

What does it mean to be a complement?

Luis Paris 

University at Albany, SUNY

Jean-Pierre Koenig 

University at Buffalo, SUNY

Proceedings of the 10th International Conference on
Head-Driven Phrase Structure Grammar


Michigan State University

Stefan Müller (Editor)

2003

Stanford, CA: CSLI Publications

pages 298–317

Paris, Luis & Jean-Pierre Koenig. 2003. What does it mean to be a complement?
In Stefan Müller (ed.), *Proceedings of the 10th International Conference on Head-Driven Phrase Structure Grammar*, Michigan State University, 298–317. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2003.17. 

Abstract

This paper shows that the Gerund Phrase (GP) in the Spanish Gerund Construction (e.g., *El jefe entró a su oficina corriendo*, lit. ‘The boss entered his office running’) is sometimes a complement (in SGC_C) and sometimes an adjunct (in SGC_A). Although in both cases, the GP expresses a non-argument of the main lexical verb's denotation, it is a syntactic adjunct in SGC_A and a syntactic dependent of the main clause's head in SGC_C. We argue that there is a semantic correlate of this syntactic difference and propose a general principle that constrains the semantic relations that can hold between the denotata of heads and added members of their ARG-ST lists: The two denotata must be part of a larger macro-event in the sense of Talmy (2000). We further show that the relation between the events denoted by the gerund and main verbs involves four semantic conditions and that which subset of those four conditions are satisfied in a particular SGC_C sentence determines what subkind of SGC_C is involved.

I) Introduction¹

It is typically assumed that semantic argumenthood strongly correlates with syntactic subcategorization. Arguments of the denotation of a word are expressed as its complements or subjects and this information is recorded on lexical entries. Recent work in Head-driven Phrase Structure Grammar has shown that this correlation is looser than often assumed (see Bouma et al. (2001), Przepiokorwki (1998), and Wechsler (1997) among others). For one thing, derived lexical entries can include in their subcategorization (or ARG-ST list) additional elements that do not express a semantic argument (e.g., resultative phrases). For another, a subset of constituents that are traditionally considered to be semantic adjuncts must be subcategorized for by heads, either in the form of additional members of the ARG-ST list or in the form of members of an additional DEPENDENTS list. The latter kind of case leaves it open whether there is a semantic correlate of being and added member of the ARG-ST or DEPENDENTS list of a word. In this paper, we want to discuss one example where it does seem to make a semantic difference, the Spanish Gerund Constructions (SGC). In the first section, we will show that the subtype Complement -or SGC_C- of SGC contains a gerund phrase GP that is a syntactic dependent of the main clause and, hence, should be recorded in the main clause head (i.e. the main verb) despite the fact that it is not a semantic argument of this verb. In the second section we show how the semantics of SGC_C motivates the structural properties of the construction. We suggest a

¹ We would like to thank Bob Levine and Alan Munn for discussing some of the issues in this paper. All remaining errors are ours.

general principle that constrains the semantic relations that can hold between the meaning of verbal heads and the meaning of verbal and predicative complements that are added to their ARG-ST lists.

II) The Spanish Gerund Construction (SGC)

The SGC consists of a main finite clause followed by a gerund phrase (hereafter GP) as represented in sentence (1).

- (1) El niño entró a casa cantando una canción.
The child entered to home singing a song
'The child came home singing a song'

The gerund morphology in Spanish combines with verb roots to form non-finite verb forms that, like its Latin ancestor, may have an adverbial function as in (1) or an adjectival function (i.e. NP modifier) as in (2) We concentrate exclusively on the so-called adverbial use of the gerund in this paper.

- (2) Aquel tipo pintando es mi nuevo profesor.
That guy painting is my new professor
'That guy that is painting is my new professor'

Adverbial uses of the gerund fall into two groups. The GP of one group of SGC is a complement of the main verb. This group is represented by sentence (1). The GP of another group of SGC is a syntactic adjunct. Sentence (3) and (4) illustrate this group. We call these two groups SGC_C and SGC_A, respectively.

- (3) Habiendo vendido el tío la casa, las sobrinas se quedaron sin
having sold the uncle the house, the nieces REF stayed
vacaciones de verano.
without vacations of summer
'The uncle having sold his house, his nieces were left without
summer vacations'
- (4) El profesor se apareció en clase con el pelo rojo,
The teacher REF showed in class with the hair red,
escandalizando a sus alumnos.
scandalizing to his students
'The teacher scandalized his students by showing up in class
with his hair red'

It is important to note that the GP does not encode a semantic argument of the main verb for either SGC_C or SGC_A . The event of singing in sentence (1) does not fill an argument position of the predicate associated with the verb *entrar* ‘enter’ and the gerund phrase or GP is therefore a semantic adjunct. Similarly, the shocking event does not fill an argument position of the predicate associated with the verb *se aparecer* and is a semantic adjunct in sentence (4). What we call SGC_A and SGC_C therefore both involve a phrase, the GP, which does not correspond to a semantic argument of the main verb. We now show that the two groups of SGC differ in that the phrase which is a semantic adjunct for both SGC_A and SGC_C appears to be a morphosyntactic complement in one case, but not the other.

