, any modifying adverb must denote an interval that includes utterance time.

### **4.3 Empirical findings about the meanings of *GaSP***

In chapter 1 I gave an overview of the morpho-syntactic composition of *GaSP* as a periphrastic present perfect. Structurally, *GaSP* is similar to present perfects in other Romance languages and in English—all of them formed by an auxiliary and a past participle. *GaSP* is composed of the auxiliary *tener* 'have' in the present tense and a non-agreeing past participle.

This section explores the interpretations of *GaSP* sentences to assess whether *GaSP* behaves as a prototypical perfect with respect to the features presented above as characteristic of prototypical perfects.

### 4.3.1 Perfect readings

In what follows, I provide examples of *GaSP* sentences accepted by my consultants and the types of (perfect) readings to which they correspond according to the perfect typology. Consider examples (13) and (14):

(13) Context: Patricia is not a habitual smoker but she smokes sometimes. Interlocutor A asks:

A: Has Patricia ever smoked? *Existential*

B: Sí, tiene fumado alguna vez.  
yes have:PRS.3SG smoke:PTCP some time  
'Yes, she has smoked some time.'

(14) Context: Marta has been training for a marathon. *Universal*

Tengo ido a correr en el parque de Castrelos  
have:PRS.1SG go:PTCP to run in the park of Castrelos  
por la mañana. Pero ahora voy a ir a Samil.  
for the morning but now go:PRS to go to Samil  
'I've been running in Castrelos. But now I'll go to Samil.'

In (13) it is asserted that the eventuality of Patricia smoking has occurred more than once in the past. There is no inference about Patricia smoking at TU or that Patricia has the habit of smoking. In (14), Marta says that her training in Castrelos has held repeatedly throughout a time span that reaches up to the present. The second clause indicates that Marta will be running at a different location after TU.

Resultative interpretations are not acceptable in *GaSP* sentences, as shown in (15).

(15) Context: Ana is looking for something in her purse, closes it and sighs. Maria asks what she was looking for. Ana says:

#	Mis llaves.	Las	tengo	perdido.	<i>Result</i>
	My keys	them	have:PRS.1SG	lose:PTCP	
	'My keys. I've lost them.'				

The utterance in (15) does not convey the intended meaning that Ana losing her keys before TU results in her not having her keys in her purse at TU. (15) is unacceptable even if Ana has lost her keys more than once in the past. For a resultative reading to arise the predicate has to denote a single event (an achievement or an accomplishment) which yields a result state holding at TU. *GaSP* sentences assert the occurrence of a plurality of eventualities rather than the occurrence of single event that yields a result state at TU.

Consultants pointed out that they would use instead the simple past or the *haber*-perfect to convey the meaning intended by (15), as shown in (16).

(16) Context: Ana is looking for something in her purse, closes it and sighs. Maria asks what she was looking for. Ana says:

¡	Mis llaves!	Las	he	perdido/	perdí.
	my keys	them	have:PRS.1SG	lose:PTCP	lose:PST.1SG
	'My keys! I have lost/lost them.'				

Further evidence for the inability of *GaSP* to yield resultative readings comes from its incompatibility with time adverbials that typically occur with perfects of result, illustrated by (18). Kiparsky (2002) provides evidence from English perfect sentences with resultative readings. They admit adverbials like *now* or *at this point*, illustrated by (17a), but exclude adverbials denoting intervals such as *lately*, *these days*, and *nowadays*, illustrated by (17b). The examples in (17a-b) are from Kiparsky (2002: 119).

- (17) a.        The convict has escaped now (at this point). *Resultative*
- b. #    The convict has escaped nowadays (currently, these days).  
[Intended resultative]
- (18)    #    El   convicto se tiene        escapado    ahora    (en este momento).  
              the convict has:PST.3SG   escape:PTCP   now    in    this momento  
              ‘The convict has escaped now (at this moment).’  
[Intended resultative]

Recent past or hot news readings do not arise in *GaSP* sentences. Consider example (19), where a recent past/hot news interpretation is intended.

- (19) Context: A group of friends, fans of Barça (Barcelona soccer team) just watched a Barsa game. A friend arrives right after the game is over. They say to him:

#    ¡El Barça    tiene        ganado! *Hot news*  
       the Barça    have:PRS.3SG   win:PTCP  
       ‘Barça has won!’

Example (19) is not acceptable because in addition to *GaSP* requiring iterativity, this construction is not used to report information that is deemed new to the hearer. That is, the use of a present perfect with the purpose of reporting new information requires the listener not to be aware of the situation reported. Hot news perfects are usually used at the beginning of a segment or a conversation in which there is no shared knowledge or the topic of the conversation has not been introduced previously. Furthermore, hot news perfects are considered a turning point in the development of Romance perfects into perfectives (Schwenter 1994), a semantic value that is absent in *GaSP*, as the above data suggest. All my consultants indicated that the simple past or the *haber* present perfect must be used to convey hot news, as illustrated in (20).

- (20) ¡El Barça    ganó/    ha        ganado!  
       the Barça    won    have:PRS.3SG   win:PTCP  
       ‘Barça won/has won!’

With respect to the availability of existential readings for *GaSP* sentences, my consultants reject the examples in (21a) and (21b):

(21) Context: Ana and Paula are planning a weekend trip to the Castro Baroña beach. Ana asks Paula if she has seen the Celtic villages near Castro Baroña before. Paula says:

- a. # Los tengo visto una vez. *Existential*  
 them have:PRS.1SG see:PTCP one time  
 ‘I’ve seen them once.’
- b. # Los tengo visto cuatro veces. *Existential*  
 them have:PRS.1SG see:PTCP four times  
 ‘I’ve gone to see them four times.’

The examples in (21a) and (21b) are not acceptable because *GaSP* sentences are not used for reference to singular eventualities, indicated by the occurrence of the exact cardinal *una vez* ‘one time’ in (21a), and to repeated eventualities for which the number of the repetitions is specified by exact cardinals, illustrated in (21b) by *cuatro veces* ‘four times’ (cf. chapter 3, section 3.5). Consultants pointed out that one must use either the simple past or the *haber*-perfect, illustrated in (22a) and (22b).

(22) Context: Ana and Paula are planning a weekend trip to the Castro Baroña beach. Ana asks Paula if she has seen the Celtic villages near Castro Baroña before. Paula says:

- a. Los he visto/ vi una vez.  
 them have:PRS.1SG see:PTCP see:PST.1SG one time  
 ‘I have seen/saw them once.’
- b. # Los he visto/ vi cuatro veces.  
 them have:PRS.1SG see:PTCP see:PST.1SG four times  
 ‘I have seen/saw them four times.’

Universal readings in *GaSP* sentences are very restrictive. Continuous readings are not acceptable, as illustrated in (23). Cris living in Vigo holds continuously across her lifetime up to the present.

(23) Context: Cris is interviewing for a job. She is asked to list all the cities where she has lived in the last ten years. She says:

# Tengo vivo en Vigo todami vida. *Universal*  
 have:PRS.1SG live:PTCP in Vigo all my life  
 ‘I have lived in Vigo all my life.’

Example (23) gives evidence that *GaSP* is not compatible with universal readings where a single eventuality (a state or a process) holds at all subintervals of the reference time interval. This restriction was already attested in chapter 3 in relation to the pluractional properties of *GaSP*.

The informants pointed out that for (23) they would use the simple past or the *haber*-perfect, illustrated in (24).

(24) Context: Cris is interviewing for a job. She is asked to list all the cities where she has lived in the last ten years. She says:

He vivo/ Viví en Vigo todami vida.  
 have:PRS.1SG live:PTCP live:PST.1SG in Vigo all my life  
 ‘I have lived/lived in Vigo all my life.’

In English, adverbials like *already*, *before*, and *recently* serve to identify existential readings of perfect sentences, as in (25a), while universal readings may be found with co-occurring adverbial expressions like *so far*, *up till now*, *ever since X*, as in (25b).<sup>33</sup>

(25) a. I’ve had escargot before/recently/already.

b. I’ve been here waiting for you.

As discussed in chapter 2, *GaSP* is not compatible with *antes* ‘before’ and *recientemente* ‘recently.’ However, it is compatible with *ya* ‘already,’ a relational adverb

<sup>33</sup> Numerous studies on the English present perfect have used different time adverbials to determine what readings may arise when these adverbials occur in perfect sentences (e.g., McCoard 1978, Dowty 1979, Kiparsky 2002, Iatridou et al. 2003, a.o.)

that denotes anteriority with respect to a contextually given time. In example (26), the adverb *ya* ‘already’ relates the times at which Maria has ordered Rioja to the present as temporally preceding it.

(26) Context: Ana and Maria are in a restaurant where they go often.

Ana: Ya tienes pedido Rioja, ¿verdad?  
 already have:PRS.2SG order:PTCP Rioja true  
 ‘You have already ordered Rioja repeatedly, right?’

As discussed in chapter 2, *GaSP* sentences are compatible with adverbials like *hasta ahora* ‘up till now’/‘so far’ or *últimamente* ‘lately.’ *GaSP* sentences with these kinds of adverbials may give rise to universal readings with the condition that a plurality of eventualities of the speaker going out is temporally distributed across the reference time, as shown in (27):

(27) Hasta ahora/ Últimamente tengo salido poco  
 until now lately have:PRS.1SG go.out:PTCP little  
 porque trabajo hasta tarde.  
 because work:PRS.1SG until late  
 ‘Up till now/Lately I haven’t been going out much because I work until late.’

Summarizing, the following observations have been derived from the data in this section.

- (28) a. *GaSP* sentences do not exhibit resultative and hot news readings.
- b. *GaSP* sentences do not exhibit existential readings with reference to singular eventualities, and with reference to repeated eventualities whose exact number is specified by co-occurring cardinal expressions.
- c. *GaSP* sentences do not yield universal readings in which a singular eventuality holds continuously from some point in the past up to TU.
- d. *GaSP* sentences can yield existential and universal readings with the condition

that there are multiple eventualities temporally distributed.

I conclude that *GaSP* is a very restricted perfect with respect to the range of readings it allows. The requirement of *GaSP* that the denoted eventuality be repeated makes this construction unable to produce resultative readings. It is important to remember that perfects of result denote a single eventuality that yields a single state holding at the time of utterance.

Hot news perfects introduce in the discourse recent past eventualities that are salient because they are unexpected or surprising—a pragmatically motivated use. *GaSP* lacks hot news uses regardless of its inability to denote singular eventualities.

#### **4.3.2 Modification by past-time denoting adverbials**

We have seen that prototypical perfects (e.g., English, some Spanish varieties) cannot be modified by past-time denoting frame adverbials like *yesterday* or *last night*. In chapter 2, I provided evidence that *GaSP* cannot be modified by past-time denoting adverbials. The only frame adverbials compatible with *GaSP* are those denoting intervals that overlap with the time of utterance. The data on time adverbials in chapter 2 gives evidence that *GaSP* behaves like prototypical present perfects by not allowing past-time denoting frame adverbials to co-occur, such as in English and some Spanish varieties. In contrast to perfects that restrict time adverbials to those whose denotations include the time of utterance, the French and the German perfects can express perfectivity and are used as perfectives or simple pasts. These perfects combine with past time denoting adverbials and participate in narrative progression, as illustrated by examples (29) and



(30) respectively.

(29) a. ( . . . ) ce n' est pas de ma faute si on a enterré  
it not is not my fault if have:PRS.3SG bury:PTCP  
maman hier au lieu d' aujourd'hui.  
mom yesterday in place of today  
'But for one thing, it isn't my fault if they buried (PC)<sup>34</sup> mother yesterday  
instead of today, ( . . . )' (French, de Swart 2007: 2282)

b. Wolfgang ist bis gestern gerannt  
Wolfgang has until yesterday run  
'Wolfgang ran until yesterday' (German, Rathert 2001: 14)

(30) a. Il est sorti, est revenu, a  
he be:PRS.3SG leave:PTCP be:PRS.3SG return:PTCP have:PRS.3SG  
dispose des chaises. Sur l' une d' elles,  
arrange:PTCP some chairs on the one of them  
il a empilé des tasses autour d' une cafetière.  
he have:PRS.3SG stack:PTCP some cups around of a coffee-pot  
'He went (PC) in and out, arranging chairs. On one of them he stacked (PC)  
some cups round a coffee-pot.' (French, adapted from de Swart 2007: 2283)

b. Hier hat der Heimleiter gelächelt (Perf)<sup>35</sup>. Er hat gesagt (Perf):  
( . . . ) Und tatsächlich ist ihm Madame Meursaults Tod sehr nahegegangen  
(Perf).  
'Here the warden smiled. He said, ( . . . ) And the fact is that  
Mrs Meursault's death has affected him very badly.' (de Swart 2007: 2292)

### 4.3.3 Participation in narrative contexts

Like prototypical present perfects, *GaSP* cannot participate in narrative contexts to advance the storyline. The *GaSP* example in (31) is adapted from the example (10) taken from Howe (2006) for Castilian Spanish.

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<sup>34</sup> PC stands for the French *Passé Composé*.

<sup>35</sup> Perf stands for the German *Perfekt*.

- (31)# David tiene salido de su oficina.  
 Dave have:PRES.3SG leave:PTCP from his office  
 Tiene llegado a su casa.  
 have:PRES.3SG arrive:PTCP at his house  
 Tiene bebido una cerveza  
 have:PRES.3SG drink:PTCP a beer  
 ‘Dave has left his office. He has arrived at his house. He has drunk a beer.’

*GaSP* can appear in narratives to insert background information or commentaries related to what was reported previously, as illustrated by the examples in (32) and (33), taken from two blogs. Glosses are provided only for the *GaSP* sentences.

- (32) Si no me confundo, los dueños de Aldi y Lidl son dos hermanos que empezaron  
 ‘If I’m correct, the owners of Aldi and Lidl are two brothers that started  
 juntos con Aldi y se separaron y el que dejó Aldi fue después el que creo Lidl.  
 together with Aldi and then split and the one who left Aldi created later Lidl.

Algo así **tengo oído**, pero no estoy seguro.  
 something like.that have:PRS.1SG hear:PTCP but not be:PST.1SG sure  
 I’ve heard repeatedly something like that, but I’m not sure.

Yo **tengo estado** en ambos en Dublin,  
 I have:PRS.1SG hear:PTCP in both in Dublin  
 I’ve been repeatedly in both in Dublin,

y a mí personalmente, me parecen exactamente iguales.  
 And to me personally, both look exactly the same.’<sup>36</sup>

- (33) Hola, el martes estuve por Castrelos en mi horario habitual  
 ‘Hello, last Tuesday I was in Castrelos in my habitual schedule  
 (suelo estar entre las 9 y las 10 más o menos,  
 (I’m normally there between 9 and 10 more or less

aunque algún día **tengo ido** antes  
 although some day have:PST.1SG go:PTCP earlier  
 although some days I have gone earlier

o por la mañana antes de comer los sábados).  
 or in the morning before lunch on Saturdays).’<sup>37</sup>

<sup>36</sup> <http://www.skyscrapercity.com/showthread.php?p=36585468>

<sup>37</sup> <http://www.correrengalicia.org/index.php?name=Forums&file=viewtopic&p=3539>

In (32) the narrator is telling the story of the grocery stores Aldi and Lidl; the first *GaSP* sentence is added to make clear that the information about the stores is second hand and the second one is used as a corroboration of the story. In (33), the narrator includes in parentheses a comment with *GaSP* to interject information about his regular jogging schedule. Each of the *GaSP* clauses in (31) must express a plurality of iterated events of the same type temporally located throughout an interval whose right boundary is the utterance time. Thus narrative progression of a series of events expressed in a discourse is not possible since the following clauses do not update the reference time.

