

A SYNTACTIC APPROACH TO THE SPANISH *AL* + INFINITIVE CONSTRUCTION*

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ABSTRACT. The paper seeks to study the way in which the interpretation is determined in the Spanish *AL* + infinitive construction. The reading of these adjuncts can be temporal or causal. Some previous studies (Rigau 1993; Alonso-Ovalle 2002) have attributed the interpretative disparity to purely semantic reasons, while others (Rigau 1995; Hernanz 1999; Martines 2000) have described the phenomenon without delving too deep in the syntactic details that influence the reading. The aim of this analysis is to approach the problem of the interpretation considering facts of syntactic order. I will claim that the reading is fixed depending basically on two factors: 1) the kind of topological relation that is established in each case – in temporal adjunction, the C head selects an IP as its ground; on the contrary, in the causal adjunction the ground is an XP, a projection between IP and CP that blocks temporal identification.

Keywords: adverbial clauses; infinitive; event identification; stativity; epistemic modality; negation

RESUMEN. Este artículo pretende estudiar la manera como se fija la interpretación de la construcción del español *AL* + infinitivo. La lectura de estos adjuntos puede ser temporal o causal. Algunos estudios previos (Rigau 1993; Alonso-Ovalle 2002) han atribuido la disparidad interpretativa a razones puramente semánticas, mientras que otros (Rigau 1995; Hernanz 1999; Martines 2000) han descrito el fenómeno sin ahondar demasiado en los detalles sintácticos que influyen en cada lectura. El objetivo de este análisis es abordar el problema de la interpretación considerando factores de cariz sintáctico. Mantendré que la lectura se fija dependiendo básicamente de dos factores: 1) el tipo de relación topológica que se establece en cada caso: en la adjunción temporal, el núcleo C selecciona un SFlex como fondo; por el contrario, en la adjunción causal el fondo lo constituye un SX, una proyección entre SFlex y SC que bloquea la identificación temporal.

Palabras clave: subordinación adverbial; infinitivo; identificación eventiva; estatividad; modalidad epistémica; negación

1. The *AL* + infinitive construction: the data

Traditional grammar has often included temporal and causal sentences within the concept of the so-called adverbial subordination. As is well known, the former expresses the temporal circumstances surrounding the event in the matrix sentence, while the latter indicates the logical origin of the event in the main proposition, as can be seen in the Spanish sentences in (1).

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- (1) a. Lo hice cuando me dijiste.
it did.1PL when me told.2PL
 ‘I did it when you told me’.
 b. Como porque tengo hambre.
eat.1PL because have.1PL hunger
 ‘I eat because I am hungry’.

Some recent analyses (since Rojo 1978) have highlighted that the distinction cannot always be drawn in a straightforward way and that, in fact, the very concept of adverbial subordination is meant to be substantially revised. Putting aside some of the key points of this discussion, in the present paper I would like to study a Spanish construction whose interpretation typically fluctuates between the temporal and the causal reading: the construction *AL* + infinitive (henceforth, *AL-T(emporal)c(ausal)c(onstructions)*), which is illustrated in (2).

- (2) a. Al recibir la carta, Laura se puso contenta.
AL receive-INF the letter Laura put.3SG happy
 ‘When Laura received the letter, she became happy’. TEMPORAL
 ‘As Laura received the letter, she became happy’. CAUSAL
 b. Al cantar esa canción, todo el público se puso en pie.
AL sing-INF that song all the public put.3PL in foot
 ‘When he/she sang that song, the entire audience got to their feet’. TEMPORAL
 ‘As he/she sang that song, the entire audience got to their feet’. CAUSAL

The two possible readings of these sentences share the expression of the contiguity between the main clause and the event in the adjunct clause, something which was already noticed by the literature that has studied these structures before (Rigau 1993, 1995, 1998; Martines 2000; Alonso-Ovalle 2002). Such a contiguity does not necessarily mean that the events of both clauses occur simultaneously; what is relevant in all cases is that there is a contact point between both events, so the occurrence of one event is conceived to be tightly related (temporally or logically) to the existence of the other¹. In a sentence like (2b), the event of the adjunct precedes the one in the main clause. However, in a sentence like (3a), the event of the adjunct is subsequent to the one in the matrix clause, a reading that depends on the temporal properties of past perfect. Finally, it can happen, like in (3b), that both events are really simultaneous; such interpretation is given by the syntax that the Spanish imperfect past tense unfolds.