Descriptively, SGC_A and SGC_C differ in several respects. For example, the clauses in SGC_A are typically separated by a pause –as the comma graphically indicates in (3)- whereas the insertion of a pause in the example of SGC_C in (2) makes the sentence ungrammatical (the presence of a pause is again graphically represented via a comma in (5)).

- (5) *El niño entró a casa, cantando una canción.
 The child entered to home singing a song
 ‘The child came home singing a song’ (intended meaning)

Further, SGC_A allows the GP to have an independent subject whereas SGC_C is an obligatory control structure, as the contrast between (3) and (6) shows.

- (6) *El niño entró a casa su padre cantando una canción.
 The child entered to home his father singing a song
 ‘The child came home while his father was singing a song’
 (intended meaning)

These two surface differences indicate that SGC_A patterns like a typical complex sentence with an embedded adverbial clause –such as *cuando* ‘when’ clauses, whereas SGC_C patterns like obligatory control complement VPs. Note that control in the case of SGC_C is obligatory but not fixed. As sentence (7) shows, the direct object of the main verb can control the reference of the unexpressed subject of the GP. Sentence (8) shows further that only subjects and direct objects but not indirect object can be controllers.

- (7) Tu vecino trajo a María_i llorando_j.
 your neighbor brought to María crying
 ‘María was crying when your neighbor brought her’
- (8) María_i le dió el libro a Pedro_j gritando_{i/*j}.
 María him gave the book to Pedro screaming
 ‘María was screaming when she gave Pedro the book’

More compelling evidence for the hypothesis that the GP occurs in different structural positions in SGC_C and SGC_A comes from data pertaining to the reordering of post-verbal constituents. The GP and indisputable complements can be reordered without information-structure consequences in the case of SGC_C, but not in the case of SGC_A, as the contrast between sentences (9) and (10) shows.

- (9) Los estudiantes cruzaron corriendo la plaza.
 The students crossed running the square
 ‘The students crossed the square running’
- (10) *Pedro ganó, contando con un estipendio para viajes, la beca.
 Pedro won, having with a stipend for travel, la beca.
 ‘Pedro won the scholarship even having money for travel’

Under standard assumptions that only reordering of sister constituents does not require a particular information structure, the grammaticality of sentence (9) and similar SGC_C sentences suggests that the GP is a sister to the post-verbal complements in SGC_C. Conversely, the ungrammaticality of sentence (10) suggests that the GP is not a sister to the post-verbal complements in SGC_A.

Extraction data confirm the difference in complement status of the two kinds of SGC. Simply put, the direct object or other post-verbal complements of the gerund can be extracted from within the GP in the case of SGC_C, but not SGC_A as the contrast between sentence (11) and (12) illustrates. Sentence (13) further shows that SGC_A patterns with other adverbial clauses, which equally ban extraction of constituents from within adjunct clauses.

- (11) ¿Qué volvieron los niños cantando?
 What came.back the children singing
 ¿What did the children come back singing?

- (12) *¿Habiendo vendido el tío, qué las sobrinas se quedaron sin
 having sold the uncle, what the nieces REF stayed without
 vacaciones?
 vacations
 ‘What did the uncle sold leaving his nieces without summer
 vacation? (intended)
- (13) *¿ Qué María salió cuando compró ?
 what María exit when bought-3s
 ‘What did she buy when she went out?’ (intended meaning)

The contrast between (11) and (12) only argues that the GP is a complement in the former sentence, but not the latter, in theories such as that presented in Bouma, Malouf, and Sag (2001) in which only syntactic dependents (or syntactic dependents of syntactic dependents...) can be extracted. In a Barriers-style analysis (Chomsky (1986), Rizzi (1990)) or in Pollard and Sag’s (1994) HPSG analysis of extraction, extractability does not entail dependency. Although extraction (of complements) from within adjuncts might involve a mild subjacency violation in a Barriers-style analysis, extraction is not restricted to dependents (of dependents...). The relevance of the contrast between (11) and (12) to the complement status of the GP is therefore partially theory-internal. But, note first that a Barriers-style or Pollard and Sag-style analysis of extraction cannot easily capture the contrast between (11) and (12), since both sentences would involve a semantic *and* syntactic adjunct. Sentences (14)-(16) show that the contrast extends to other filler-gap constructions (relative clauses, cleft, and pseudo-clefts) and is not restricted to questions. Again, a Barriers-style or Pollard and Sag-style theory of extraction cannot easily capture the contrast.