#### **4.4 *GaSP* and the typology of Romance perfects**

Romance perfects have been treated as belonging to one of four stages that form a continuum in the development from their Latin source (i.e., resultative construction introduced in chapter 1, which denotes a resultant state from a past event holding at the time of utterance) into perfectives. The four-stage based typology was initially proposed by Harris (1982) and later followed by most literature on Romance periphrastic pasts (e.g., Fleishman 1983, Squartini & Bertinetto 2000, Schwenter & Torres-Cacoullos 2008). Below I summarize Harris's (1982: 49-50) stages and languages he suggests instantiate each of them.

##### **STAGE I:**

The present perfect is “restricted to present states resulting from past actions, and is not used to describe past actions themselves, however recent”. Languages whose present perfect forms represent this stage are the Southern Italian vernacular varieties of Calabria

and Sicilia.

#### STAGE II:

The present perfect is used “only in highly specific circumstances”, that is, in contexts “aspectually marked as durative or repetitive”. In this stage perfects are universal, where a continuous state or repeated events hold up to the time of utterance. Galician, Portuguese, and many varieties of American Spanish are suggested to represent this stage.

#### STAGE III:

In this stage the present perfect expresses “the archetypal present perfect value of past action with present relevance” in addition to the above two meanings. This stage is represented by Castilian Spanish and some varieties of *langue d’oil* and *langue d’oc*.

#### STAGE IV:

In this stage the present perfect also conveys the perfective meanings of the simple past. Standard French, Northern Italian, and Standard Romanian represent this stage.

In what follows, I will examine the perfects that supposedly represent stage II in comparison with *GaSP*. Empirical support is given to conclude that neither these perfects nor *GaSP* fully conform to the typology of periphrastic pasts as proposed by Harris (1982).

The present perfect in European and Brazilian Portuguese (EP and BP respectively), composed of *ter*<sub>[PRES]</sub> ‘have’ + PastParticiple, is similar to *GaSP* in that it does not exhibit the array of interpretations found in perfects cross-linguistically (cf. Amaral & Howe 2009, 2012 and Squartini & Bertinetto 2000 for European Portuguese; cf. Molsing 2007, 2010 for Brazilian Portuguese). Like *GaSP*, the Portuguese counterpart

incompatibility with the cardinal adverbial *uma vez* ‘once’ in examples (34a-b):<sup>38</sup>

- b. \* O Marcos tem lido “Calvin and Hobbes” umavez.  
the Marcos have:PRS.3SG read:PTCP Calvin and Hobbes one time  
‘Marcos has read “Calvin and Hobbes” once.’ (BP, Molsing 2007: 145)

events of Ana arriving late and of Marcos reading “Calvin and Hobbes”:

- b. Context: Marcos has read “Calvin and Hobbes” multiple times.
- O Marcos tem lido “Calvin and Hobbes”.  
the Marcos have:PRS.3SG read:PTCP Calvin and Hobbes  
‘Marcos has been reading “Calvin and Hobbes”.’  
(BP, adapted from Molsing 2007: 145)

also unavailable, as illustrated by (36a) and (36b) respectively:

- \* b. Tem chegado o rei! [Intended hot news]  
has arrived the king  
'The king has arrived. (Squartini & Bertinetto 2000: 409)

The Portuguese perfects may convey both continuous and iterative readings with stative

<sup>38</sup> Glosses for the Portuguese examples are my own.

predicates, as illustrated by (37a) and (37b). The availability of continuous readings in the Portuguese counterparts sets them apart from *GaSP* and the Galician perfect construction (illustrated in chapter 1), which require iterativity with both stative and non-stative predicates.<sup>39</sup>

(37)a. Context: Pedro has been continuously sick up to now.

O Pedro tem estado doente.  
 the Pedro have:PRS.3SG be:PTCP sick  
 ‘Pedro has been sick.’ (EP, Amaral & Howe 2012: 7)

b. Context: the speaker has been continuously sick since last week.

Eu tenho estado doente (desde a semana passada).  
 I have:PRS.1SG be:PTCP sick since the week last  
 ‘I have been sick (since last week).’ (BP, Molsing 2010: 36)

It is claimed that the EP perfect is a universal perfect exhibiting both continuous and iterative aspectual properties (e.g., Squartini & Bertinetto 2000, Schmitt 2001, Amaral & Howe 2009, Amaral & Howe 2012). For BP, many authors have made similar claims. However, Molsing (2007) has found that the BP present perfect exhibits existential iterative readings, which goes against the widely held assumption that the BP perfect is universal (e.g., Squartini & Bertinetto 2000, Pancheva 2003). Evidence in support of her argument is given in (38a) with a stative predicate, and (38b) with an eventive predicate:

(38)a. Eu tenho estado doente ultimamente (mas já estou  
 I have been sick lately but already (I) am  
 melhor).  
 better  
 ‘I have been sick lately (but I’m better already).’ (Molsing 2007: 141)

<sup>39</sup> The contexts are not in the originals.

- b. O Bruno tem ido a Disney (várias vezes).  
 the Bruno has gone to Disney various times  
 ‘Bruno has gone to Disney several times.’ (Molsing 2007: 132)

The present perfect as used in the variety of Brazilian Portuguese spoken in Natal patterns with *GaSP* in that it only exhibits iterative interpretations. However, unlike *GaSP*, which yields both existential and universal iterative readings, the Natal perfect renders only universal iterative readings, as it was illustrated in section 4.2. The Galician perfect has only been described as an iterative periphrastic construction with perfective value (Rojo 1974). If perfective value is interpreted as an existential perfect then, it is correct that Galician perfect sentences have existential readings, as illustrated in (39a) extracted from the Galician corpus CORGA. However, example (39b) shows that universal readings are also available.

- (39)a. Hai un ditto de Alberto Durero que algunhas vegadas  
 exists a saying of Alberto Durero that some times  
 teño visto citado...  
 have:PRS.1SG see:PTCP quoted  
 ‘There is a saying by Alberto Durero that I have seen quoted some times ...’  
 (CORGA, 1976)

- b. Ata agora teño comido no María Castaña.  
 until now have:PRS.1SG eat:PTCP at.the María Castaña  
 ‘Until now I have eaten repeatedly at María Castaña.’

To my knowledge, little is known about the semantics of the Galician perfect besides brief descriptions provided by authors like Rojo (1974) and Santamarina (1974). Much more research is needed in order to understand its contribution and how it compares to the other perfects.

At first glance, it seems that the Portuguese perfects, the Galician perfect and

*GaSP* adhere to a certain degree to Harris's stage II. They are aspectually iterative or continuative and all of them convey universal interpretations. However, as suggested in Amaral & Howe (2009) Harris's categorization of Romance present perfects is too coarse-grained and does not capture all the interpretations found across Romance perfects. I will discuss several flaws in Harris's typology that have been noticed in the literature. The first problem is related to the fact that Harris's typology has no empirical support. Specifically, the purported stage II has not been attested in any Romance variety, as argued by Squartini & Bertinetto (2000). Furthermore, the two studies on the Portuguese perfect conducted by Amaral and Howe (2009, 2010) based on data extracted from diachronic and synchronic corpora have found that the continuous and iterative meanings exhibited by this perfect seem to be a recent innovation; they also found that the Portuguese perfect exhibits a stage III perfect (i.e., 16<sup>th</sup> century); furthermore, both types of perfect, namely stage II and stage III, coexisted before the Portuguese perfect became more restrictive exhibiting only iterative and continuous universal readings. Amaral & Howe claim that the iterative interpretation arises from the resultative interpretation and that it represents a completely different developmental trajectory. The second problem is related to existential readings exhibited by *GaSP*, Galician perfect, and the perfect in some varieties of Brazilian Portuguese, the latter attested in Molsing (2007, 2010). Existential perfects are not part of Harris's characterization of stage II perfects and it is not clear if existential and universal iterative perfects developed during different periods. Harris's characterization of his stage II perfects also fails to capture the restrictions that these perfects impose on the length of the reference time interval (*GaSP* and perfect in BP of Natal) and the absence of continuous readings in the Galician and



Natal perfects.

In table 4.1 I summarize the semantic properties found across the perfects in EP, BP, BP of Natal, Galician, and *GaSP*.

	EP	BP	BP Natal	Galician	<i>GaSP</i>
Existential	×	✓	×	✓	✓
Universal	✓	✓	✓	✓	✓
Iterative	✓	✓	✓	✓	✓
Continuous	✓	✓	✓	×	×
Recent Past/Hot news	×	×	×	×	×
Result	×	×	×	×	×
Restriction on length of RT interval	?	?	✓	?	✓

Table 4.1. Semantic properties of Portuguese and Galician perfects and *GaSP*

#### 4.5 Formal semantic theories of perfects

In this section I provide an overview of the main general theories that analyze the meaning of perfects. These theories argue for particular ordering relations between the utterance time, the reference time and the eventuality time in order to account for the four main interpretations found across perfects, introduced in section 3.2. These theories fall into three groups:

- (i) *Anteriority theories* (e.g., Reichenbach 1947, Inoue 1989, Hornstein 1990, Klein 1992, 1994)

- (ii) *Result state/Post-state theories* (e.g., Moens and Steedman 1988, Parsons 1990, Kamp & Ryle 1993, Giorgi and Pianesi 1998, de Swart 1998, 2000, Nishiyama & Koenig 2004)
- (iii) *Extended-Now (XN) theories* (e.g., McCoard 1978, Dowty 1979, Abush and Rooth 1990, McCawley 1993, Vlach 1993, Iatridou, Anagnostopoulou & Izvorski 2001/2003; see Musan 2002 and Rathert 2004 for the German present perfect)

#### 4.5.1 Neo-Reichenbachian anteriority theories

Anteriority theories offer a uniform compositional analysis of all perfect forms.

The perfect locates the eventuality time before the reference time, represented in (40).

(40) Perfect:  $EvT < RT$

The tense of the auxiliary establishes the ordering relations between the reference time and the time of utterance. The present tense locates the reference time at the time of utterance, represented in (41a), the past tense locates the reference time before the time of utterance, represented in (41b), and the future tense locates the reference time after the time of utterance, represented in (41c).

(41) a. Present:  $RT = TU$

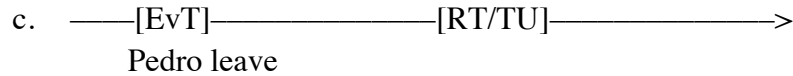
b. Past:  $RT < TU$

c. Future:  $TU < RT$

When the tense combines with the perfect the ordering relations between the three times are as follows. Examples in Spanish are given in b, and their representations in the time axis are given in c.

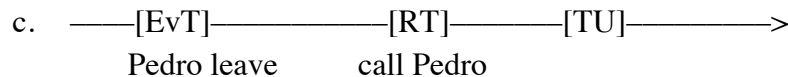
(42)a. Present Perfect:  $EvT < RT=Tu$

- b. Pedro ha salido.  
 Pedro have:PRS.3SG leave:PTCP  
 ‘Pedro has left.’



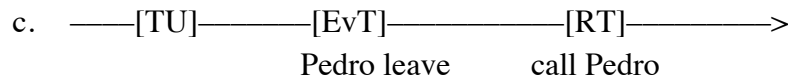
(43)a. Past Perfect:  $EvT < RT < Tu$

- b. Cuando lo llamaste, Pedro ya había salido.  
 When him call:PTS.2SG Pedro already have:PST.IPFV.3SG leave:PTCP  
 ‘When you called him, Pedro had already left.’



(44)a. Future Perfect:  $Tu < EvT < RT$

- b. Cuando lo llames, Pedro ya habrá salido.  
 When him call:PRS.SBJV.2SG Pedro already have:FUT.3SG leave:PTCP  
 ‘When you call him, Pedro will have already left.’



Anteriority theories account for existential, resultative, and recent past present perfects by locating the eventuality denoted by the verb in the past of the reference/utterance time ( $EvT < RT=Tu$ ). Anteriority theories invoke the notion of ‘current relevance’ as a defining property of present perfects. ‘Current relevance’ arises because the eventuality occurring in the past of reference/utterance time has some continuing relevance in the present (e.g., Comrie 1976: 52). These theories contrast present perfect sentences to simple past sentences to argue that the present perfect has the meaning effect of ‘current relevance.’ Consider the English and Spanish examples in (45) with the present perfect, and the corresponding examples in (46) with the simple past.

(45) a. John has gone to Manila.

b. José      ha              ido      a      Manila.  
José      have:PRS.3SG   go:PTCP   to   Manila  
'José has gone to Manila.'

(46) a. John went to Manila.

b. José      fue              a      Manila.  
José      go:PST.3SG      to      Manila  
'José went to Manila.'

According to anteriority theories, the use of the present perfect in (44a-b) yields the inference that at the present John is in Manila. In contrast to (44a-b), in (45a-b) a past eventuality is reported without any implicit connection between John going to Manila and John being in Manila at the present.

Many authors have rejected the notion of 'current relevance' as being a defining property of the present perfect. For instance, McCoard's (1978: 65) criticism of 'current relevance' is concerned with the fact that is "not a fixed semantic content born by a particular verb form, but is only the name of diverse implications that may attach to sentences, based in part on the appearance of one or another tense form." In the same line, Klein (1992: 531) claims that utterances with the simple past may also have 'current relevance'. He argues that since there is no criterion to determine relevance of an utterance with the present perfect, current relevance analyses cannot be falsified. He adds that even utterances with the simple past can be relevant to the present, as he illustrates in his example (18a), shown here as (47):

(47) Why is Chris so cheerful these days? —Well, he won a million in the lottery.

In (47) the reason for the present state of Chris being so cheerful is his winning a million in the lottery, which is expressed with the simple past.

The notion of ‘current relevance’ is crucial in Anteriority and Post-state theories as a definitorial feature of present perfects. Post-state theories account for the notion of ‘current relevance’ as a meaning effect of present perfects on structural grounds. In the next section I provide an overview of the analysis post-state theories offer for present perfects and how they explain the way current relevance arises in present perfect sentences.

#### 4.5.2 Post-state theories

In post-state theories (e.g., Kamp & Reyle 1993, de Swart 1998, 2000), the perfect is treated as an aspectual operator that asserts the occurrence of both an event  $e$  and a resultant state  $s$ . Kamp & Reyle (1993), aim for a basic account of the English perfect, by which sentences with the present perfect in combination with particular contexts may yield resultative, existential, and universal interpretations. They evince that all these readings are congruous with the principle that “the perfect VP describes a state  $r_s$ , which results from the occurrence of a certain event.” (p. 568). The result state starts at the end of the past event and overlaps with the reference time. For the present perfect, the resultant state holds at utterance time. De Swart (2000) argues that the perfect asserts both the event and the consequent state and represents in DRS (discourse representation structure) the relation between the event and the resultant state as  $e \supset \subset s$  ( $e$  and  $s$  temporally abut), the state  $s$  starts at the end of the event  $e$ ;  $t$  represents the temporal trace of the state  $s$ , which as specified by the tense operator includes the utterance time  $n$ ,  $n \subseteq t$ , thus  $s$  holds at  $n$ . De Swart proposes that since the state  $s$  holds at utterance time it is

the state itself that has current relevance. Thus, de Swart introduces the notion of current relevance by way of the existence of a resultant state that holds at the present.<sup>40</sup> Consider the examples (48a) and (48b) in English and Castilian Spanish respectively:

(48) Context: Where is John?

- a. John has gone to bed.
- b. José se ha ido a la cama.  
     John himself have:PRS.3SG go:PTCP to the bed  
     ‘John has gone to bed.’

In both (48a) and (48b) there is the implication that the consequent state of the event of John going to bed is that John is in bed at the time of utterance.

The main problems for post-state analyses of present perfects are the existential and universal readings. For existential readings these theories would have to posit the existence of any state contingent upon a past event. Without constraining the nature of the post-state, anything would be possible as a perfect state, even states that are not related to the past eventualities. Consider the Castilian Spanish example in (49), with an existential reading:

(49) Context: Ana asks Maria if she has dined at the French restaurant in the corner.