- (3) a. Al verme, Pedro ya había hablado con Marta.
AL see-INF-me Pedro already had.3SG talked with Marta
 ‘When he saw me, Pedro had already talked to Marta’.
 b. Al estudiar Juan en París, yo estaba trabajando en Londres.

¹ Hence, even in contexts where two propositions seem to be temporally or logically distant, like in (i), the use of the *AL-TCC* forces a direct link between both situations.

(i) Al perder Napoleón la batalla de Waterloo, ahora nadie habla francés en Inglaterra
AL lose-INF Napoleon the battle of Waterloo now nobody speaks French in England
 ‘As Napoleon lost the battle of Waterloo, no one speaks French in England nowadays’

AL study-INF Juan in Paris, I was working in London
 ‘When Juan was studying in Paris, I was working in London’.

At the same time, of course, it is also contiguous the relation between any cause and its effect, for effects arise necessarily under the action of a cause (Lucas 1984). This very notion of contiguity is what triggers the seeming ambiguity between one reading and the other. As Lyons (1977: 493) states, ‘the assertion that the two situations succeeded one another in time will frequently be intended, and understood, to imply that they are causally connected’. To sum up, I would like to point out that the concept of contiguity should thus be understood as the relation of partial temporal or logical overlap between two events; the specific reading depends upon a series of factors that will be explored along these pages.² The representations in (4) illustrate the notion of overlap between the event in the embedded clause (EV-1) and the event in the main clause (EV-2).

- (4) a. EV-1 []
 EV-2 []
- b. EV-1 []
 EV-2 []
- c. EV-1 []
 EV-2 []

In linguistic terms, such an overlap has been studied considering the concept of *central coincidence* (Hale 1986, Hale & Keyser 1993, etc.), which is the relation of stable, continuous coincidence between two arguments that Talmy (1978) minted as ‘figure’ and ‘ground’. This topological relation between the figure and the ground is built through the participation of central coincidence prepositions, like *en* or *durante* in *Se alojarán en un hotel en el centro de la ciudad* (‘Lodging is at a hotel in city center’) and *Corrió durante una hora* (‘He/she ran for an hour’). In *AL-TCC*, I will argue that such a coincidence is set by the contraction *al*, formed by the union of the preposition *a* and the definite article *el*.

One singularity of the clauses that will be analyzed is that the complementizer (*AL*) does not show clear cues to determine if the sentences should be understood in one sense or the other. To this the neutral temporality of the infinitive must be added, which, together with *AL*, can just indicate that both events are contiguous, but not to

² Besides the temporal and the causal Reading, I wish to refer briefly to a third kind of reading: the conditional one, like (i):

- (i) *Al enseñar el carné te dan un bocadillo.*
AL show-INF the card you give.3PL a sandwich
 ‘If you show your card, they give you a sandwich’.

These are generic sentences which characterize actions. In other words, they express a notion of conditionality on the basis of the existence of a high number of temporal occurrences. For these cases, it has been posited the existence of an implicit adverbial quantifier (Lewis 1973, Milsark 1974, Carlson 1979, Kratzer 1991, among many others), which operates on events. The conditional reading would derive from the presence of such operator, which links the tense of predicates and locates them in a generic or an atemporal domain. Considering that this kind of interpretation can be found almost in any structures that expresses temporality, I will not consider it in this paper.

define if this coincidence must be interpreted as temporal or causal. Therefore, the relevant parameters must be of different sort. In this paper I will claim that the decisive factors is the kind of topological relation that is forged in each case: in the temporal adjunction, the C head selects an IP as its ground, while in the causal adjunction it selects an XP, an intermediate projection between IP and CP that blocks the temporal identification.

These differences in the structure of the adjunct will be the mainstay of the analysis, which will have a syntactic perspective. Therefore, this paper departs from the precedent works that have attributed the interpretative disparity only to purely semantic terms (Alonso-Ovalle 2002). Before coming to the substance of my analysis, and in order to provide a better descriptive picture, I would now like to jot down the factors that block the temporal reading of the clause:

A) THE STATIVE NATURE OF THE PREDICATE.

- (5) Al ser albino, Alberto no ve muy bien. #TEMPORAL/CAUSAL
AL be-INF albino Alberto not sees very well
 ‘As Alberto is an albino, he does not see very well’

B) ROOT MODALS

- (6) Al tener que comer sano, Juan cenaba ensalada. #TEMPORAL/CAUSAL
AL have.to eat-INF healthy Juan had.dinner.3SG salad
 ‘As Juan had to eat healthy, he had a salad for dinner’.