- (14) La canción que los niños volvieron cantando era muy antigua.
 the song that the children came-back singing was very old
 'The song the children came back singing was very old'
- (14’) *Su ideología que los cursos difícilmente se llenan de
 Her/His ideology that the classes hardly REF fill of
 estudiantes conociendo
 students knowing
 (*)'His ideology that his classes get hardly full the students
 knowing'

- (15) Era una canción lo que los niños volvieron cantando.
Was a song it that the children came-back singing
'It was a song that Pedro came back singing (lit.)'
- (15') *Era su ideología lo que las clases difícilmente se llenan
Was her/his ideology that the classes hardly REF fill
los estudiantes conociendo.
knowing the students
(*)'It was his ideology that his classes get hardly full the
students knowing'
- (16) Lo que los niños volvieron cantando fue una canción.
It that the children came-back singing was a song
'What the children came back singing was a song (lit.)'
- (16') *Lo que las clases difícilmente se llenan los estudiantes
It that the classes hardly REF fill the students
conociendo es su ideología.
knowing is his ideology
(*)'What the classes get hardly full the students knowing is his
ideology'

Second, only Bouma, Malouf, and Sag's theory of extraction can explain why extraction differences parallel reordering differences. Both differences are indicative of a difference in syntactic dependency status. In contrast, a more traditional analysis of extraction would leave unaccounted for why complements of the gerund verb can only be extracted from GPs that can be reordered with the main verb's complements. While not uncontroversially supportive of the claim that the GP is a complement of the main verb in SGC_C , the extraction data partially confirms other pieces of evidence we provided to support our hypothesis. We conclude that the preponderance of the evidence supports the claim that the GP is a syntactic complement of the main verb in SGC_C , but a syntactic adjunct in the case of SGC_A .

One way to explain the data we have presented so far would be to hypothesize that the main and the gerund verbs form a complex predicate. This hypothesis is particularly relevant since it is well-known that complex predicates exist in Romance and Spanish (Aissen and Perlmutter 1983). However, when standard tests of complex predicate formation are applied, it can be seen that SGC_C does not behave as a complex predicate structure. For example, it is standard to assume that

so-called clitic climbing is possible in complex predicate structure, as shown in (17) for the Spanish causative construction.

- (17) El jefe lo hizo lavar por el empleado del taller.
The boss it made wash by the employee of-the repair-shop
'The boss had it washed by the repair-shop employee'

In contrast, sentence (18) shows that clitic climbing is not possible with SGC_C .

- (18) *El intendente lo salió del garage manejando.
The major left from-the garage driving
'The major took it out from the garage driving' (intended)

Furthermore, complex predicate allows anaphoric binding across predicates as shown in (19)

- (19) El jefe_i se_i hizo afeitarse por Pedro.
the boss_i REF_i made shave by Pedro
'The boss made Pedro shave him'

whereas SGC_C does not allow a reflexive to be bound by an argument of the main predicate.

- (20) *El profesor se llegó peinando.
the professor REF arrived combing
'The professor was combing when he arrived' (intended)

In conclusion, we have shown that the GP in SGC_C behaves as a complement phrase of the main verb and that the gerund and main verbs do not form a complex predicate. We conclude that the GP should be listed in the ARG-list (or equivalently, the DEPENDENTS list) of the main verb so as to license the extraction of its complements as well as the control of its subject. We represent the class of *sgc-verb* in (21), which reads as follows. The class of *sgc-verb* includes on its ARG-ST list the members of the ARG-ST list of their root or stem plus a gerund phrase. (See Koenig (1999) for more details on this representation of word-internal structure. An essentially identical representation of that verb class can easily be provided through the use of lexical rules.)

$$(21) \left[\begin{array}{l} sgc-verb \\ ARG-ST \quad [1] \oplus \langle GP \rangle \\ \mu-DGHTR \quad [1] \end{array} \right]$$

III) The semantic motivation

a. The mereological constraint

Given that the gerund phrase is a dependent of the head verb in SGC_C and an adjunct in SGC_A , the question is whether this difference in dependency status has any semantic concomitant. We propose here that there is a semantic motivation for this difference in dependency status: SGC_C expresses a mereological relation between two eventualities that constitute a single macro-event. This constraint is part of a cross-linguistic correlation between the tightness of syntactic bond between verbs or other predicators and the type of semantic relation those verbs or predicators' denotations entertain (Van Valin and LaPolla (1997)). We describe the syntax-semantics interface condition that underlies the difference between SGC_A and SGC_C as follows.