Maria says:

- He cenado ahí un par de veces.  
     have:PRS.1SG dine:PTCP there a couple of times  
     ‘I’ve dined there a couple of times.’

To argue that there is a post-state holding at the time of utterance of Maria having dined at the French restaurant twice, we need to know what that post-state is. Just that Maria is in the post-state of having dined at the French restaurant twice would not suffice to argue

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<sup>40</sup> Portner (2003), Nishiyama & Koenig (2004), Schaden (2009) offer pragmatic proposals concerning current relevance and perfect states.

It is, however, the universal readings that are more difficult to account for by both anteriority and post-state theories because these readings do not conform to either one of the temporal configurations they propose, represented in (50) and (51).<sup>41</sup>

(51) Post-state theories:  $e \supset\subset s, s =_t t, n \subset t$

(52) Context: María is interviewing for a job. The interviewer asks her to list all the places where she has lived up to date. She says:

- In (52a) and (52b), María asserts that her living in Vigo has held since she was born up to and including the time of utterance, illustrated in (53):

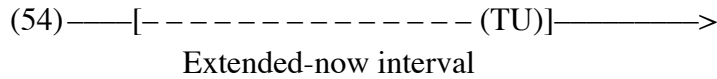
<sup>41</sup> The issue of anteriority theories and post-state theories' inability to explain universal readings has been widely discussed in the literature on perfects. For some discussions on this issue see e.g., Laca (2010), Portner (2003).

Thus, María living in Vigo is not completely in the past of RT but includes it. The configurations in (50) and (51) proposed by anteriority and post-state theories cannot capture the temporal relations between EvT and RT of universal perfects, in which EvT includes RT, as represented by (53).

Given that *GaSP* sentences only give rise to very particular existential and universal readings, we need an analysis of *GaSP* that can account for these readings. Extended-Now theories (XN-theories) are more suitable to explain the contrast between existential and universal readings of present perfects. I will discuss these theories in the following section and finally provide evidence for an analysis of *GaSP* that builds on the extended-now accounts of perfects.

### 4.5.3 Extended-Now Theories

According to XN-theories (Bennett and Partee 1972, McCoard 1978, Dowty 1979, a.o.), the perfect introduces a time interval, the extended-now interval, which has the utterance time as its final subinterval (i.e., TU is its right boundary). This time interval extends from TU into the past, as illustrated in (54):



In present perfect sentences the eventuality denoted by the predicate is asserted to occur within this interval. The final point of the eventuality may coincide with TU depending on whether a present perfect sentence is interpreted as universal (i.e., eventuality time temporally overlaps with time of utterance) or existential (i.e., eventuality time

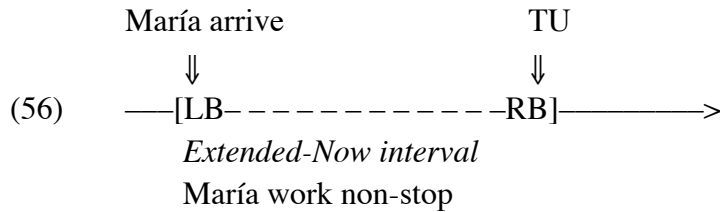


temporally precedes time of utterance). Consider examples in (55a) and (55b), featuring present perfects in Castilian Spanish:

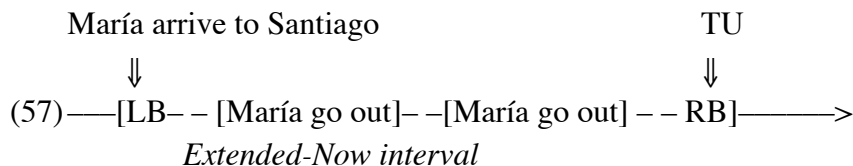
(55) Context: María has moved to Santiago to start working for a new company. She says:

- a. Desde que llegué, he trabajado sin parar.  
 since that arrive:PST.1SG have:PRS.1SG work:PTCP without stop  
 ‘Since I arrived, I have worked non-stop.’
- b. Desde que llegué, he salido un par de veces.  
 since that arrive:PST.1SG have:PRS.1SG go.out:PTCP a couple of times  
 ‘Since I arrived, I have gone out a couple of times.’

The utterance in (55a) has a universal interpretation, represented in (56). LB indicates the left boundary of the XN-interval, which is set by the time María moved to Santiago. RB indicates the right boundary of the XN-interval, which coincides with the time of utterance. María working non-stop holds across the XN-interval; the denoted eventuality starts when she moves to Santiago and continues up to the present.



The utterance in (55b) has an existential reading, represented in (57). The event of María going out holds at two discontinuous subintervals of the extended-now interval. The two eventualities are properly included in the extended-now interval.



Arguments in favor of the XN-theory have been made by a number of linguists based on evidence provided by time adverbials co-occurring with present perfects. For instance, Bennet and Partee ([1972] 2004: 66-67) argue that in English present perfect sentences can co-occur with temporal adverbials that denote a stretch of time that includes the past and the present but are not compatible with adverbials that denote other kinds of intervals (e.g., past-time denoting adverbials like *last week*; cf. section 3.3.2), as exemplified by (58a) and (58b) respectively:

(58) a. This week the teacher has sent the kids home early.

b. % Last week the teacher has sent the kids home early.

In Castilian Spanish, the perfect imposes the same constraints on co-occurring frame adverbials, as illustrated by the sentences in (58a) and (58b), translated from the English examples in (59a) and (59b) respectively.

(59) a. Esta semana el profesor ha enviado a los niños a casa temprano.

b. % La semana pasada el profesor ha enviado a los niños a casa temprano.

In XN-theories, the XN-interval is constrained by these frame adverbials, or by expressions that set its left boundary as *since I moved here*, *since last year*, etc.

In the next section, I will argue that XN-theories are more suited to account for the temporal relation between EvT, RT and TU in *GaSP* and the readings that arise in *GaSP* sentences—existential and universal. However, the theory will be supplemented since *GaSP* is a very restricted present perfect. It will have to additionally account for the properties we found in chapters 2 and 3.

#### 4.5.4 *GaSP* and formal semantic theories of perfects

In section 4.3 I provided evidence to argue that *GaSP* lacks resultative and hot news meanings. I also gave support for existential and universal readings of *GaSP* sentences. These readings arise with the condition that the denoted eventuality be iterated across the reference time interval.

In what follows I discuss how the main semantic theories of perfects fare in accounting for the temporal semantics of *GaSP*.

As mentioned in section 4.5 neither anteriority nor post-state theories can account for the universal readings of present perfect sentences. These theories state that the eventuality time precedes the reference time/utterance time. However, in universal readings of perfects the eventuality time overlaps with RT and TU, a configuration not accounted for by anteriority and post-state theories. The XN-theories account for universal readings by stating that the eventuality hold across the XN-interval up to TU.

Anteriority theories, which assume the relation  $EvT < RT = TU$ , cannot explain universal readings of *GaSP* sentences. In these readings the eventuality is asserted to hold repeatedly up to the time of utterance, as illustrated by (60):

(60) Hasta ahora tengo ido al cine muy poco.  
until now have:PST.1SG go:PTCP to.the movies very little  
'Up until now I've gone to the movies very little.'

*GaSP* sentences cannot be interpreted according to the analysis that post-state theories give to perfects. As discussed in section 3.4 post-state theories account for the resultative readings of perfects by analyzing perfects of result as asserting the occurrence of both a past eventuality and a consequent state that holds at utterance time. *GaSP* does

not assert the occurrence of a singular eventuality holding in the past and its (singular) consequent state holding at the time of utterance. *GaSP* asserts that the eventuality denoted by the verb occurs repeatedly across a time interval whose right boundary is the time of utterance, as illustrated by (60). In (60), going to the movies occurs with a low frequency throughout an interval of an unspecified length that ends at TU.

In my account of *GaSP* the distinction between existential and universal readings will not be reflected in the ordering relations between the eventuality time of the eventuality and the reference time interval. In the analysis I propose in chapter 5, *GaSP* maps the eventuality time of the eventualities onto discontinuous subintervals of the reference time interval. I do this because the formal analysis needs to reflect that *GaSP* denotes eventuality plurality. The formal analysis (cf. chapter 5) will not reflect the existential/universal contrast based on data like (61a) and (61b). These examples illustrate that the two readings are possible under the same discourse context.

- (61) Context: Has Patricia ever smoked? *Existential*
- a. Sí, tiene fumado. Pero normalmente no fuma.  
 yes have:PRS.3SG smoke:PTCP but normally not smoke:PRS.3SG  
 ‘Yes, she has smoked repeatedly. But normally she doesn’t smoke.’
- b. Sí, tiene fumado toda la vida (desde que la conozco). *Universal*  
 yes have:PRS.3SG smoke:PTCP all the life  
 ‘Yes, she has smoked all her life (since I met her).’

In (61a), the speaker says that Patricia has smoked more than once in the past but as the second clause suggests, Patricia does not have the habit of smoking. This means that a habitual reading in which Patricia being a smoker from some time in the past up to and including the time of utterance is not conveyed. The utterance simply asserts that Patricia has experienced smoking more than once. In (61b), the co-occurring adverbial *toda la*

*vida* ‘all the life’ suggests that Patricia is a habitual smoker and that she has smoked at least since the speaker met her up to the present.

The data from chapters 2, 3 and this chapter provide evidence for an analysis of *GaSP* that builds on the XN-theories. In chapter 2, it was found that the reference time interval must have the time of utterance as its right boundary and that its length has to be sufficiently long. The length requirement is connected to the iterativity requirement in that the reference time needs to have a certain length in order to temporally distribute the denoted eventualities. The findings of this chapter are interpreted as consequences of these requirements. In (62) I present the empirical observations.

(62) a. Observation #1

*GaSP* yields iterative existential and universal readings. The availability of these readings depends on linguistic and extra-linguistic contextual information.

b. Observation #2

The iterativity requirement of *GaSP* (discussed in chapter 3) excludes resultative and recent past readings in *GaSP* sentences as well as its use in narrative progression.

In the analysis, I assume that the reference time interval is identified with the XN-interval. Some variants of the XN-theories work only with the three traditional Reinchenbachian times (Laca 2010, Hofherr et al 2010, a.o.) while others propose that the XN-interval is different from the reference time. In the second kind of theories, the present tense relates the reference time to the time of utterance (RT includes TU) and the

perfect aspect relates the reference time to the XN-interval by having RT as a final subinterval of the XN-interval (Mittwoch 2008, Rathert 2004, Iatridou et al. 2003, a.o.).<sup>42</sup>

#### 4.6 Summary and conclusions

In this chapter, I compared *GaSP* with what have been identified as prototypical present perfects. I found that there is no absolute correspondence between *GaSP* and present perfects with respect to the interpretations that present perfects yield. Table 4.2 summarizes the comparison between *GaSP* and present perfects.

	<i>GaSP</i>	Prototypical present perfects
Do not allow modification by past-time denoting adverbials	✓	✓
Sequencing of events in narratives	×	×
Resultative readings	×	✓
Hot news readings	×	✓
Universal readings	Only iterative	✓
Existential readings	Only iterative	✓

Table 4.2. Comparison of properties of *GaSP* and prototypical present perfects

As mentioned in the introduction, *GaSP* has the morphosyntactic composition of periphrastic present perfects but it is a very restrictive perfect in relation to the semantic properties found across perfects.

<sup>42</sup> For the German present perfect Rathert (2004) proposes that XN precedes RT since the perfect is also used with perfective value. Evidence of its perfective value is given by its compatibility with past time denoting adverbials and its use in narrative progression (illustrated in section 4.3.2).

An analysis of *GaSP* must account for the restriction that *GaSP* imposes on the reference time interval and for the iterativity. None of the three groups of theories can account for the constraint that *GaSP* imposes on the length of the reference time interval, as formulated in chapter 2, where the reference time must be an interval of a minimum length of 48 hours stretching from the time of utterance into the past. Evidence for this constraint was brought from co-occurring frame adverbials. These adverbials must denote intervals with a length equal or greater than two days from the day that includes the time of utterance. Extended-Now theories account for the relation between the time of utterance and the reference time established by the present tense (i.e., TU is a final subinterval of the RT).

To account for the iterativity of *GaSP* discussed in chapter 3, I supplement the XN-theory by proposing a universal quantifier account, based on Deo and Piñango's (2010) analysis of *for*-adverbials, which will be developed in chapter 5.

## CHAPTER 5

### FORMAL SEMANTIC ANALYSIS OF *GaSP*

In this chapter I develop a compositional semantic analysis of the *GaSP* construction that accounts for the empirical findings from chapters 2, 3, and 4, summarized below.

In chapter 2, we found that *GaSP* is only acceptable with indexical frame adverbials that have two properties: (i) they must include the time of utterance in their denotation, and (ii), the length of the intervals they denote must be equal or greater than two days from the day that includes the time of utterance into the past. On the basis of these empirical findings, I argued that the reference time in *GaSP* must include the time of utterance as its final subinterval and that the length of the reference time must be of two days or greater stretching from the time of utterance into the past.

The auxiliary *tener* ‘have’ of *GaSP* in the present tense, *tiene* ‘has’ sets the time of utterance as a final proper subinterval of the reference time interval. This part of the analysis will predict the unacceptability of indexical frame adverbials denoting intervals that do not include the time of utterance in their denotation and intervals shorter than two days.



In chapter 3, it was argued that *GaSP* has the following pluractional properties: it denotes a plurality of eventualities of the same type and it temporally distributes the denoted eventualities giving rise to separate-in-time readings (i.e., iterative readings).

In chapter 4, it was found that *GaSP* is a very restrictive present perfect with respect to the types of readings exhibited across present perfects. The four properties of *GaSP* presented in (1) fall out from the pluractional properties of *GaSP* identified in chapter 3.

- (1) a. *GaSP* sentences do not exhibit resultative and hot news readings.
- b. *GaSP* sentences do not exhibit existential readings with reference to singular eventualities, and with reference to repeated eventualities whose exact number is specified by co-occurring cardinal expressions.
- c. *GaSP* sentences do not yield universal readings in which a singular eventuality holds continuously from some point in the past up to TU.
- d. *GaSP* sentences only yield existential and universal readings in which the subevents of the plural eventuality denoted by the *GaSP* predicate occur at discontinuous subintervals of the reference time interval.

## 5.1 The framework

The analysis proposed of *GaSP* sentences is formulated in the Montagovian compositional truth-conditional tradition (Dowty et al. 1981, Chierchia & McConnell-Ginet 1990, Heim & Kratzer 1998). Natural language expressions are translated into

expressions of a typed lambda calculus. Then each translation is model-theoretically interpreted.

### Semantic types

The set of types is defined recursively in (2):

- (2) a.  $e$  is a type.  
b.  $ev$  is a type.  
c.  $i$  is a type.  
c.  $t$  is a type.  
c. If  $a$  and  $b$  are any types, then  $\langle a, b \rangle$  is a type.

Nothing else is a type.