C) AUXILIARY *HABER* + PERFECT

- (7) Al haber estudiado música, aprecia a un buen operista #TEMPORAL/CAUSAL
AL have-INF studied music appreciates to a good opera.composer
 ‘As he had studied music, he can appreciate a good opera composer’.

D) THE INTERVENTION OF DEGREE (EPISTEMIC) QUANTIFIERS

- (8) Al cobrar tanto por los cafés, ahuyenta a la clientela.
AL charge-INF so.much for the coffees scares.away to the clientele
 ‘As he/she charges so much for the coffes, he/she scares away the clientele’.
 #TEMPORAL/CAUSAL

E) NEGATION

- (9) Al no volver Juan, llamé a la policía. #TEMPORAL/CAUSAL
AL not come.back-INF Juan called.1SG to the police
 ‘As Juan did not come back, I called the police’.

The paper is structured as follows: in section 2 I will focus on the analysis of the C head, especially in the context of non-finite adverbial structures. In section 3 the nature of the head *al* will be addressed, taking into consideration what the contribution of the *-l* element is. The way a temporal reading can be obtained is the subject of §4, where I will consider the relevance of event arguments (Davidson 1967). Section 5 will aim to explain the causal reading through the intervention effects between the IP and the CP. Finally, §6 wraps up with the conclusions.

2. The defectiveness of infinitives: relation between I(NFL) and C

At least since Bresnan (1970), generative grammar considers that complementizers form a kind of functional category whose function is to subordinate one element to another. As is well known, such functional categories head their own projection, CP, and the nature of the complementizer constraints the interpretation of the clause. The minimal pair of (10) illustrates the difference in meaning on the basis of the complementizer's features.

- (10) a. Jorge no sabe que Tomás es arquitecto.
Jorge not knows that Tomás is architect
 'Jorge does not know that Tomás is an architect'.
 b. Jorge no sabe si Tomás es arquitecto.
Jorge not knows if Tomás is architect
 'Jorge does not know if Tomás is an architect'.

In (10), the interpretative disparity lies in the [\pm wh] feature: the [-wh] feature of the conjunction *que* causes the clause to be declarative, while the [+wh] feature of *si* makes the sentence an indirect question. In the cases of adjunct clauses the nature of C is also relevant for the interpretation of such clauses. In (11), the semantics of non-selected clauses is tied to the kind of complementizer that heads the clause.

- (11) a. Como tiene sueño, Alberto bosteza. CAUSAL
As has sleep Alberto yawns
 'As Alberto is sleepy, he yawns'.
 b. Si necesitas ayuda, llámame. CONDITIONAL
If need.2SG help call-me
 'If you need help, call me'.
 c. Aunque insistas, no te dejaré ir. CONCESSIVE
although insist.2SG not you will-let.1SG go
 'Even if you insist, I will not let you go'.

Of course, the interpretative incidence of the C head is also relevant for non-finite adjunct clauses, as *AL*-TCC. But before I go into details, let's remember what is well-known: non-finite forms are characterized by the absence of inflectional features that allow for the anchoring of the clause (Hernanz 1982; Ritter & Wiltschko 2014, among many others). This entails that the syntactic licensing depends upon the existence of a regent head.

- (12) a. *Comprar/comprando/comprado el champán.
Buy-INF buying bought the champagne
 b. Beatriz quería comprar el champán.
Beatriz wanted.3SG buy-INF the champagne
 'Beatriz wanted to buy the champagne'.
 c. Beatriz estaba comprando el champán.
Beatriz was buying the champagne
 'Beatriz was buying the champagne'.
 d. Comprado el champán, fueron a comprar aceitunas.
Bought the champagne went to buy-INF olives

‘The champagne bought, they went to buy some olives’.

In the sentences (12b)-c, the head is the control verb *quería* (‘wanted’) and the auxiliary *estaba* (‘was’), respectively. On the contrary, one might wonder what makes (12d) a grammatical sentence, given that there is no overt regent inflectional element nor an obvious complementizer that makes explicit the logical-semantic connection with the sentence that it is modifying. Note also that this aspect of participles -which is shared by gerunds- contrasts with the behavior of infinitives, which require a preposition for their syntactic legitimacy.