Mereological Condition on Added Predicative Arguments (MCAPA): The denotations of a head and added verbal or predicative members of its ARG-ST list must be parts of a larger macro-event.

More generally, this condition suggests that event relations motivate the addition of members to the ARG-ST list of "base" entries. It contrasts with the constraint put forth in Rapaport and Levin 2001, who suggest that temporal relations can motivate the addition of members to the ARG-ST list of "base" entries. Their constraint states that the denotation of English resultative phrases and the heads they complement need only stand in a temporal dependency.

This section shows how the MCAPA principle determines the encoding of various subtypes of SGC_C . There are several subkinds of SGC_C ; each one is characterized by a particular instantiation of the mereological constraint. The first subkind is $SGC_{C-MEANS}$ represented by sentence (22).

- (22) El jefe entró a su oficina corriendo.
the boss entered to his office running

‘The boss ran into his office’

To model the semantics of (22), we borrow the notion of a macro-event and its two component events, the framing event and the co-event from Talmy (2000). In a sentence describing motion, the macro-event is described by the verb which encodes the change of location (the inward crossing of an enclosure’s boundary for *entrar* in (22)) and the co-event is described by the verb which encodes the manner of locomotion (the particular pattern of leg motion for *corriender* in (22)).² The two events, the framing and the co-event can be, according to Talmy, related through a small set of support relations. For sentences such as (22), he calls this support relation, MANNER. The existence of a macro-event, in Talmy’s terms, insures that sentence (22) satisfies the MCAPA: The entering event e_M is a (non-necessarily proper) subpart of a macro-event e_Z and the running event e_G is also a subpart of e_Z .

Talmy does not specify thoroughly what the MANNER support relation consists of. A detailed list of what is shared between the events of entering and running in sentence (22) might help clarify what this relation is. The set of conditions in (24) provides such a list.

- (24)
- a. The two events share participants (e.g. in (22), the moving Figure).
 - b. This participant is shared in relation to overlapping spatio-temporal frames.
 - c. The two events unfold “together”: Progress on the path maps onto a greater number of leg motions, so to speak.
 - d. The two events are in the same causal path and share time intervals (in the case of (22), the manner of locomotion causes the change of location).

Our hypothesis is that conditions a.-c. are present whenever two events are related within a macro-event through a MANNER support relation. The addition of condition d. or some variant of it defines what we call an *intrinsic manner* relation, which sentence (22) and other sentences that are instances of $SGC_{C-MEANS}$ illustrate.

Sentence (25) is a further example of $SGC_{C-MEANS}$.

² More precisely, as we discuss below, the verb *entrar* lexically encode both the framing and co-event, i.e. the entire macro-event, whereas *corriender* only encodes the manner of locomotion co-event.

- (25) El tenor canta gritando.
 The tenor sings screaming
 ‘The tenor screams when he sings’

The singing event in sentence (25) denotes the macro-event. The framing event is the creation of a melody with accompanying words and the co-event which causes it is the emission of sound. The GP further specifies the general sound emission event encoded in *cantar*.

A second subkind of SGC_C is SGC_{C-AGG} illustrated in sentence (26). The dreaming event e_G in (26) is a proper part of the sleeping event e_M . Sleeping involves, among other components, unconscious mental activities, one of which can be dreaming. The MCAPA is again satisfied, since e_G is a part of e_M . Conditions a. and b. (24) are satisfied. Condition c. is satisfied, at least for those times when Maria dreams (see SGC_{C-CIRC} for other cases in which condition c. is only satisfied modulo asymmetric interruptions of e_G and e_M). Condition d. holds, but in contrast to $SGC_{C-MEANS}$, it is the framing event (the sleeping) that enables the co-event (the dreaming), rather than the co-event causing the framing event.

- (26) María durmió toda la noche soñando con insectos.
 Maria slept all the night dreaming with insects
 ‘Maria dreamt of insects the entire night.’

Sentence (27) illustrates a third subkind of SGC_C , which we call $SGC_{C-CAUSE}$. In sentence (27), the main event e_M again describes a complex macro-event and involves two subeventualities, a causing eventuality e_B and a change of state e_C result. But in this case, rather than the gerund e_G specifying further the effect e_C , e_G specifies further the cause e_B : Jumping over the fence caused the change the state of the public.