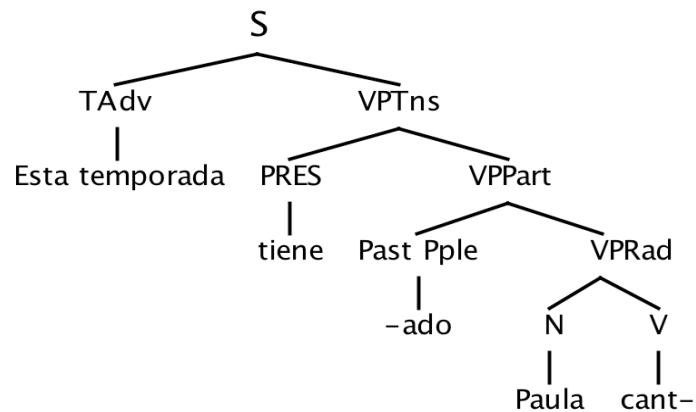
The basic types of expressions of the lambda calculus are  $e$  for individuals,  $ev$  for eventualities,  $i$  for intervals, and  $t$  for propositions. I use the following variables:  $x, y, z$  for entities,  $ev, ev', ev''$  for eventualities,  $i, j, k$  for intervals. For expressions that denote functions from individuals to functions from eventualities to truth-values, type  $\langle e, \langle ev, t \rangle \rangle$ , I use the variable  $P$ , for expressions that denote functions from intervals to truth-values, type  $\langle i, t \rangle$ , I use the variables  $R$  and  $S$ .

### Syntactic categories

I assume the following syntactic categories for *GaSP* sentences, represented by the tree of sentence in (3): N for noun phrases; V for verbs; Past Pple for the past participial head; PRES for the present tense head; VP for verb phrases; TAdv for indexical frame adverbials; and S for sentences. There are three VP's in the syntactic

structure of a *GaSP* sentence, a  $VP_{Rad}$ , a  $VP_{Part}$ , and a  $VP_{Tns}$ . The  $VP_{Rad}$  is a sentence radical. A sentence radical is a predicate of eventualities formed by the lexical predicates with their non-eventive arguments saturated. The sentence radical of (3) is *Paula cant-* ‘Paula sing-’. The  $VP_{Part}$  is a predicate composed of the  $VP_{Rad}$  with the past participle form *-ado* ‘PTCP’. The  $VP_{Part}$  in (3) is *Paula cantado* ‘Paula sung.’ The  $VP_{Tns}$  is a predicate composed of the  $VP_{Part}$  with the auxiliary *tener* ‘have’ in the present tense. In (3), the  $VP_{Tns}$  is *Paula tiene cantado* ‘Paula has sung.’ I use the syntactic category *S* for sentences. The sentence *S* in (3) is formed by combining the  $VP_{Tns}$  with the indexical frame adverbial *esta temporada* ‘this season’, category TAdv.

- (3) Esta temporada Paula tiene cantado.  
 this season Paula have:PTS.3SG sing:PTCP  
 ‘This season Paula has sung repeatedly.’



## Verbs and eventualities

As discussed in chapter 3, I assume a Davidsonian event semantics (Davidson 1967). Verbs denote relations between their nominal arguments and events. In my analysis predicates with intransitive verbs are of type  $\langle e, \langle ev, t \rangle \rangle$  because in addition to the nominal arguments they take eventualities as arguments. Transitive verbs denote a three-place relation between the two nominal arguments and the event argument. Transitive verbs are of type  $\langle e, \langle e, \langle ev, t \rangle \rangle \rangle$ .

## Intervals

I assume an interval-based semantics of time. I assume a time structure  $\langle I, <, o, \subseteq, \subset \rangle$ , where  $I$  is a set of intervals  $j, k, \dots n$ , represented in (4). Interval may stand in the temporal relations stated in (5).

$$(4) \quad I = \{j, k, \dots n\}$$

The temporal relations between two intervals  $j$  and  $k$ , members of  $I$ , are stated as follows:

$$(5) \quad a. \quad < \quad \text{'precedence'} \quad (j < k \leftrightarrow \forall t \forall t' (t \in j \wedge t' \in k \rightarrow t < t'))$$

The precedence relation is a strict partial ordering of the set  $I$ .

An interval  $j$  temporally precedes an interval  $k$  if and only if for all times  $t$  in  $j$  and all times  $t'$  in  $k$ ,  $t$  temporally precedes  $t'$ .

$$b. \quad o \quad \text{'overlap'} \quad (j o k \leftrightarrow \exists t (t \in j \wedge t \in k))$$

Two intervals  $j$  and  $k$  are in the overlap relation if and only if there is an interval  $t$  which is a member of both  $j$  and  $k$ .

$$c. \quad \subseteq \quad \text{'subinterval'} \quad (j \subseteq k \leftrightarrow \neg \exists t (t \in j \wedge t \notin k))$$

The interval  $j$  is a subinterval of the interval  $k$  if and only if there is no time  $t$ , member of  $j$ , that is not a member of  $k$  (or if and only if all times  $t$ , members of  $j$ , are also members of  $k$ ).

- d.  $\subset$  ‘proper subinterval’  $(j \subset k \leftrightarrow \neg \exists t (t \in j \wedge t \notin k) \wedge \exists t' (t' \in k \wedge t' \notin j))$

The interval  $j$  is a proper subinterval of the interval  $k$  if and only if there is no interval  $t$  member of  $j$  that is not a member of  $k$  and there is an interval  $t'$  member of  $k$  that is not a member of  $j$ .

I adopt Krifka’s (1998) temporal trace function  $\tau_{ev}$ , which is a function from  $U_{ev}$  to  $U_I$ . The temporal trace function maps eventualities to their eventuality time, that is, the time at which an eventuality takes place.

## 5.2 Formal analyses of event/interval distributivity

Extant formal analyses of verbal pluractionals are based either on interval or on event semantic theories (Lasnik 1995, Matthewson 2000, Collins 2001, Bar-el 2008, van Geenhoven 2004, 2005, Müller & Sanchez-Mendes 2008, Beck 2012). These analyses propose that verbal pluractionals involve aspectual operators that pluralize events (Lasnik 1995) or intervals (van Geenhoven 2004, 2005). I review the event-based analysis of Lasnik (1995) and the interval-based analysis of van Geenhoven (2004, 2005) and compare them with the analysis I propose, which is based on Deo and Piñango’s (2010) quantificational analysis of *for*-adverbials the notion of ‘weak universal quantifier’. I analyze *GaSP* as a perfect construction that contributes a weak universal quantifier whose domain is the reference time interval, and which distributes eventualities

over subintervals of the reference time interval. I adopt from Deo and Piñango (2010) the notion of ‘weak universal quantifier’. The term ‘weak’ is understood in the sense that *GaSP* does not quantify over all subintervals of the reference time interval, blocking undesired continuous readings, in which a single eventuality holds at all subintervals (cf. chapter 3).

An important contribution of my analysis is that it takes into account the role of linguistic and extra-linguistic context. That is, co-occurring frequency and iterative adverbials or extra-linguistic information constrain the distribution of eventualities across the reference time interval.

### **5.2.1 Event-based analyses of verbal pluractionality**

Lasersohn (1995) offers an analysis of pluractional markers that covers some of the readings discussed in chapter 3. These readings were based on distributive relations such as distribution of eventualities in time, distribution of eventualities in space, and distribution of participants to eventualities. In this section I will focus on Lasersohn’s analysis of distribution of eventualities in time, in which the eventualities denoted by the pluractional verb need to have separate running times. I limit myself to evaluate the temporal distribution analysis because temporal distribution of eventualities is the relevant pluractional property of *GaSP*.

Lasersohn takes verbs to be predicates of events. For a given verb *V*, a pluractional verb *V-PA* is the combination of *V* with a pluractional marker *PA*. *X* is an eventuality variable that ranges over sets of eventualities. The cardinality of *X* is two or

greater. He includes in the semantics of PA's a variable  $n$  for numbers in the condition on the cardinality of  $X$ , where  $n$  is a pragmatically fixed number equal or higher than two. In (7) I illustrate Lasersohn's (1995: 251) formalization of the meaning of pluractional verbs.

$$(7) V-PA(X) \Leftrightarrow \forall e \in X[V(e)] \ \& \ \mathbf{card}(X) \geq n$$

A pluractional verb  $V-PA$  takes  $X$  as its argument ( $V-PA(X)$ ). (6) says that a pluractional verb  $V-PA$  denotes sets of eventualities of the type denoted by the corresponding non-pluractional verb  $V$ , with the restriction that the cardinality of the set  $X$  of the denoted eventualities, of type  $e$ , be equal or greater than  $n$ .

The “distributed in time” reading requires that the eventualities in the set  $X$  have non-overlapping running times and that there is a time between the eventuality time of every two eventualities in the set  $X$  at which an eventuality of the type denoted by the verb does not occur. To ensure gaps between every two eventualities Lasersohn introduces the predicate ‘**between**’, which he defines as follows (Lasersohn 1995: 254):

$$(8) \ \mathbf{between}(t, t', t'') \Leftrightarrow t' < t < t'' \text{ or } t'' < t < t', \text{ where } < \text{ is the temporal precedence relation.}$$

(8) says that **between** is a relation between intervals  $t$ ,  $t'$ , and  $t''$  which is true if and only if for every two intervals  $t'$  and  $t''$  that stand in the precedence relation there is another interval  $t$  between  $t'$  and  $t''$ .

In (9), Lasersohn incorporates the **between** relation to the translation of a verbal pluractional with separate in time distribution (Lasersohn 1995: 254).

$$(9) \ V-PA(X) \Leftrightarrow \forall e, e' \in X[V(e) \ \& \ \underline{\neg\tau(e) \circ \tau(e')}] \ \& \ \underline{\exists t [\textbf{between}(t, \tau(e), \tau(e'))]} \ \& \ \underline{\neg\exists e''[V(e'') \ \& \ t = \tau(e'')]}] \ \& \ \textbf{card}(X) \geq n]$$

A sentence with a pluractional verb *V-PA* is true if and only if for all eventualities *e* and *e'* members of the set of eventualities *X*, the non-pluractional verb *V* denotes an eventuality *e*, and the runtimes of the eventualities in *X* do not overlap (first underlined conjunct), and there is a time *t* between the runtimes of the eventualities *e* and *e'* which is not the temporal trace of an eventuality *e''* of the same type (next underlined three conjuncts), and the cardinality of the set of events *X* denoted by the *V-PA* is equal or greater than a contextually given number *n*, where *n* is equal or greater than two (last underlined conjunct).

For a *GaSP* sentence like the one in (10) Lasersohn's analysis of verbal pluractionals would assign the following truth conditions to the predicate *tiene ido al cine repeatedly* 'has gone to the movies repeatedly':

- (10) María tiene ido al cine.  
 María have:PRS.3SG go:PTCP to.the movies  
 'María has gone to the movies repeatedly.'

Sentence (10) is true if and only if the *GaSP* predicate *tiene ido al cine* 'has gone to the movies repeatedly' denotes a set of eventualities of María going to the movies each of which is of the same type, such that for all eventualities *e* and *e'* of María going to the movies, their runtimes do not overlap ( $\neg\tau(e) \circ \tau(e')$ ), and there is an interval *t* between the runtime of every two eventualities of María going to the moves at which an eventuality *e''* of María going to the movies does not occur, and the cardinality of the set



of the eventualities of María going to the movies is equal or higher than a contextually given number  $n$  (which is equal to or higher than 2).

Lasersohn's analysis gives the right truth conditions to *GaSP* predicates: it requires a plurality of eventualities of the same type; these eventualities must be separate in time; and there must be two or more eventualities in the denotation of the *GaSP* predicate.

In section 5.2.4 I discuss why I do not choose Lasersohn's analysis of distributive in time pluractionality for my analysis of *GaSP*.

## 5.2.2 Interval-based analyses of verbal pluractionality

Van Geenhoven (2004) develops an interval-based approach account of West Greenlandic Eskimo (henceforth WG) pluractional markers as 'triggers' of temporal distribution—they distribute subevent times over the overall event time of an utterance. WG pluractional markers contribute an operator that operates at the verbal level. Consider for instance the WG frequency marker *-tar-* affixed to the verb *sanioqquppop* 'go.by-IND.[-tr].3SG' in (11):<sup>43</sup>

- (11) Nuka    ullaap            tungaa                    tamaat  
       Nuka    ullaap-p        tunga-a                    tama-at  
       N.ABS   morning-ERG direction-3SG.SG.ABS    all-3SG  
       sanioqqut**tar**poq.  
       saniuqqut-**tar**-puq  
       go.by-**repeatedly**-IND.[-tr].3SG  
       'Nuka went by repeatedly for the whole morning.' (van Geenhoven 2004: 146)

In (11), the pluralized verb denotes a plurality of events of going by. The operator

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<sup>43</sup> The abbreviations for the WG example are: ABS for absolutive case, ERG for ergative case, IND for indicative, 3 for third person, SG for singular, [-tr] for intransitive.

contributed by the frequency marker *-tar-* operates at the verb level and distributes a plurality of subevent times over the interval denoted by *ullaap tamaat* ‘the whole morning.’ The distribution is made at non-overlapping, discontinuous subevent times. In the truth conditions of *-tar-* sentences, illustrated in (12), van Geenhoven captures the distributive component of *-tar-* by translating the marker into the crystal star operator  $\ast^t$ , which is a temporal distributive operator (van Geenhoven 2004: 158).

- (12) a.  $-tar- \Rightarrow \lambda V \lambda t \lambda x (\ast^t V(x) \text{ at } t)$   
 b. where  $\ast^t V(x) \text{ at } t = 1$  iff  
 c.  $\exists t' (t' \subseteq t \wedge V(x) \text{ at } t' \wedge \text{number}(t') > 1 \wedge$   
 d.  $\forall t' (t' \subseteq t \wedge V(x) \text{ at } t' \rightarrow \exists t'' (t'' \subseteq t' \wedge t'' > t' \vee t'' < t') \wedge V(x) \text{ at } t'' \wedge$   
 e.  $\exists t''' (t' < t''' < t'' \vee t' > t''' > t'' \wedge \neg V(x) \text{ at } t'''))$

In (12a), the denotation of the translation of the pluractional marker *-tar-*, of type  $\langle\langle i, \langle e, t \rangle \rangle, \langle i, \langle e, t \rangle \rangle\rangle$ , is a function from the semantic type of the verbal predicate, type  $\langle i, \langle e, t \rangle \rangle$  to a function from a time interval to a function from individuals to a truth-value.

A *-tar-* sentence (12b) is true at an interval  $t$  if and only if:

(12c), there is a time  $t'$ , a subset of  $t$  such that  $V(x)$  holds at  $t'$  and the number of subintervals of  $t'$  is higher than 1,

(12d), and for all subintervals  $t'$  of  $t$ ,  $V(x)$  is instantiated at  $t'$ ,

(12e) and there is an interval  $t'''$  between every two subintervals at which the predicate is true at which the predicate does not hold.

The semantics of *-tar-* gives the correct truth conditions to the sentence in (11), as illustrated in (13):

(13)  $\ast^t \text{go.by}(\text{Nuka}) \text{ at } t \wedge \text{morning}(t)$

The conditions (12c-e) require the interval denoted by the adverbial ‘the whole morning’ to have at least two subintervals at which the verbal predicate holds, and that the temporal operator  $\ast^t$  does not operate on all subintervals but only on those that can contain an eventuality of Nuka going by (i.e., the temporal gap requirement).

Van Geenhoven’s (2004) analysis of the WG verbal pluractional *–tar–* ‘repeatedly’ captures the empirical generalizations I identified for *GaSP* in chapter 3, namely its pluractional properties. I illustrate how the analysis gives the right truth conditions for the *GaSP* sentence in (11), repeated here as (14):

(14) María tiene ido al cine.  
 María have:PRS.3SG go:PTCP to.the movies  
 ‘María has gone to the movies repeatedly.’

Sentence in (14) is true if and only if there is an interval  $t$  that has at least two subintervals  $t'$  and  $t''$  at which María going to the movies holds and there is a hiatus between every two subintervals  $t'$  and  $t''$  at which the basic predicate holds.