- (13) a. Con tener dinero, no es muy generoso. CONCESSIVE
With have-INF money not is very generous
 ‘Although he/she has money, he/she is not very generous’.
- b. De tener dinero, Juan iría a Egipto. CONDITIONAL
of have-INF money Juan would-go to Egypt
 ‘If Juan had money, he would go to Egypt’.
- c. Al tener dinero, Nuria viaja con frecuencia CAUSAL
AL have-INF money Nuria travels with frequency
 ‘As Nuria has money, she travels frequently’.

What such oppositions are telling us is that infinitives, on the one hand, and gerunds and participles, on the other, have a different aspectual valence. In the case of non-selected clauses, the neutrality of the former necessarily involves the participation of a prepositional regent head, while the latter can assume aspectual/temporal anchoring by themselves, so they naturally reject the presence of a preposition. Such asymmetry has often been captured in lexical terms, by claiming that infinitives, unlike gerunds and participles, are not marked aspectually. Alternatively, some studies (Gallego 2010, Gallego & Hernanz 2012) have developed this idea defending that the sublexical structure of gerunds and participles naturally incorporates a preposition in C, whilst infinitival sublexical structure do not.³

- (14) a. Infinitives: [CP [C [IP [I [VP [v ...]]]]]
 b. Gerunds: [P-CP [P-C [IP [I [VP [v ...]]]]]
 c. Participles: [P-CP [P-C [IP [I [VP [v ...]]]]]⁴

The dissimilarity in (14) is tied to the idea that the infinitive can have a regent head which is not prepositional. Nonetheless, the three forms become analogous in non-selected contexts, for in all cases a (covert or overt) preposition is needed. In other words, all these defective forms behave like PPs, which leads us to assume that in all these contexts P occupies the C position (Kayne 2000). Above all, it is important to note that prepositions are a natural candidate for occupying such a position, in view of the fact that in adverbial contexts they seem to be purely functional categories: on the one hand, they form a closed class of elements, i.e. the number of items that shape the

³ I understand the (quite vague) concept of *aspectual density* as the presence of some aspectual-like component in a given linguistic element, so that it permits the anchoring of an argument to some spatial/temporal coordinates. Hence, the gerund and the participle are denser than the infinitive because they embody a preposition in its sublexical structure.

⁴ In these analyses, participles differ from gerunds in the fact that their v is defective.

category is limited;⁵ on the other hand, prepositions are a quite abstract category, in the sense that they lack conceptual value. Thus, the semantics of these prepositions is a weak one, given that they are endowed with just a few semantic features. Prepositions that can act as complementizers seem to perform a strictly grammatical function, because their presence is motivated by the need of supplying an anchor to the infinitive, so it can be licensed.

In this kind of adverbial infinitival sentences, the relation between the infinitive and the preposition has led to the formulation of different theories (Hernanz 1994; Pesetsky & Torrego 2001, 2004), which posit an I(NFL)-to-C (or rather the notational variant T-to-C) in order to explain how the temporal defectiveness of the non-finite form can provide for the lack of inflection. Obviously, such a movement is not necessary in the cases where I is enough specified in the syntax by the possession of inflectional morphology. In these cases C does not require a preposition –the aspectual features of the preposition are unnecessary when the strong I of the predicates can specify temporality on its own, as happens in (15):

- (15) Iremos a Roma cuando llegue el buen tiempo
will-go-IPL to Rome when comes the good weather
 ‘We will go to Rome when the fine weather comes’

Nevertheless, when I lacks inflectional features, I-to-C movement has the function of filling the temporal specification of the infinitive. In sentences like (13), the preposition seems to behave like a copy of I in C, in order for the defective temporal feature of the infinitive to be endowed with enough density to yield a grammatical sentence. In other words, the preposition in C is a temporal ferule for the infinitive. As can be observed in (16), I and C maintain a long-distance concord: the weak temporality of infinitival Is is supplied through the aspectual features of the preposition:

- (16) [CP [C al [IP [I tener [VP ...]]]]] LONG-DISTANCE CONCORD

In *AL*-TCC, *AL* binds the tense of the clause through concord with I. Thus, it is because C (=P) and I maintain such a relation that the clause becomes licensed at the level of LF: the infinitive is provided of information that was lacking originally, and therefore the sentence can act as the ground of the topological relation, obtaining a specific adverbial value.

This analysis entails that the relation between I and C happens in all the cases of *AL*-TCC (i.e. regardless of the clause being temporal or causal), contrary to the view of Rigau (1995, 1998), who argues that the causal reading is obtained because the intervention of an intermediate layer between I and C hinders the raising of the predicate (V+I, in her analysis) to the preposition. In this paper I will claim that the presence of an intermediate XP does not block the concord between the preposition and the infinitive, for this relation is always necessary to explain the anchoring and thus the legitimation of the adverbial clause. On the contrary, I will argue that the existence of the XP is relevant for the kind of topological relation that is forged in each case.