- (27) El potro sorprendió al público saltando el corral.
 The stallion surprised to-the public jumping-over the corral
 ‘The stallion surprised the spectators by jumping over the fence’

The defining characteristic of $SGC_{C-CAUSE}$ is that its main verb is a lexical causative verb. We assume with all lexical decomposition analyses that lexical causatives involve two subeventualities, an activity and a change of state and claim that the GP in $SGC_{C-CAUSE}$ always

specifies the activity that leads to the result state. Again, the surprise and the jumping events are part of a larger macro-event, as required by the MCAPA. The surprise denotes the macro-event and is trivially a part of itself, and the GP denotes a proper subpart of e_M . The events described by the main and gerund verbs in (27) also satisfy conditions a., b., and d. in (24). But, note that, in contrast to what was the case with sentence (22), (25), or (26), condition c. does not hold. There is no parallel progression between e_M and e_G (even modulo interruptions). We call the semantic relation involved in $SGC_{C-CAUSE}$ *internal cause*.

An analogous analysis applies for every SGC_C whose main verb is a causative verb. For example, *memorize*'s denotation in (28) includes both a causing process and a change of state as subparts. The re-reading event expressed by the gerund phrase causes a change by which the poem is placed in Julia's memory/mind and, hence, a change of mental state in Julia.

- (28) Julia memorizó el poema releýendoló una y mil veces.
 Julia memorized the poem re-reading-it one and thousand times
 ‘Julia memorized the poem by re-reading it one time after another’

b. The asymmetry constraint

Characterized solely in terms of inclusion of e_G and e_M in a macro-event e_Z , the semantics of $SGC_{C-MEANS}$, SGC_{C-AGG} , and $SGC_{C-CAUSE}$ assigns an apparent identical role to e_M and e_G . That is, both e_G and e_M are part of the macro-event and thus play identical roles with respect to that macro-event. We would predict then that e_M and e_G can be expressed equally well as main verbs or gerund verbs. However, this is not the case. In fact, a fundamental feature of SGC_C is that there is an asymmetry between the event descriptions encoded as the main VP and the GP. Sentences (29) and (30) reverse the encoding of e_M and e_G in sentences (22) and (27), respectively; in turn, sentence (31) reverses the encoding of e_M and e_G in (26).

- (29) #El jefe corrió entrando a su oficina.
 The boss ran entering to his office
 ‘The boss ran while entering his office’³ (intended meaning)

³ Sentence (25) is acceptable if a pause is inserted between the clauses. The pause turns (25) into an instance of SGC_A and, rather than *intrinsic manner*, the sentence then has a *consequence* interpretation (see Paris (2003) for details).

- (30) #El potro saltó el corral sorprendiendo al público.
 The stallion jumped the fence surprising to-the public
 'The stallion jumped over the fence thereby surprising the spectators' (intended)
- (31) #El tenor grita cantando.
 The tenor screams singing
 'The tenor screams when he sings' (intended meaning)

These sentences are semantically odd, which suggests that given any two events, if they are in an *intrinsic manner* or *internal causal* relation, only one of them can be expressed in the main clause whereas the other needs to be expressed as a GP. Since the notion of subpart does not differentiate between e_M and e_G , we propose that the asymmetry in $SGC_{C-MEANS}$, SGC_{C-AGG} , and $SGC_{C-CAUSE}$ arises from the fact that the main verb must denote the entire macro-event in Talmy's sense, whereas the GP only describes the co-event of that macro-event. *Entrar*, for example, describes a specific change of location caused by an unspecified manner of locomotion. The semantic content of *corriender* further specifies this manner of locomotion. Similarly, *singing* describes the creation of a melody with accompanying words resulting from the emission of a sequence of sounds of unspecified quality; *gritar*, then, further specifies the rather poor quality of those sounds. The reader can easily verify that the same macro event vs co-event asymmetry applies to other examples of $SGC_{C-MEANS}$, SGC_{C-AGG} , or $SGC_{C-CAUSE}$ we have presented. We summarize the semantic asymmetry between the main verb and the GP below.

Semantic asymmetry in $SGC_{C-MEANS}$, SGC_{C-AGG} , and $SGC_{C-CAUSE}$:
 The main verb describes the whole macro event of an event complex; the GP only describes its co-event subpart. The GP is a more specific description of the co-event than that provided by the main verb.

c. An extended subkind of SGC_C

The fourth subkind of SGC_C is SGC_{C-CIRC} , which sentence (1), repeated below, illustrates. It does not satisfy the semantic asymmetry we just mentioned. The basic semantic property that differentiates SGC_{C-CIRC} from $SGC_{C-MEANS}$, SGC_{C-AGG} , and $SGC_{C-CAUSE}$ is that the former involves events in divergent causal paths whereas the events described in the latter are in the same causal path.