### 5.2.3 Deo & Piñango’s analysis of *for*-adverbials

Deo & Piñango (2010) (henceforth D&P) extend Deo’s (2009a, 2009b) analysis of imperfective aspect to *for*-adverbials in view of the similarities between them. They observed that imperfective aspect and *for*-adverbials yield both continuous and iterative readings, as illustrated in (15a-b) and (16a-b) respectively, and exhibit similarities in the

(15) a.	John lives in London.	(Continuous)	
b.	John bikes to school.	(Iterative)	
(16) a.	John lived in London for a year.	(Continuous)	
b.	John biked to Whole Foods for three years.	(Iterative)	(D&P 2010: 307)
(17) a.	?? John eats an apple/smokes a cigarette.		(D&P 2010:304)
b.	?? John ate an apple for an hour.		

D&P argue against the widely held assumption that *for*-adverbs select atelic, durative predicates (Moens and Steedman 1988, de Swart 1998, a.o.) on the basis that *for*-adverbials combine well with telic predicates giving rise to both iterative (18a) and continuous readings (18b):

- In D&P's view atelicity is not a requirement that *for*-adverbials impose on the input predicate but rather atelicity is derived as a consequence of *for*-adverbials encoding universal quantification. Furthermore, for D&P the availability of iterative readings with

<sup>45</sup> Examples in (15), (16a), and (17b) are my own.

*for*-adverbials depends on the interaction between the duration of the events, the length of the interval denoted by the *for*-adverbial, and sentential or extra-sentential context. Consider for instance examples (19a) and (19b):

- (19)a. Mary played a sonata for an hour.
- b. Mary played a sonata for two months.

In (19a), a continuous reading is automatically available; playing continuously for an hour long is feasible even if the sonata is not played in its entirety. In (19b), as D&P suggest, Mary playing a sonata for two months involves practicing events that may be distributed weekly. The length of the interval denoted by *for two months* allows the iterative inference.

Atelic predicates like *jog* are interpreted iteratively when the measuring interval is large relative to typical jogging events, as illustrated by the contrast between (20a) and (20b):

- (20)a. John jogged for an hour. (Continuous)
- b. John jogged for a year. (Iterative)

The data in (18a-b) above illustrate that *for*-adverbials can combine with telic predicates. The oddity only arises from pragmatic considerations. Consider the contrast between (21a) and (21b), where ‘bike to Whole Foods’ is a telic predicate:

- (21)a. ? John biked to Whole Foods for an hour.
- b. John biked to Whole Foods for a year.

Example (21a) does not yield an iterative interpretation because the measuring interval is too short, while in (21b) the length of the measuring interval is sufficiently long to allow the instantiation of the predicate at regular intervals across the interval ‘a year.’

On the basis of the empirical findings of the meaning of *for*-adverbials, D&P

propose a universal quantifier analysis of *for*-adverbials that improves on previous accounts (Dowty 1979, Moltmann 1991, a.o.). These universal quantifier accounts treat *for*-adverbials as encoding the subinterval property in their truth conditional content. Atelic predicates have the subinterval property, which requires the instantiation of the predicate at all subintervals of the interval denoted by the *for*-adverbial. However, it has long been observed that there are atelic predicates, namely processes that do not have the subinterval property in this strict sense (Dowty 1979, 1986, a.o), a phenomenon generally referred to as the *minimal parts problem*. For instance, the lexical predicate *waltz* denotes an event that requires at least three steps to qualify as a waltzing event. Intervals corresponding to subparts of a waltzing event may not qualify as intervals instantiating a waltzing event since they do not include a minimum of three steps. D&P observe that the iterative readings yielded by *for*-adverbials are another instance of the minimal parts problem. In the iterative readings the predicate is instantiated multiple times across the interval denoted by the *for*-adverbial, the events must occur with regularity, and the gaps between the eventualities may be large, as illustrated by D&P's (2010: 301) example in (22):

- (22) The legend goes that Virgil wrote the *Aeneid* for ten years, no more than three lines each day.

Given that the subinterval property makes the truth conditions of a *for*-adverbial too strong and that the iterative readings are as frequent or systematic as the continuous ones (also observed in van Geenhoven 2004), D&P propose a solution to the minimal parts problem that involves the contribution of context in the interpretation of *for*-adverbial utterances. The role of context is crucial in deriving continuous and iterative readings of *for*-adverbials, as illustrated in the data above. Both readings can emerge depending not only on intra-sentential context but also on extra-linguistic context.

To account for both continuous and iterative readings in *for*-adverbial sentences D&P argue that *for*-adverbs contain a weak universal quantifier, which means that the

domain of quantification of the *for*-adverbial is contextually determined. The domain of quantification is “weaker” in the sense that the quantifier not always quantifies over all subintervals of the relevant interval, as in continuous readings, but over relevant subintervals of the interval denoted by the *for*-adverbial, in iterative readings. For instance, consider examples (23) and (24), with continuous and iterative readings respectively:

- (23) a. John walked for an hour.  
       b. for an hour(John-walk)

- (24) a. John biked to Whole Foods for three years.  
       b. for three years(John-bike-to-Whole-Foods)

In (23b), the universal quantifier in the adverbial *for an hour* quantifies over all subintervals of the interval  $i$  denoted by ‘an-hour’ such that John-walk is true at  $i$ . The length of the measuring interval ‘an-hour’ is short enough to yield a continuous reading.

In (24b), the universal quantifier in the adverbial *for three years* quantifies over contextually determined subintervals of the interval denoted by ‘three-years’ such that ‘John bike to Whole Foods’ is true at the contextually determined subintervals of  $i$ , rather than at all subintervals of  $i$ . The length of the subintervals is retrievable from the context. Three years denote an interval long enough for the iterative reading to arise.

### **The analysis**

D&P’s (2010: 304) basic ontology consists of a non-null domain of intervals  $I$  and a domain of eventualities  $E$ .  $\tau$  (tau) is Krifka’s (1998) temporal trace function  $I$  introduced in section 5.1, i.e., a function from  $E$  to  $I$  that assigns to each  $ev \in E$  a runtime  $i \in I$ . Sentence radicals are predicates of eventualities built from lexical predicates with

their non-eventuality arguments saturated (i.e., subject, object), illustrated in (25a-b).

- (25) a. John walked for an hour. (D&P 2010: 305)  
 b. ‘John-walk’ (sentence radical)

The universal quantifier of a *for*-adverbial like *for an hour* quantifies over a regular partition of the measuring interval denoted by the *for*-adverbial, *an hour*. The noun phrase *an hour* denotes an interval *i*. The regular partition is a set of collectively exhaustive (26a), non-overlapping (26b), equimeasured (26c) subsets of the measuring interval *i* denoted by the *for*-adverbial, e.g. *an hour* in example (25). The length of each subset or partition, which they call the partition-measure, is a free variable whose value is contextually determined:

For any interval  $i \in I$ , a *regular partition*  $R$  of  $i$ ,  $R_i$ , is the set of non-empty collectively exhaustive, mutually exclusive subsets of  $i$  (D&P 2010: 304-305):

- (26)  $R_i$  is a regular partition of  $i$  if  $R_i$  is a set of intervals  $\{j, k \dots n\}$  such that
- |    |  |                         |
|----|--|-------------------------|
| a. | $\cup \{j, k, \dots n\} = i$                                     | Collectively exhaustive |
| b. | $\forall j, k \in R_i \rightarrow j \cap k = 0$ if $j \neq k$    | Mutually exclusive      |
| c. | $\forall j, k \in R_i \rightarrow \mu(j) = \mu(k)$ <sup>46</sup> | Equimeasured            |

(26a) says that the union of the intervals  $j, k \dots n$  is the interval  $i$ —they are collectively exhaustive; (26b) says that the intersection of the subintervals  $j, k, \dots n$  of  $i$  is zero—they do not overlap; and (26c) says that all subintervals  $j, k, \dots n$  of  $i$  have the same length—they are equimeasured.

The semantics of *for*-adverbials D&P (2010: 305) propose is presented in (27):

- (27) for  $x$ -time =  $\lambda P \lambda i [\text{time}(i) = x \wedge \forall j [j \in R_i^c \rightarrow \text{COIN}(P, j)]]$

A sentence with a *for*-adverbial is true at an interval  $i$  if and only if the duration of  $i$  is  $x$ -time and every member  $j$  of a contextually determined regular partition of  $i$ ,  $R_i^c$ ,

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<sup>46</sup>  $\mu(x)$  stands for the Lebesgue measure of  $x$ . In measure theory the Lebesgue measure is the standard way of assigning a measure to subsets of  $n$ -dimensional Euclidean space.



COINcides with  $P$ . The superscript  $c$  on the free variable  $R$  indicates that the length of each cell (i.e., the partition measure) of the regular partition  $R$  of  $i$  is anaphoric to context. The predicate  $P$  is instantiated at the measuring interval  $i$  by the COINcidence relation, defined in (28):

$$(28) \quad \text{COIN}(P, i) = \begin{cases} \exists e [P(e) \wedge \tau(e) \circ i] & \text{if } P \subseteq E \\ P(i) & \text{if } P \subseteq I \end{cases}$$

(D&P 2010: 305)

The definition of COIN in (28) says that a predicate  $P$  over eventualities or over intervals is instantiated at an interval  $i$  by the COINcidence relation. If  $P$  is a predicate over eventualities then the temporal trace of the eventualities overlaps with  $i$ .

D&P analysis of *for*-adverbials accounts for the continuous and iterative readings by setting the length of each cell (i.e. the partition measure) to different values. For the continuous reading to arise the value of the partition measure is infinitesimal. That is, for an interval  $i$ , a regular partition of  $i$   $R_i^{inf}$  is a set of subsets of  $j$  that have infinitesimal value and the predicate holds at  $j$ . I provide D&P's (2010: 305-306) derivation of example (29a). In their formal analysis D&P use a neo-Davidsonian approach to event semantics (Carlson 1984, Parsons 1990, a.o.), where verbs denote relations between events and their arguments. This relationship is expressed by thematic roles. The subject is related to the event by the ag(ent) thematic role, and the object by the th(eme) thematic role. In example (29a) the subject John is related to the event of walking by the agent relation  $\text{ag}(e, \text{John})$ .

(29) a. John walked for an hour.

$$\text{b. } [[\text{for an hour}]] = \lambda P \lambda i [\text{time}(i) = 1 \text{ hour} \wedge \forall j [j \in R_i^{inf} \rightarrow \text{COIN}(P, j)]]$$

- c.  $[[\text{John walk}]] = \lambda e[\text{walk}(e) \wedge \text{ag}(e, \text{John})]$
- d.  $[[\text{for an hour}(\text{John walk})]] = \lambda P \lambda i[\text{time}(i) = 1 \text{ hour} \wedge \forall j[j \in R_i^{\text{inf}} \rightarrow \text{COIN}(P, j)]]$   
 $(\lambda e[\text{walk}(e) \wedge \text{ag}(e, \text{John})])$   
 $= \lambda i[\text{time}(i) = 1 \text{ hour} \wedge \forall j[j \in R_i^{\text{inf}} \rightarrow \exists e[\text{walk}(e) \wedge \text{ag}(e, \text{John}) \wedge \tau(e) \circ j]]]$

The translation of *for an hour*, of type  $\langle\langle ev, t \rangle, \langle i, t \rangle\rangle$ , takes the translation of the sentence radical *John walk*, of type  $\langle ev, t \rangle$ , and returns the formula in (29d), of type  $\langle i, t \rangle$ . The interpretation of *John walk for an hour* is the interpretation of the formula in (29d), such that *John walk for an hour* is true at an interval  $i$  if and only if the duration of  $i$  is an hour and every cell  $j \in R_i^{\text{inf}}$  (a member of the regular partition  $R$  of  $i$ ) COINcides with an event  $e$  of John walking (D&P 2010: 306).

D&P argue that for the iterative reading to arise the partition measure must be set to a non-infinitesimal value. The value of the partition measure will depend on sentential and extra-sentential context, the predicate's temporal structure and the length of the measure interval.

In (30), I provide D&P's sample derivation of a sentence with a *for*-adverbial giving an iterative reading (D&P 2011: 307):

- (30) a. John biked to Whole Foods for three years.
- b.  $[[\text{for three years}]] = \lambda P \lambda i[\text{time}(i) = 3 \text{ years} \wedge \forall j[j \in R_i^c \rightarrow \text{COIN}(P, j)]]$
- c.  $[[\text{John bike to Whole Foods}]] = \lambda e[\text{bike}(e) \wedge \text{ag}(e, \text{John}) \wedge \text{th}(e, \text{Whole Foods})]$
- d.  $[[\text{for three years}(\text{John bike to Whole Foods})]] = \lambda P \lambda i[\text{time}(i) = 3 \text{ years} \wedge$   
 $\forall j[j \in R_i^c \rightarrow \text{COIN}(P, j)]] (\lambda e[\text{bike}(e) \wedge \text{ag}(e, \text{John}) \wedge \text{th}(e, \text{Whole Foods})])$

$$= \lambda i[\text{time}(i) = 3 \text{ years} \wedge \forall j[j \in R_i^c \rightarrow \exists e[\text{bike}(e) \wedge \text{ag}(e, \text{John}) \wedge \text{th}(e, \text{Whole Foods}) \wedge \tau(e) \circ j]]]$$

The interpretation of *John biked to Whole Foods for three years* is the interpretation of the formula in (30d), such that *John bike to Whole Foods for three years* is true at an interval  $i$  if and only if the duration of  $i$  is three years and every cell  $j \in R_i^c$  (a member of the regular partition  $R$  of  $i$ ) COINCides with an event  $e$  of John biking to Whole Foods (D&P 2010: 306). The difference between the continuous and the iterative readings is that in the latter the partition measure is set by context  $c$ , given that the length of the interval denoted by the for-adverbial *three years* (i.e., the measuring interval) is large compared to the duration of a single event of biking to Whole Foods. This length allows partitioning the measuring interval such that the iterative readings arise.

#### 5.2.4 Conclusions

Sections 5.2.1 and 5.2.2 showed that both Lasersohn's and van Geenhoven's analyses of verbal pluractionals correctly capture the pluractional properties of *GaSP*. Yet, there is one shortcoming to both accounts. In their formal characterization of the semantics of pluractional markers they include the temporal gaps between every two intervals at which an eventuality occurs by assertion. In contrast to Lasersohn's and van Geenhoven's characterization of pluractionality, in D&P's analysis the existence of temporal gaps falls out from the interaction between the duration of the events, the length of the measuring interval, and context. D&P's analysis is less stipulative and brings out the relation between pluractionality, iterativity and imperfectives.

### 5.3 Analysis of *GaSP*: Deriving event plurality through interval partitions

I adopt D&P's partition-based universal quantifier analysis of *for*-adverbials and show that it accounts for temporal distribution of plural events rather than just for the semantics of *for*-adverbials (as well as progressive and imperfective). Even though *for*-adverbials and *GaSP* are different constructions from different languages, both have similar distributive properties; they temporally distribute eventualities across a relevant time interval. My account of *GaSP* draws on D&P's analysis in that I analyze *GaSP* as a construction containing a weak universal quantifier. The domain of the *GaSP* quantifier is the reference time interval and the restriction is a partition of the reference time interval. As discussed in section 5.3, weak quantification makes the truth conditions of a universal quantifier less strong allowing quantification over relevant parts of the measuring interval. The adoption of the notion of weak quantification in accounting for the semantics of *GaSP* enables the distribution of eventualities over the relevant subintervals of the reference time.

Even though I adopt D&P's quantifier analysis, it needs some revisions to ensure that it makes the right predictions about the pluractional properties of *GaSP*.