- (1) El niño entró a casa cantando una canción.
 The child entered to home singing a song
 ‘The child came home singing a song’

The entering event e_M in (1) is performed by an agent that also performs the singing event e_G at the same spatio-temporal circumstance (i.e. e_G and e_M are associated with overlapping time intervals). But there is no causal link between e_G and e_M . Neither one causes or enables the other event or the effect that is part of the other event. This description may suggest that SGC_{C-CIRC} merely encodes a temporal relation between e_G and e_M ; the two events, not being causally connected are merely temporally connected. In the following paragraphs, we argue that, as we claim is required of all instances of SGC_C , SGC_{C-CIRC} , *does* encode a mereological relation and that, in conformity to the MCAPA, both e_G and e_M are subparts of a larger, macro-event ('enter singing' in (1)).

The grammatical behavior of SGC_{C-CIRC} contributes several pieces of evidence that support the conclusion that the construction denotes a single (complex) event. The first one is the presence of a semantic asymmetry (of a different kind than the one we discussed for $SGC_{C-MEANS}$, SGC_{C-AGG} , and $SGC_{C-CAUSE}$). Sentences (32) and (33) are both instances of SGC_{C-CIRC} ; in the former the cooking event e_M and the watching event e_G are performed by the same individual (i.e. Pedro) at overlapping temporal intervals and places. In sentence (33), the driving and the smoking events are also performed by the same individual at overlapping temporal intervals and places.

- (32) Pedro cocinó el pollo mirando TV.
 Pedro cooked the chicken watching TV
 ‘Pedro watched TV while cooking the chicken’
- (33) Manejó a casa fumando un cigarrillo.
 Drove to house smoking a cigarette
 ‘S/he drove home smoking a cigarette’

If the SGC_{C-CIRC} merely encoded the presence of a temporal overlap between e_G and e_M , one would predict the reverse encoding of e_G and e_M to be possible, since overlap is a symmetric relation. The semantic oddity of sentences (34) and (35), which correspond to sentences (32) and (33), respectively, shows this prediction is incorrect.

- (34) # Pedro miró TV cocinando el pollo
 Pedro watched TV cooking the chicken
 ‘Pedro cooked the chicken watching TV’ (intended meaning)
- (35) #Fumó un cigarillo manejando a casa.
 Smoked a cigarette driving to house
 ‘S/he drove home smoking a cigarette’ (intended meaning)

The oddity of these sentences suggests that the relation between the two events or event descriptions is asymmetric; hence, whatever this relation is, it cannot be mere temporal overlapping since this latter relation is symmetric; it must be a relation that assigns specific roles to e_M and e_G with which each event may or may not be consistent.

The second piece of evidence is that an SGC_{C-CIRC} sentence can be an answer to a *Cómo* ‘How’ question –as shown in (36’), which is a legitimate answer to (36).

- (36) ¿Cómo llegó Pedro a casa?
 How arrived Pedro to home
 ‘How did Pedro come home?’
- (36’) Llegó cantando tangos.
 arrived-3sg singing tangos
 ‘He came home singing a tango’

SGC_{C-CIRC} parallels $SGC_{C-MEANS}$, in this respect. Instances of $SGC_{C-MEANS}$ can also answer felicitously a ‘how’ question as shown by (37’), which is a possible answer to question (37’).

- (37) ¿Cómo caminó el jefe por el pasillo?
 How walked the boss through the hallway
 How did the boss walk through the hallway?
- (37’) El jefe caminó rengueando por el pasillo.
 the boss walked limping through the hallway
 ‘The boss limped down the hallway’

In both cases, the interrogative *Cómo* treats the GP as providing more than temporal information, intuitively, something like the manner in which the action was performed. Corroboration of this hypothesis comes

from the fact that, although sentences (34) and (35) are acceptable answers to a ‘when’ question as sentences (38) and (38’) show, they are unacceptable as an answer to a ‘how’ question. As Paris (2003) argues, SGC_A is often used to indicate the presence of a temporal overlap between e_G and e_M and we thus interpret the felicity of (38) and (38’) as indicative that (38’) is an instance of SGC_A (see Paris (2003) for further arguments that (38’) is indeed an instance of SGC_A). In other words, sentences which are not instances of SGC_{C-CIRC} cannot be answers to a ‘How’ question; they can be answers to a ‘When’ question, provided they are analyzed as SGC_A structures. These data further suggest that SGC_{C-CIRC} requires more than a temporal relation between e_G and e_M .

(38) ¿Cuándo miraste televisión?
 When watched television
 When did you watch TV?