As pointed out in section 5.2.3, D&P argue that *for*-adverbials (and imperfective aspect) require the regular instantiation of a predicate across an interval. On the basis of this observation, they propose that the domain of the universal quantifier is a regular partition of the measuring interval. That is, the cells of the partition (i.e. the set of subintervals of the measuring interval) have the same length and the predicate is

instantiated at each of these cells. In contrast to D&P analysis, in which the domain of the universal quantifier is a regular partition of the measuring interval, the domain of the universal quantifier in *GaSP* is a partition of the reference time interval whose measure remains unspecified. The partition measure becomes specified only by intra- or extra-sentential contextual information. The motivation for leaving the partition measure unspecified is empirical. Examples (31) and (32) illustrate:

(31) Context: The opera season goes between May and October. Paula has sung on May 15<sup>th</sup>, on July 7<sup>th</sup> and 18<sup>th</sup>, and on October 21<sup>st</sup>.

Esta	temporada	Paula	tiene	cantado	poco.
this	season	Paula	have:PRS.3SG	sing:PTCP	little

‘This season Paula has sung little.’

(32) Context: The opera season goes between May and October. Paula has sung twice a week at different venues.

Esta	temporada	Paula	tiene	cantado	con	regularidad.
this	season	Paula	have:PRS.3SG	sing:PTCP	with	regularity

‘This season Paula has sung regularly.’

In (31) the events of Paula singing are not regularly distributed across the interval that stretches from May to October. If the partition measure were equimeasured then an event of Paula singing would have to coincide with each partition, which would make regular the distribution of the events. Letting the length of each cell be different allows differing lengths for the gaps between each event. In (32) the adverbial *con regularidad* ‘regularly’ makes the partition measure to be equimeasured since the events are regularly distributed.

In order to block continuous readings in *GaSP* sentences D&P’s analysis needs to be refined. In their analysis the length of the cells could be set to an infinitesimal value

and a sentence like (33) would come out true in the continuous reading because the predicate would hold at all subintervals of the reference time interval.

(33) Context: Paula has lived in London continuously for a whole year.

% Paula tiene vivido en Londres.  
 Paula have:PRS.3SG live:PTCP in London  
 ‘Paula has lived in London.’

To avoid continuous readings in *GaSP* sentences, my analysis requires the partition measure not to be set at infinitesimal values, which will ensure that the predicate do not hold at all subintervals  $j$  of the reference time interval down to an infinitesimal value.

### 5.3.1 The analysis

Following Deo & Piñango’s (2010) analysis of *for*-adverbials, sentence radicals are predicates of eventualities built from lexical predicates with their non-eventuality arguments saturated (i.e., subject, object) (cf. section 5.2.3).

The basic ontology follows D&P’s definitions in (28) except clause (28c), which sets the subsets of  $i$  as equimeasured.

For any interval  $i \in I$ , a *partition*  $R$  of  $i$ ,  $R_i$ , is the set of non-empty collectively exhaustive, mutually exclusive subsets of  $i$ , as defined in 35):

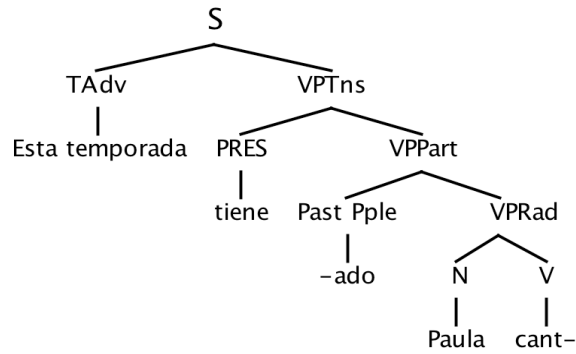
(35)  $R_i$  is a partition of  $i$  if  $R_i$  is a set of intervals  $\{j, k..n\}$  such that

- |  |                         |
|--|-------------------------|
| a. $\cup\{j, k, ..n\} = i$                                       | Collectively exhaustive |
| b. $\forall j, k \in R_i \rightarrow j \cap k = 0$ if $j \neq k$ | Mutually exclusive      |

Clause (28c) is excluded because in contrast to D&P’s analysis of *for*-adverbials, the partition measure does not have to be equimeasured, which was motivated above.

In section 5.1 I presented the structure of the sample sentence in (2) that corresponds to the way the constituents are combined. I repeat the sentence and the tree in (36) below:

- (36) Esta temporada Paula tiene cantado.  
 this season Paula have:PRS.3SG sing:PTCP  
 ‘This season Paula has sung repeatedly.’



(37) Translation derivation of (36):

1. Paula =  $p_e$

The noun *Paula* of syntactic category N is translated into the lamda calculus as the constant  $p$  of type  $e$  (for individuals).

2. cant- =  $\text{sing}'$

The verb root *cant-* ‘sing-’ of syntactic category V is translated as the constant  $\text{sing}'$  of type  $\langle e, \langle ev, t \rangle \rangle$ . It is interpreted as a function from individuals to a function from eventualities to truth-values.

3. Paula cant- ‘Paula sing’ =  $\text{sing}'(p)$

The combination of the translations of the subject nominal argument in 1 and the verb root in 2 returns the translation of the  $VP_{Rad}$  *Paula cant-* ‘Paula sing-’ in 3.

The translation of *Paula cant-* is the formula  $\text{sing}'(p)$  of type  $\langle ev, t \rangle$ . The formula denotes a function from eventualities to truth-values  $\{0, 1\}$ , such that an eventuality is mapped to 1 if it is an eventuality of Paula singing, and to 0 otherwise.

$$4. \text{ -ado 'PTCP'} = \lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subset j])]$$

The translation of the past participle *-ado* ‘PTCP’ is the formula in 4, of type  $\langle \langle ev, t \rangle, \langle i, t \rangle, \langle i, t \rangle \rangle$ . The interpretation of the formula is a function from predicates over eventualities  $P_{\langle ev, t \rangle}$  to a function from intervals  $R_{\langle i, t \rangle}$  (a partition) to a function from intervals  $I$  to truth-values, such that for every cell  $j$ , a member of the partition  $R$  of the interval  $I$  in the meaning of the  $VP_{Part}$ , the runtimes of the eventualities denoted by the predicate are proper subintervals of the intervals  $j$ . The superscript  $c$  on  $R$  indicates that the partition of  $I$  is context dependent and it can be set by co-occurring frequency adverbials (cf. section 5.4) or by extra-linguistic context (cf. chapter 3, section 3.4.3).

5. Paula cantado ‘Paula sing:PTCP’

$$a. = \lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subset j])](\text{sing}'(p))$$

$$b. = \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]$$

The translation of the participial verb phrase  $VP_{Part}$  is the formula derived by combining the translation of the past participial *-ado* ‘PTCP’, the formula in (37-4), with the translation of the  $VP_{Rad}$  *Paula cant-* ‘Paula sing’, the formula in (37-3b).

The interpretation of the expression *Paula cantado* ‘Paula sing:PTCP,’ of type  $\langle \langle i, t \rangle, \langle i, t \rangle \rangle$ ,



$t\rangle\rangle$ , is the interpretation of the formula in (37-5b): a function from sets of intervals  $R$  (a partition of the interval  $I$ ) to a function from intervals  $I$  to truth-values, such that the formula returns 1 if and only if there is an eventuality of Paula singing properly included in every cell  $j$  of the partition  $R$  of  $I$ . The runtime of each eventuality of Paula singing is a proper subinterval of each cell.

6. *tiene* ‘have:PRS.3SG’

$$= \lambda S_{\langle i, p, \langle i, p \rangle} \lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[S(R)(I)]]$$

The translation of the auxiliary in the present tense *tiene* is the formula in (37-6), of type  $\langle\langle\langle i, t \rangle, \langle i, t \rangle\rangle, \langle i, t \rangle\rangle$ . The interpretation of the formula is a function from the semantic type of a  $\text{VP}_{\text{part}}$  (i.e.,  $S_{\langle i, p, \langle i, p \rangle}$ ) to a function from intervals  $I$  to truth-values.

The first conjunct of the formula (where *now* is a free variable of type  $i$  for the time of utterance whose value is given by the context of utterance) says that *now* is a final proper subinterval of the interval  $I$ ; the second conjunct says that the length of the interval  $I$  is equal or greater than two days; the third conjunct says that there is a partition  $R$  in the meaning of the  $\text{VP}_{\text{part}}$  such that the predicate  $S$  applies to the partition of the interval  $I$ .

The partition  $R$  is existentially bound to allow co-occurring frequency adverbials to quantify over it to specify the relative length of the partition measure. This will be modeled in section 5.4.

The present tensed auxiliary *tiene* ‘have:PRS.3SG’ conveys the relation between the reference time interval and the time of utterance and the condition on the length of the reference time interval (cf. chapter 2).

7. Paula *tiene cantado* ‘Paula have:PRS.3SG sing:PTCP’

- a. =  $\lambda S_{\langle i, t, i, t \rangle} \lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[S(R)(I)] (\lambda R \lambda I [\forall j(j \in R_i^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subseteq j])])]$
- b. =  $\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\lambda R \lambda I [\forall j(j \in R_i^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subseteq j])](R)(I)]]$
- c. =  $\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\forall j(j \in R_i^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subseteq j])]]$

The translation of the tensed verb phrase  $\text{VP}_{\text{Tns}}$  is the formula in (37-7c) after beta reduction. The formula in (37-7c) is derived from combining the translation of the present tensed auxiliary *tiene* ‘have:PRS.3SG’, of type  $\langle \langle i, t \rangle, \langle i, t \rangle \rangle, \langle i, t \rangle$  and the translation of the  $\text{VP}_{\text{part}}$  *Paula cantado* ‘Paula sing:PTCP’, of type  $\langle \langle i, t \rangle, \langle i, t \rangle \rangle$  to return the formula in (37-7c) of type  $\langle i, t \rangle$  by beta reduction. The present tensed auxiliary *tiene* takes the translation of the  $\text{VP}_{\text{part}}$  and an interval  $I$  and specifies that the time of utterance *now* is a final subinterval of  $I$ , and that the length of  $I$  is equal to or greater than two days, and asserts the existence of a regular partition on the meaning of the  $\text{VP}_{\text{part}}$ .

8. Esta temporada ‘this-season’

$$= \lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$$

The translation of the indexical frame adverbial *esta temporada* ‘this-season’ is the formula in (37-8), of type  $\langle \langle i, t \rangle, t \rangle$ . The interpretation of the formula is a function from predicates over intervals to truth-values. The formula says that the predicate  $P$  applies to the reference time interval  $I_R$  and that  $I_R$  is a subinterval of the interval  $i$  denoted by *esta temporada* ‘this season’.

9. Esta temporada Paula tiene cantado ‘this season Paula have:PRS.3SG sing:PTCP’

- a. =  $\lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i] (\lambda M [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days}$   
 $\wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]])$
- b. =  $\exists I_R \exists i [\lambda M [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev)$   
 $\wedge \tau(ev) \subset j])]](I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$
- c. =  $\exists I_R \exists i [\text{now} \subseteq_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev)$   
 $\wedge \tau(ev) \subset j])] \wedge \text{this-season}(i) \wedge I_R \subseteq i]$

The translation of the sentence *Esta temporada Paula tiene cantado* ‘this season Paula have:PRS.3SG sing:PTCP’ is the formula in (37-9c), of type  $t$ . (37-9c) is derived by combining the translation of the frame adverbial *esta temporada* ‘this season’, of type  $\langle \langle i, t \rangle, t \rangle$ , with the translation of the tensed verb phrase  $\text{VP}_{\text{Tns}}$ , of type  $\langle i, t \rangle$ , to return an expression of type  $t$  by beta reduction. The formula in (37-9c) is true if and only if there is an interval  $I_R$  that is the reference time interval and there is another interval  $i$  that is the denotation of *this-season* and the time of utterance *now* is a final subinterval of  $I_R$  and the length of  $I_R$  is equal to or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$  of  $I_R$  there is an eventuality  $ev$  of Paula singing, and the eventuality time of  $ev$  is a proper subinterval of  $j$  and  $I_R$  is a subset of the interval  $i$ .

Section 5.4 will show that this analysis makes the right predictions about the empirical generalizations presented in section 1.

### 5.3.2 Covert frame adverbials

In the absence of an overt frame adverbial constraining the reference time, I posit the existence of a phonologically zero-morpheme frame adverbial, of type  $\langle\langle i, t \rangle, t\rangle$ . The motivation for positing a covert frame adverbial is given by *GaSP* sentences that do not contain an overt frame adverbial; they existentially bind the reference time. Consider the sample sentence without the frame adverbial *esta temporada* ‘this season’.

- (38) a. Paula tiene cantado.  
           Paula have:PRS.3SG sing:PTCP  
           ‘Paula has sung repeatedly.’

$$\text{b. } \lambda I[\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\forall j(j \in R_I^C \rightarrow \exists ev[\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]]$$

The semantic type of the translation of the  $\text{VP}_{\text{Tns}}$  is  $\langle i, t \rangle$ , as shown in (38b). For the derivation to be complete the type of the formula would have to be  $t$ , the semantic type of a sentence. The formula in (38b) is an open formula because it still has the lambda operator binding the variable  $I$ . Positing a phonologically-zero frame adverbial overcomes the type problem and the derivation can be completed, as illustrated in (39). In (39) the zero adverbial is translated into the formula of type  $\langle\langle i, t \rangle, t\rangle$ , and its interpretation is a function from a function from intervals to truth-values to truth-values. The formula in (39) asserts the existence of the reference time interval:

$$(39) \emptyset \text{ ‘TAdv’} = \lambda P_{\langle i, p \rangle} \exists I_R[P(I_R)]$$

In (40) the derivation is done by applying the translation of the zero frame adverbial to the translation of the  $\text{VP}_{\text{Tns}}$ :

- (40) a. =  $\lambda P_{(i,t)} \exists I_R [P(I_R)] (\lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow$   
 $\exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])])])$
- b. =  $\exists I_R [\lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow$   
 $\exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])])] (I_R)]$
- c. =  $\exists I_R [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_{I_R}^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge$   
 $\tau(ev) \subset j])])]$

The formula in (40c) is derived by beta reduction; all the occurrences of the free variable  $I$  are replaced by  $I_R$ . The semantic type of (40c) is  $t$ . The formula in (40c) says that there is a reference time interval of which the time of utterance is a final subinterval, and that the length of the reference time interval is equal to or greater than 48 hours and there is a partition  $R$  such that for every interval  $j$  member of the partition  $R$  of the reference time interval  $I$  there is an event of Paula singing whose temporal trace is properly included in  $j$ . The formula in (40c) correctly captures the semantic contribution of *GaSP*.

## 5.4 Predictions of the analysis of *GaSP*

This section illustrates that my analysis of *GaSP* makes the right predictions. The empirical generalizations from chapters 2, 3 and 4 should fall out from the proposed analysis.