(38’) ¿Cuándo fumaste un cigarillo?
 When smoked a cigarette
 ‘When did you smoke a cigarette?’

Adverb modification provides a third piece of evidence in favor of the presence of a macro-event. The adverb *perfectamente* ‘perfectly’ in (39) can be interpreted as conveying a property of the ‘cook-watching-TV’ event as a whole rather than modifying only ‘cook’ or ‘watch’.

(39) Pedro cocina mirando TV perfectamente.
 Pedro cooks watching TV perfectly
 ‘Pedro cooks watching TV perfectly’

Sentence (39) does not necessarily entail that Pedro's cooking excels nor that his watching TV excels. The adverbial modification has a reading in which it introduces a contrast set that contains Pedro's cooking events that do not involve watching TV. In that interpretation, ‘perfectly’ does not qualify any property intrinsic to Pedro's cooking; it rather says that Pedro cooks watching TV as well as he does when he is not watching TV. In that reading, *perfectamente* modifies the macro-event of ‘cooking-watching-TV’. This type of modification is not possible with typical adverbial clauses as shown in sentence (40).

(40) Pedro cocina (perfectamente) mientras mira TV (?perfectamente).
 Pedro cooks (perfectly) while watches TV (?perfectly)
 ‘Pedro cooks fine while watching TV’

In this case *perfectamente* only modifies cooking and entails that the cooking was perfect.

A fourth piece of evidence indicating that SGC_{C-CIRC} describes a single macro-event, as required by the MCAPA, is given by the fact that only stage-state predicates (dynamic states in Bach's (1986) terminology) can be felicitously used in SGC_C . Individual state predicates cannot show up neither as main verbs (e.g., sentence (42)) or as heads of the gerund phrase (e.g., sentence (43)).

(42) #Mi tío odia el Otoño barriendo las hojas.
My uncle hates the Fall raking the leaves
'My uncle hates Fall while he is raking the leaves'

(43) #Pedro vino de Brasil siendo inteligente.
Pedro came from Brazil being smart

In contrast, stage-state level predicates are felicitous either as main verbs (e.g., (44)) or as gerund verbs (e.g., sentence (45)).

(44) El paciente parecía triste contando su historia.
the patient seemed-IMP sad telling her/his story
'The patient looked sad while telling his story'

(45) Pedro firmó ese cheque estando ebrio.
Pedro signed that check beingdrunk
'Pedro signed out that check drunk'

Again, if mere temporal overlap was required of e_G and e_M , we would not expect restrictions on the Aktionsart of e_G and e_M .

We take the four pieces of evidence we presented to support the claim that the relation between e_G and e_M is more than temporal. To determine the nature of this relation, we rely on the fact that an SGC_{CIRC} sentence can answer a 'How' question as well the fact that the meaning of sentence (1) can be paraphrased as *entrar cantando es una manera de entrar* 'enter singing is a way entering'. The way-of paraphrase is possible for every instance of SGC_{C-CIRC} ; for example, a way-of paraphrase for sentence (32) is *cocinar mirando TV es una manera de cocinar* 'to cook watching TV is a way of cooking' and a way-of paraphrase of (33) is *manejar fumando es una manera de manejar* 'to

drive smoking is a way of driving'. In contrast, this paraphrase is not possible for (34) (*#mirar TV cocinando es una manera de mirar TV* 'to watch TV cooking is a way of watching') or sentence (35) (*#fumar manejando es una manera de fumar* 'smoke driving is a way of smoking'). We view the 'way-of' and 'how' data as indicative of the presence of what we call an *extrinsic manner* relation between e_M and e_G . We propose that if a sentence is an instance of SGC_{CIRC} , e_M and e_G are both part of a macro-event and, further, the activity that constitutes e_M is the agent's main goal and the activity that constitutes e_G is incidental to this main goal. This distinction between the main and incidental activities accounts for the asymmetry of the descriptions of e_G and e_M . Note that the relation between e_G and e_M in SGC_{C-CIRC} satisfies conditions a.-c. in (24). Leaving aside interruptions in one activity but not the other (Pedro stopped cooking for a while, but still watched TV during that time), the cooking and watching go hand in hand. For every subevent of cooking, there corresponds a subevent of watching. But, in contrast to other subkinds of SGC_C , e_G and e_M in SGC_{C-CIRC} do not satisfy condition d. in (24), since e_G and e_M do not belong to the same causal path. The fact that SGC_{CIRC} sentences satisfy three of the four conditions in (24) suggests that the relation between e_G and e_M in SGC_{CIRC} is similar to the relation exhibited by the corresponding events in $SGC_{C-MEANS}$ and SGC_{C-AGG} , what we call *manner*. The fact that condition d. does not hold motivates our use of the term *extrinsic manner*.

Our analysis of the semantics of SGC_{C-CIRC} builds in an asymmetry between e_G and e_M that reflects the reverse encoding data. But, ultimately, the factors determining which event is the main event and which other concurrent event is incidental in an event pair is a matter of world knowledge. We can only point to some patterns; for example, given a motion event and a non-motion activity, only the non-motion event can be incidental; more generally, telic event descriptions cannot denote an event incidental to the one described by a non-telic event description (Talmy (2000) makes a similar observation with respect to what we call SGC_{MEANS}), as sentences (47) and (48) show.

- (47) El maestro corrigió exámenes escuchando música.
the teacher graded tests listening music
'The teacher graded homework listening to music'
- (48) #El maestro escuchó música corrigiendo exámenes.
the teacher listened music grading tests

'The listened to music while grading the tests'

To sum up this section, we have argued that SGC_C requires e_G and e_M to be parts of a macro-event that are related through a support relation. In the prototypical examples of SGC_C , this relation can be explicated through four conditions (see (24)). When all four conditions are satisfied, as is the case for, $SGC_{C-MEANS}$ and SGC_{C-AGG} , the support relation is what we call *intrinsic manner*. When only conditions a.-c. are satisfied, as is the case for SGC_{C-CIRC} , we talk of an *extrinsic manner* relation. Finally, when conditions a.-b., and d. are satisfied, as is the case for $SGC_{C-CAUSE}$, we talk of *internal cause* support relation.

IV) Conclusion.

This paper has shown that the Gerund Phrase (GP) in the Spanish Gerund Construction (SGC) is sometimes a complement (in SGC_C) and sometimes an adjunct (in SGC_A). In both cases, the GP expresses a non-argument of the main verb's denotation; but, it is a syntactic adjunct in SGC_A whereas it is a syntactic dependent of the main clause's head in SGC_C . It has been observed before that, cross-linguistically, the degree of syntactic dependency between two event-denoting expressions, is proportional to the strength of the semantic relation joining the events. We have shown that this proportion holds for SGC_C since the dependent status of GP in SGC_C correlates with the existence of a mereological relation connecting the events expressed by GP and the main clause to a larger macro-event. Drawing on the work of Talmy (2000), we have analyzed the relation between the events denoted by the gerund verb and main verb through four semantic conditions. Which subset of those four conditions are satisfied in a particular SGC_C sentence determines what subkind of SGC_C is involved.

References:

- Bouma, Gosse, Robert Malouf and Ivan Sag. 2001. Satisfying constraints on extraction and adjunction. *Natural Language & Linguistic Theory* 19:1 1-65.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.

- Ernst, Thomas. 2000. Manners and Events. In Carol Tenny and James Pustejovsky (eds.) *Events as Grammatical Objects*. Dordrecht: Kluwer.
- Hukary, Thomas and Levine, Robert. 1995. Adjunct extraction. *Journal of Linguistics* 31: 195-226.
- Koenig, Jean-Pierre. 1999. *Lexical Relations*. Stanford: CSLI Publications.
- Manning, Christopher, and Ivan Sag. 1998. Dissociations between argument structure and grammatical relations. *Lexical and constructional aspects of linguistic explanation*, ed. by Gert Webelhuth, Jean-Pierre Koenig, and Andreas Kathol. Stanford: CSLI Publications.
- París, Luis, 2003. The grammatical encoding of event relations: Gerund Phrases in Spanish. University at Buffalo, the State University of New York dissertation.
- Pollard, Carl, Ivan Sag. 1994. *Head Driven Phrase Structure Grammar*. Chicago: The University of Chicago Press.
- Przepiórkowski, Adam, 1999. Case Assignment and the Complement/Adjunct Dichotomy. Tübingen: Universität Tübingen dissertation.
- Rappaport Hovav, Malka, and Beth Levin. 2001. An event structure account of English Resultatives. *Language* 77.766–797.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.
- Stump, Gregory, 1981. The formal semantics and pragmatics of free adjuncts and absolutes in English. Ohio State University dissertation.
- Talmy, Leonard. 2000. *Toward a Cognitive Semantics*. Cambridge, MA: MIT Press. 5
- Van Valin, Robert, and Randy LaPolla. 1997. *Syntax: Form, Meaning, and Function*. Cambridge: Cambridge University Press.
- Wechsler, Stephen. 1997. Resultative predicates and control. *Texas linguistic forum 38: The syntax and semantics of predication*, ed. by R. Blight and M. Moosally, 307–321. University of Texas at Austin: Texas Linguistic Forum 6