#### 5.4.1. The relation between reference time and utterance time in *GaSP*

The analysis of the present tensed *tiene* ‘have:PRS.3SG’ that specifies the temporal relation between the reference time and the time of utterance (now  $\subset_{\text{final}} I_R$ ) correctly predicts the incompatibility of *GaSP* with frame adverbials denoting intervals that do not include the utterance time, and with intervals that have in their denotation the time of utterance as an initial subinterval, since these adverbials constrain the reference time interval. The following derivation with the past time denoting frame adverbial *el año pasado* ‘last-year’ illustrates how the meaning of the adverbial clashes with the meaning of the present tense *tiene* ‘have:PRS.3SG’ in *GaSP*. *El año pasado* ‘last year’ denotes a year-long interval which is located before the year that includes the time of utterance.

$$(41) \text{El año pasado ‘last-year’} = \lambda P_{\langle i, t, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{last-year}(i) \wedge I_R \subseteq i]$$

The translation of *el año pasado* ‘last year’ is the formula in (41), of type  $\langle\langle i, t \rangle, t\rangle$ . The interpretation of the formula is a function from all the intervals in  $I$  to truth values. The frame adverbial denotes an interval that temporally precedes the time of utterance and the reference time is a subset of the interval denoted by the adverbial, ( $I_R \subseteq i$ ).

$$(42) \text{El año pasado Paula tiene cantado ‘last-year Paula have:PRS.3SG sing:PTCP’}$$

$$1. \text{ El año pasado ‘last-year’} = \lambda P_{\langle i, t, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{last-year}(i) \wedge I_R \subseteq i]$$

$$2. \text{ Paula tiene cantado ‘Paula have:PRS.3SG sing:PTCP’}$$

$$= \lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]]$$

3. =  $\lambda P_{\langle i, D, D \rangle} \exists I_R \exists i [P(I_R) \wedge \text{last-year}(i) \wedge I_R \subseteq i] (\lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge$   
 $\exists R [\forall j (j \in R_i^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])])]$
4. =  $\exists I_R \exists i [\lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_i^C \rightarrow \exists ev$   
 $[\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]] (I_R) \wedge \text{last-year}(i) \wedge I_R \subseteq i]$
5. =  $\exists I_R \exists i [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_R^C \rightarrow \exists ev [\text{sing}'(p, ev)$   
 $\wedge \tau(ev) \subset j])]] \wedge \text{last-year}(i) \wedge I_R \subseteq i]$

In (42-5), the formula says that there is an interval  $I_R$  that is the reference time interval and that there is an interval  $i$  such that the time of utterance is a final subinterval of  $I_R$  and the length of  $I_R$  is equal to or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$  of  $I_R$  there is an eventuality  $ev$  of Paula singing, and the eventuality time of  $ev$  is a proper subinterval of  $j$  and  $I_R$  is a subset of the interval  $i$  denoted by *el año pasado* ‘last-year’.

The problem with the derivation is that the meaning of the frame adverbial clashes with the meaning of the present tensed auxiliary *tiene* ( $\text{now} \subset_{\text{final}} I$ ). Namely, the reference time interval cannot be a subset of a time interval that precedes the time of utterance and at the same time have the utterance time as its final proper subinterval.

#### 5.4.2 The length of the reference time

The analysis of the present tense *tiene* ‘have:PRS.3SG’, which sets the minimal length of the reference time interval to roughly two days ( $\text{length}(I_R) \geq 2\text{-days}$ ) will rule

out the occurrence of indexical frame adverbials denoting intervals shorter than two days, as illustrated in (43).

(43) Hoy Paula tiene cantado ‘today Paula have:PRS.3SG sing:PTCP’

1. Hoy ‘today’ =  $\lambda P_{\langle i, t, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{today}(i) \wedge I_R \subseteq i]$
2. Paula tiene cantado ‘Paula have:PRS.3SG sing:PTCP’  

$$= \lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq \text{2-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]]]$$
3. Hoy Paula tiene cantado ‘today Paula have:PRS.3SG sing:PTCP’
  - a. =  $\lambda P_{\langle i, t, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{today}(i) \wedge I_R \subseteq i] (\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq \text{2-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]])]$
  - b. =  $\exists I_R \exists i [\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq \text{2-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]] (I_R) \wedge \text{today}(i) \wedge I_R \subseteq i]$
  - c. =  $\exists I_R \exists i [\text{now} \subseteq_{\text{final}} I_R \wedge \underline{\text{length}(I_R) \geq \text{2-days}} \wedge \exists R [\forall j (j \in R_{I_R}^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])] \wedge \underline{\text{today}(i)} \wedge \underline{I_R \subseteq i}]$

In 3c, the formula says that there is an interval  $I_R$ , the reference time interval, and an interval  $i$  such that the time of utterance is a final subinterval of  $I_R$  and the length of  $I_R$  is equal or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$  of  $I_R$  there is an eventuality  $ev$  of Paula singing, and the eventuality time of  $ev$  is a proper subinterval of  $j$ , and  $I_R$  is a subset of the interval  $i$  denoted by *el año pasado* ‘last-year’.

There is a clash in the derivation between the semantics of the reference time and the semantics of the frame adverbial *hoy* ‘today’. The length of the reference time interval  $I_R$



is greater than the length of the interval  $i$  denoted by *hoy* ‘today’ of which  $I_R$  is a subinterval by the condition ( $I_R \subseteq i$ ).

### 5.4.3 Iterativity in *GaSP*

In D&P’s analysis of *for*-adverbials, setting the regular partition of the measuring interval to intervals of infinitesimal value (i.e.,  $R_I^{Inf}$ ) allows the continuous readings to arise. In order to avoid ongoing readings of single eventualities in *GaSP* sentences, I proposed that the partition  $R$  of the reference time interval were not set at infinitesimal values and posited the proper inclusion relation between the eventuality time of each subevent and each subinterval  $j$  of the reference time in the meaning of the past participle in *GaSP* (i.e.,  $\tau(ev) \subset j$ ). The proper inclusion relation ensures that there is a temporal gap between every two eventualities. The temporal distribution with gaps of the eventualities denoted by the *GaSP* predicate was accounted for in the derivation of the sample sentence, repeated in (44):

$$(44) \exists I_R \exists i [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq \text{2-days} \wedge \underline{\exists R [\forall j (j \in R_{I_R}^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]} \wedge I_R \subseteq i]$$

The underlined section of the formula in (44) says that there is a partition  $R$  of the reference time interval  $I_R$  and that for every interval  $j$  member of the partition there is an event of Paula singing and the temporal trace of each eventuality of Paula singing is a proper subinterval of  $j$ . The figure in (45) illustrates the temporal distribution with gaps of the events of Paula singing. There is a partition (a set of disjoint intervals) whose

union is the reference time interval, and the eventuality times of the eventualities of Paula singing are properly included in each cell:

$$(45) \quad | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} | \text{---} \text{O} \text{---} |$$

$$\tau(ev) \quad \tau(ev) \quad \tau(ev) \quad \tau(ev) \quad \tau(ev) \quad \tau(ev) \quad \tau(ev)$$

## 5.5 Iterative, frequency, and non-indexical frame adverbials

This section is concerned with the interaction of frequency, iterative, and non-indexical frame adverbials with *GaSP*. I discuss their semantic contribution in *GaSP* sentences.

### 5.5.1 Iterative and frequency adverbials

The literature distinguishes between iterative and frequency adverbials based on their semantic contrast (see de Swart 1993: 26-27, and references therein; Lenci & Bertinetto 1995). Iterative cardinal adverbs (e.g., *two times*, *several times*, *few/many times*) serve to specify the cardinality of a set of eventualities, giving their totality (implicitly or explicitly). They are modifiers of event predicates (Krifka 1989, Ogihara 1995). *GaSP* is compatible with vague (or indefinite) cardinal adverbials but incompatible with exact cardinal adverbials (cf. chapter 3, section 3.3). In *GaSP* sentences, vague cardinal adverbials modify the  $VP_{Rad}$ , of type  $\langle ev, t \rangle$ . Iterative adverbials are then of type  $\langle \langle ev, t \rangle, \langle ev, t \rangle \rangle$ , and denote functions from sets of eventualities to sets of eventualities. Iterative adverbials like *varias veces* ‘several times’ and *pocas veces* ‘a few

times’ combine with the  $VP_{Rad}$ . In a *GasP* sentence like the one in (46), the denotation of the iterative cardinal adverbial *varias veces* ‘several times’ takes the denotation of the  $VP_{Rad}$  ‘*Paula cant-*’ ‘Paula sing’ and returns a set of eventualities whose cardinality is more than one.

- (46) *Estate temporada Paula tiene cantado varias veces.*  
 this season Paula have:PRS.3SG sing:PTCP several times  
 ‘This season Paula has sang several times.’

The translation of *varias veces* ‘several times’ is given in (47) below:

$$(47) \text{ varias veces ‘several times’} = \lambda Q_{\langle ev, t \rangle, \langle ev, t \rangle} \lambda ev [Q(ev) \wedge |ev| > 1]$$

The translation in (47), of type  $\langle \langle ev, t \rangle, \langle ev, t \rangle \rangle$ , is a function from predicates over eventualities to another function from predicates over eventualities. The formula in (47) says that the predicate  $Q$  applies to eventualities and that the cardinality of the eventualities is higher than one.

In (48) I provide the derivation of the sample sentence with the iterative adverbial *varias veces* ‘several times’:

$$(48) \text{ Esta temporada Paula tiene cantado varias veces ‘Paula sing several times’} =$$

1.  $\text{varias veces ‘several times’} = \lambda Q_{\langle ev, t \rangle, \langle ev, t \rangle} \lambda ev [Q(ev) \wedge |ev| > 1]$
2.  $\text{Paula cant- ‘Paula sing’} = \text{sing}'(p)$
3.  $\text{Paula cant- varias veces ‘Paula sing several times’} =$ 
  - a.  $\lambda Q_{\langle ev, t \rangle, \langle ev, t \rangle} \lambda ev [Q(ev) \wedge |ev| > 1] (\text{sing}'(p))$
  - b.  $\lambda ev [\text{sing}'(p)(ev) \wedge |ev| > 1]$

The formula in 3b, of type  $\langle ev, t \rangle$ , denotes a function from eventualities to truth values, such that the predicate  $Q$  is true if there is more than one eventuality of Paula singing.

4. -ado ‘PTCP’ =  $\lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subset j])]$
5. Paula cantado varias veces ‘Paula sing:PTCP several times’
- a. =  $\lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subset j]) (\lambda ev [\text{sing}'(p)(ev) \wedge |ev| > 1])]$
- b. =  $\lambda R_{\langle i, t \rangle} \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [\lambda ev [\text{sing}'(p)(ev) \wedge |ev| > 1](ev) \wedge \tau(ev) \subset j])]$
- c. =  $\lambda R_{\langle i, t \rangle} \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])]$
6. tiene ‘have:PRS.3SG’
- =  $\lambda S_{\langle i, t, \langle i, t \rangle \rangle} \lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [S(R)(I)]]$
7. Paula tiene cantado varias veces ‘Paula have:PRS.3SG sing:PTCP several times’
- a. =  $\lambda S_{\langle i, t, \langle i, t \rangle \rangle} \lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [S(R)(I)]] (\lambda R \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])])]$
- b. =  $\lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\lambda R \lambda M_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])](R)(I)]]]$
- c. =  $\lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])]]]$
8. Esta temporada ‘this season’ =  $\lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$
9. Esta temporada Paula tiene cantado varias veces ‘This season Paula have:PRS.3SG sing:PTCP several times’
- a. =  $\lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i] (\lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])]])]$
- b. =  $\exists I_R \exists i [\lambda M_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p)(ev) \wedge |ev| > 1 \wedge \tau(ev) \subset j])]] (I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$

$$\begin{aligned}
c. = & \exists I_R \exists i [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R \xrightarrow{C} \exists ev [\text{sing}'(p)(ev) \\
& \wedge |ev| > 1 \wedge \tau(ev) \subset j])] \wedge \text{this-season}(i) \wedge I_R \subseteq i]
\end{aligned}$$

The translation of the sentence *Esta temporada Paula tiene cantado varias veces* ‘this season Paula have:PRS.3SG sing:PTCP several times’ is the formula in 9c, of type *t*. The formula in 9c is true if and only if there is an interval  $I_R$  that is the reference time interval and there is another interval  $i$  that is the denotation of *this-season* and the time of utterance *now* is a final subinterval of  $I_R$  and the length of  $I_R$  is equal to or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$  of  $I_R$  there is an eventuality  $ev$  of Paula singing, and the cardinality of  $ev$  is higher than one, and the eventuality time of  $ev$  is a proper subinterval of  $j$  and  $I_R$  is a subset of the interval  $i$ .

Frequency adverbials (e.g., *sometimes*, *often*) do not count eventualities in a strict sense. Instead, frequency adverbs are adverbs of quantification; they quantify over sets of intervals and return sets of intervals within which the quantificational relation holds (Deo 2010: 497). In *GaSP* sentences, frequency adverbials quantify over the reference time interval and return a set of subintervals within which the eventuality times of the denoted eventualities are properly included. In the syntax of a *GaSP* sentence frequency adverbials are sisters of the  $VP_{\text{part}}$ . The specific partitions of the reference time interval will depend on the denotation of particular frequency adverbials occurring in a *GaSP* sentence. Frequency adverbials partition the reference time interval  $I$  into disjoint subintervals  $j$  such that their length depends on the interaction between the meaning of a particular adverbial and the length of the reference time interval. Frequency adverbials specify the relative number of subintervals  $j$ . For instance, an adverbial like *con*

*frecuencia* ‘frequently’ will partition  $I$  into many subintervals  $j$  such that their number is high with respect to a contextually given norm or standard  $n$ , whereas *raramente* ‘rarely’ partitions  $I$  into fewer subintervals  $j$  such that their number is small with respect to a contextually given standard  $n$ . The semantic type of frequency adverbials is  $\langle\langle i, t \rangle, \langle i, t \rangle\rangle$ ,  $\langle\langle i, t \rangle, \langle i, t \rangle\rangle$ . In (49), the  $VP_{\text{part}}$  *Paula cantado con frecuencia* ‘Paula sing:PTCP frequently’ is derived by applying the denotation of the frequency adverbial to the denotation of the participial verb phrase, such that the resulting participial phrase is of the same type as the input participial verb phrase, i.e.,  $\langle\langle i, t \rangle, \langle i, t \rangle\rangle$ .

(49) Esta temporada Paula tiene cantado con frecuencia.  
 this season Paula have:PST.3SG sing:PTCP with frequency  
 ‘This season Paula has sung frequently.’

1. Paula cantado ‘Paula sing:PTCP’

$$= \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])]$$

2. con frecuencia ‘frequently’ =  $\lambda Q_{\langle i, t \rangle, \langle i, t \rangle} \lambda R_{\langle i, t \rangle} \lambda I_i [Q(R)(I) \wedge |R_I^C| > n]$

The frequency adverbial operates on the partition  $R$  of  $I$  and says that the cardinality of the partition is higher than a contextually given number  $n$ . Suppose that Paula has had more shows this season than last year’s. Then the standard of comparison  $n$  would be retrieved from the frequency of Paula singing last year. The number of partitions within which Paula has sung this year is higher than the number of partitions of last year.

3. Paula cantado con frecuencia ‘Paula sing:PTCP frequently’

$$\begin{aligned} \text{a.} = & \lambda Q \lambda R \lambda I [\lambda Q(R)(I) \wedge |R_I^C| > n] (\lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \\ & \tau(ev) \subset j])]) \end{aligned}$$

$$\text{b.} = \lambda R \lambda I [\lambda R \lambda I [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j])] (R)(I) \wedge |R_I^C| > n]$$

- c. =  $\lambda R \lambda I [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n]$
4. tiene ‘have:PRS.3SG’ =  $\lambda S \lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [S(R)(I)]]$
5. Paula tiene cantado con frecuencia ‘Paula have:PRS.3SG sing:PTCP frequently’
- a. =  $\lambda S \lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [S(R)(I)]] (\lambda R \lambda I [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n])$
- b. =  $\lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\lambda R \lambda I [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n] (R)(I)]]$
- c. =  $\lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n]]$
6. Esta temporada ‘this-season’ =  $\lambda P_{i,v} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$
7. Esta temporada Paula tiene cantado con frecuencia  
‘this season Paula have:PRS.3SG sing:PTCP frequently’
- a. =  $\lambda P \exists I \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i] (\lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n]])$
- b. =  $\exists I \exists i [\lambda I [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_I^C| > n]] (I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$
- c. =  $\exists I \exists i [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_{I_R}^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \tau(ev) \subset j]) \wedge |R_{I_R}^C| > n] \wedge \text{this-season}(i) \wedge I_R \subseteq i]$

The formula in 7c says that there is an interval  $I_R$  that is the reference time interval and there is another interval  $i$  that is the denotation of *this-season* and the time of utterance *now* is a final subinterval of  $I_R$  and the length of  $I_R$  is equal to or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$

of  $I_R$  there is an eventuality  $ev$  of Paula singing, and the cardinality of the partition  $R$  of  $I_R$  is higher than a standard of comparison  $n$ , and the eventuality time of  $ev$  is a proper subinterval of  $j$  and  $I_R$  is a subset of the interval  $i$ .

In contrast to *con frecuencia* ‘frequently’, the standard of comparison  $n$  of an adverb like *raramente* ‘rarely’ would be reversed, as illustrated in (50):

$$(50) \text{raramente ‘rarely’} = \lambda Q_{\langle i, v, \langle i, v \rangle \rangle} \lambda R_{\langle i, v \rangle} \lambda I_i [Q(R)(I) \wedge |R_I^C| < n]$$

The last conjunct  $|R_I^C| < n$  says that the number of partitions of  $R$  is smaller than a standard  $n$  retrievable from context.

Other frequency adverbials explicitly count eventualities relative to a unit of time. These are expressions in which an iterative adverb is embedded in a frequency expression, and are of the form ‘ $x$  times  $a$  time-unit’, as illustrated by *tres veces por semana* ‘three times a week’ in (51a).<sup>47</sup> The frequency adverbial partitions the reference time into regular, equimesured partitions of a week-length that are *semana* ‘week’ and there are three occurrences of Paula singing within each week interval.

Degree adverbials like *mucho* ‘a lot’ or *poco* ‘little’ behave as frequency adverbials in that they give a frequency relative to a norm  $n$  with respect to a time interval  $I$ , as exemplified by (51b).<sup>48</sup>

<sup>47</sup> Frequency adverbials of the form ‘ $x$  times  $a$  time-unit’ have been referred to as *constructions of pure frequency* (Móia 2000: 10) or *distributive expressions* (Hofherr et al. 2010: 83).

<sup>48</sup> Abeillé et al. (2004: 187) argue that in French degree quantifiers “are interpreted with respect to a scale provided by the expression they modify”. Thus the interpretations of degree quantifiers are variable because they can involve amounts (i), numbers (ii), or scales of intensity (iii) (examples in p. 186).

- (i) Il a plu souvent, mais il n’a pas plu beaucoup  
‘It rained often, but it did not rain a lot’
- (ii) a. Jean va beaucoup au cinéma  
b. Jean va souvent au cinéma  
‘Jean goes to the movies a lot/ goes often to the movies’
- (iii) a. Jean a beaucoup apprécié ses conseils  
‘Jean appreciated his advice a lot’



- (51) a. Esta temporada P. tiene cantado tres veces por semana.  
 this season P. have:PRS.3SG sing:PTCP 3 times per week  
 ‘This season Paula has sung three times per week.’
- b. Esta temporada P. tiene cantado mucho.  
 this season P. have:PRS.3SG sing:PTCP much  
 ‘This season Paula has sung a lot.’

The semantics of degree adverbials like *mucho* ‘much’ and *poco* ‘little’ are similar to the semantics of frequency adverbials *con frecuencia* ‘frequently’ and *raramente* ‘rarely’, given in (49-2) and (50) respectively.

### 5.5.2 Non-indexical locating adverbials

Non-indexical locating adverbials were classified in chapter 2 as adverbials that locate eventualities temporally. The intervals they denote are not indexed to the time of utterance or to any other time interval. Non-indexical adverbials may include expressions denoting chronological time or periods of the day (e.g., *por la mañana* ‘in the morning,’ *a las seis* ‘at six’). In *GaSP* sentences non-indexical adverbials specify the temporal location of each subevent. In (52), each eventuality of Paula singing is located at a time within the interval denoted by *por la mañana* ‘in the morning.’

- 
- b. Jean a souvent apprécié ses conseils  
 ‘Jean often appreciated his advice’

I am only concerned with degree quantifiers when they quantify over intervals. To avoid confusion, I provide examples that are not structurally ambiguous, like (iv), which is ambiguous between a count (b) and a degree (a) interpretation:

- (iv) Este año tiene llovido mucho.  
 this year have:PST.3SG rain:PTCP much  
 ‘This year it has rained a lot.’

- a. This year for each occasion in which rained it rained a lot.  
 b. This year it rained many times or very frequently (regardless of the amount of rain).

- (52) Estatemporada Paula tiene cantado por la mañana.  
 this season Paula have:PRS.3SG sing:PTCP for the morning  
 ‘This season Paula has sung repeatedly in the morning.’

In the analysis, these adverbials denote sets of intervals and combine with the verb root, illustrated in (53).

- (53) cant- por la mañana ‘sing in the morning’

The translation of the adverbial expression *por la mañana* ‘in the morning’ is the formula in 1, of type  $\langle\langle e, \langle ev, t \rangle \rangle, \langle e, \langle ev, t \rangle \rangle\rangle$ :

1. *por la mañana* ‘in the morning’ =  $\lambda P_{\langle e, \langle ev, t \rangle \rangle} \lambda x \lambda ev [P(x, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]]$
2. *cant-* = *sing'*
3. *cant- por la mañana* ‘sing in the morning’
  - a. =  $\lambda P \lambda x \lambda ev [P(x, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]] (\text{sing}')$
  - b. =  $\lambda x \lambda ev [\text{sing}'(x, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]]$

According to 3b, the translation of the expression *cant- por la mañana* ‘sing in the morning’, of type  $\langle e, \langle ev, t \rangle \rangle$ , says that eventualities of *x* singing denoted by the verb occur at intervals that are morning intervals.

4. *Paula cant- por la mañana* ‘Paula sing in the morning’
  - a. =  $\lambda x \lambda ev [\text{sing}'(x, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]] (p)$
  - b. =  $\lambda ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]]$
5. *-ado* ‘PTCP’ =  $\lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subseteq j])]$
6. *Paula cantado por la mañana* ‘Paula sing in the morning’

- a. =  $\lambda P_{\langle ev, t \rangle} \lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [P(ev) \wedge \tau(ev) \subseteq j])](\lambda ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]])$
- b. =  $\lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\lambda ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k]](ev) \wedge \tau(ev) \subseteq j])]$
- c. =  $\lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subseteq j])]$
7. tiene ‘have:PRS.3SG’ =  $\lambda S_{\langle i, t \rangle, \langle i, t \rangle} \lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[S(R)(I)]]$
8. Paula tiene cantado por la mañana ‘Paula have:PRS.3SG sung in the morning’
- a. =  $\lambda S_{\langle i, t \rangle, \langle i, t \rangle} \lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[S(R)(I)]](\lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subseteq j])])$
- b. =  $\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\lambda R_{\langle i, t \rangle} \lambda I_i [\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subseteq j])](R)(I)]]$
- c. =  $\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subseteq j])]]]$
9. Esta temporada ‘this season’ =  $\lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i]$
10. Esta temporada Paula tiene cantado por la mañana ‘this season Paula have:PRS.3SG sing:PTCP in the morning’
- a. =  $\lambda P_{\langle i, t \rangle} \exists I_R \exists i [P(I_R) \wedge \text{this-season}(i) \wedge I_R \subseteq i](\lambda I_i [\text{now} \subseteq_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R[\forall j (j \in R_I^C \rightarrow \exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subseteq j])]])]$

- b. =  $\exists I_R \exists i [\lambda I_i [\text{now} \subset_{\text{final}} I \wedge \text{length}(I) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_I^C \rightarrow$   
 $\exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subset j]])] (I_R) \wedge$   
 $\text{this-season}(i) \wedge I_R \subseteq i]$
- c. =  $\exists I_R \exists i [\text{now} \subset_{\text{final}} I_R \wedge \text{length}(I_R) \geq 2\text{-days} \wedge \exists R [\forall j (j \in R_{I_R}^C \rightarrow$   
 $\exists ev [\text{sing}'(p, ev) \wedge \exists k [\text{morning}(k) \wedge \tau(ev) \subseteq k] \wedge \tau(ev) \subset j]])] \wedge \text{this-}$   
 $\text{season}(i) \wedge I_R \subseteq i]$

The formula in 10c is true if and only if there is an interval  $I_R$  that is the reference time interval and there is another interval  $i$  that is the denotation of *this-season* and the time of utterance *now* is a final subinterval of  $I_R$  and the length of  $I_R$  is equal to or greater than two days and there is a partition  $R$  such that for all members  $j$  of the partition  $R$  of  $I_R$  there is an eventuality  $ev$  of Paula singing, and there is a morning interval  $k$  of which the temporal trace of  $ev$  is a subinterval, and the eventuality time of  $ev$  is a proper subinterval of  $j$  and  $I_R$  is a subset of the interval  $i$ .

### 5.5.3 Summary

In this section I have proposed the following syntactic and semantic analyses for frequency and non-indexical locating adverbials:

Frequency adverbials are quantifiers over sets of intervals; they are located in the  $\text{VP}_{\text{Part}}$  level and their denotations combine with the denotations of the expressions in the  $\text{VP}_{\text{Part}}$ . Frequency adverbials partition the reference time interval into disjoint cells. The measure of the cells will depend on the meaning of the particular frequency adverbial co-occurring

with *GaSP*. Non-indexical locating adverbials combine with the verb root *cant-* ‘sing’ and specify the temporal location of the sets of eventualities denoted by the verb.

## 5.6 Conclusions

The formal analysis of *GaSP* proposed in this chapter accounts for the empirical findings discussed in chapters 2, 3, and 4, and provides a novel account of the pluractional properties of *GaSP*. I have proposed an analysis of the pluractional characteristics of *GaSP* inspired by Deo’s (2010) analysis of imperfective and progressive aspect and by Deo & Piñango’s (2010) analysis of *for*-adverbials. I proposed a quantifier analysis in which *GaSP* involves a weak universal quantifier that partitions the reference time interval into subintervals within which the denoted eventualities occur.

The analysis captures the temporal relation between the reference time and the time of utterance in *GaSP* sentences, as well as the constraint on the length of the reference time interval. The analysis as a pluractional requiring iteration of eventualities across the reference time interval automatically rules out interpretations involving the occurrence of a single event.

## CHAPTER 6

### CONCLUSION

In this dissertation I explored the meaning of the Galician Spanish *tener*-perfect construction in relation to its temporal and aspectual contribution. Below I summarize the empirical findings and the claims discussed in the previous chapters and discuss the insights the present analysis of *GaSP* bears on crosslinguistic studies of present perfects and event plurality.

Temporal reference in *GaSP* utterances is constrained to intervals that include the time of utterance in their denotation and whose length is equal to or greater than two days from the day containing the time of utterance into the past. I proposed an analysis of the present tense auxiliary *tener* ‘have’ that captures these two restrictions. I argued that *GaSP* constrains the reference time in terms of its length and its temporal relation with the time of utterance, which must be set as a final subinterval of the RT. Aspectually, *GaSP* is an iterative periphrastic construction giving rise only to iterative interpretations. On the basis of this finding I argued that *GaSP* denotes a plurality of eventualities and requires temporal gaps between the denoted eventualities. I proposed that the past participle of *GaSP* encodes event plurality based on evidence provided by frequency adverbials. I offered a universal quantifier account of both event plurality and temporal distribution with gaps that builds on Deo’s (2009) analysis of imperfective and

progressive aspect and on Deo & Piñango's (2010) analysis of *for*-adverbials. I showed that this analysis is superior to existing analyses of pluractionality (Lasersohn 1995, van Geenhoven 2004, 2005) in that it does not need to assert the existence of temporal gaps in iterative readings. The analysis also takes into account the contribution of intra-sentential contextual information (e.g., frequency adverbials) and extra-linguistic context. The interaction of contextual information with the length of the measuring interval constrains the length and the number of the cells of the partition measure.

The comparison of *GaSP* with perfect constructions crosslinguistically and crossdialectally has revealed important differences in the semantic contribution of this construction. Typologically, *GaSP* does not exhibit the most prototypical characteristics of perfects. Resultative and hot news readings, existential and universal readings with reference to singular eventualities are not found in *GaSP* utterances. *GaSP* is compatible only with existential and universal iterative interpretations.

The most important contribution of this study is that it is the first comprehensive (formal) analysis of the meaning of a construction that has been neglected in the literature on the semantics of periphrastic pasts. The semantic profile of *GaSP* deviates from the profile of perfects crosslinguistically. In brief, *GaSP* does not adhere to the general descriptions given in typological studies of perfects (e.g., Dahl 1985, Bybee et al. 1994). This deviation suggests that in synchrony *GaSP* together with the Portuguese and the Galician counterparts represent a distinct path compared to the evolution of perfects. None of them represents any of the stages of the grammaticalization path from resultative to perfect (and in some cases to perfective) proposed in the typological literature.

At least two different explanations have been conjectured with respect to the aspectual properties of the Portuguese perfect that seem reasonable to hypothesize for the Galician perfect and *GaSP*. However, this hypothesis requires empirical investigation that will be pursued in future work.

The profile of the Portuguese perfect and its uses have been explained in relation to the simple past and the functional distribution of these two forms. The simple past in contemporary Portuguese preserves the uses of its Latin source and consequently the perfect evolves acquiring a distinct meaning. This distribution has been explained in terms of competition between the two forms. That is, the perfect does not expand its semantic domain towards acquiring more perfective-like values as the simple past preserves them. French, for instance, is on the other end of the spectrum. The *passé composé* has expanded its semantic domain to the extent that in addition to the perfect values it is also used as a perfective or simple past. This expansion is accompanied by a decline in the use of the French simple past, which has become restricted to formal and written registers in contemporary French.

In Galician and in the Spanish of Galicia the simple pasts have similar profiles to their Portuguese counterpart. They are also used in utterances in which Castilian Spanish speakers would use the *haber* present perfect; this seems to indicate that the semantic domain of the simple pasts in these varieties still encompass the perfectal values of their Latin source and may also explain why the *ter/tener*-perfects are characterized by their iterative aspectual value. This hypothesis seems very appealing but to the date there is no empirical research that corroborates it. This is an issue that I would like to research in the future.



The second conjecture as to why the Portuguese perfect has a distinct profile is connected to the above hypothesis and has to do with its auxiliary *ter*, from Latin *tenere* ‘keep’. The Portuguese and the Galician perfect forms and *GaSP* are the only ones in Romance whose auxiliaries originate from a different Latin source, i.e., *tenere* > *ter*. The rest of the Romance perfects have originated from Latin *habere* ‘have’ and *essere* ‘be’. For the Portuguese present perfect, the replacement of the auxiliary *ter* for *haver* is a relatively recent process and this recent replacement in conjunction with the retention of the anteriority values of the simple past have propiciated the development of a special semantics in the periphrastic form (Cabredo-Hofherr et al. 2010). If this hypothesis is correct for the Portuguese present perfect, it would be sound to investigate if the Galician perfect and *GaSP* have undergone similar paths. This is however an empirical question that needs to be addressed in future research.

The pluractional properties of *GaSP* explored in this dissertation have proven to inform theories of event plurality in several respects. These properties allowed us to relate the semantics of a perfect construction in a Romance language with the semantics of pluractional markers in completely unrelated languages and imperfective aspect, *for*-adverbials and aspectual periphrasis encoding iterativity. Thus, the expression of event plurality is tied to a variety of morphological devices. In this dissertation I have found some striking similarities across pluractionals and expressions of event plurality that suggest we can posit a core meaning. Such similarities are their scopal interactions with some achievements and accomplishments co-occurring with singular noun phrases, and their incompatibility with exact iterative adverbials.

The proposed analysis of *GaSP* brings out differences and similarities between related and unrelated natural language expressions. *GaSP* is structurally a perfect construction with semantic properties that instantiate a particular kind of distributive relation. Its ‘deviating’ properties bring insights into typological theories of perfects.

The formal analysis developed in this dissertation may prove to be useful in accounting for other expressions of event plurality and temporal distribution bringing to the foreground the semantic proximity of expressions that initially may seem completely unrelated.

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