⁵ Only linguistic change can alter, through a process of gramaticalization, the number of elements that form such class.

If, as stated, the particle in C conditions the interpretation of the adjunct, it is logical to think that in *AL*-TCC the adverbial value comes from the features that *AL* has. Such a value is of central coincidence, even though both temporal and causal readings can denote this sort of coincidence. Section 3 does not want to approach the way we obtain one reading or the other, but to delve into the internal composition of the complementizer, one aspect that has barely been studied before.

3. The internal composition of AL

First of all, let's recall that a central coincidence preposition expresses the overlap between two entities – in this case, the two propositions. Inherently, the preposition *a* in Spanish seems to codify this kind of relation in Spanish⁶, but nevertheless it contrasts with the central coincidence preposition *en*, as can be seen in (17):

- (17) *Mónica está/vive/duerme *a/en su casa.*
Mónica is lives sleeps A/EN her home
 'Mónica is/lives/sleeps at home'.

Cursorily, I would just like to highlight that these two prepositions codify what the literature has designated as *conjoint* (Romeu 2014), since the elements that are combined are interpreted as connected to each other. This difference allows us not to analyze *a* as a directional preposition, since it appears in contexts which are not of this sort (Fábregas 2007):

- (18) *La casa está a las afueras.*
The house is A the outskirts
 'The house is at the outskirts'

However, the difference that (17) captures needs to be explained, because it seems obvious that *a*, while being a central coincidence preposition, needs the article *-l* to bear grammatical sentences. Let's compare (19a) with the Catalan counterpart to *AL*-TCC in (19b): *en* expresses by itself the conjoint relation that is needed, since it satisfies the overlapping requirement between the two entities.

- (19) a. **A llegar, vi a tu primo.* SPANISH
A arrive-INF saw.1SG to your cousin
 b. *En arribar, vaig veure el teu cosí.* CATALAN
EN arrive-INF did.1SG see-INF the your cousin
 'When I arrived, I saw your cousin'.

This being so, the required contiguity relation could not be without the participation of the article *-l* to form the contraction. However, if this article is thought to be as a regular determiner it would be hard to explain why the apparition of *-l* does

⁶ I am not considering here other contexts where the preposition *a* seems to have a manner value.

- (i) *Lo asesinó a cuchilladas.*
 Him murdered A gashes
 'He/she stabbed him to death'
 (ii) *Está hecho a piezas*
 Is made A pieces
 'It is made of pieces'.

not result in a nominalization of the clause in any case. Rigau (1993) provides some convincing tests to rule out that the function of the determiner is the conversion of the infinitive into a noun. First, the author claims that *AL*-TCC does not let the infinitive have adjectival modifiers, unlike nominalized sentences, as (20) shows:

- (20) a. *Al mirar tan profundo que tiene, me quedé absorto.
AL look-INF so deep that has rested.1SG absorbed
 b. Con ese mirar tan profundo, me quedé absorto.
with that look-INF so deep rested.1SG absorbed
 ‘As he/she had such a deep look, I was absorbed’.

Second, in nominalization cases the external argument appears in genitive; as (21) illustrates, this cannot happen in *AL*-TCC:

- (21) a. *Al sonreír de Ana, puse contento.
AL smile-INF of Ana put.1SG happy
 b. Con el sonreír de Ana, me puse contento.
with the smile-INF of Ana put.1SG happy
 ‘Ana smiling put me happy’

Moreover, the infinitive of *AL*-TCC accepts adverbial modifiers, unlike nominalized infinitives like the one in (22b):

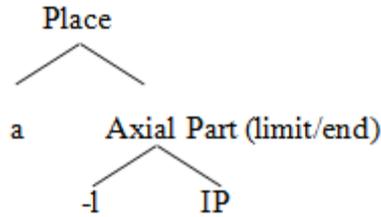
- (22) a. Al hablar tan fuerte, me tapé los oídos.
AL talk-INF so loud me covered.1SG the ears
 b. *Con el hablar tan fuerte, me tapé los oídos.
with the talk-INF so loud me covered.1SG the ears
 ‘As he/she talked so loud, I covered my ears’.

Finally, infinitives of *AL*-TCC accept internal arguments, while nominalized infinitives do not:

- (23) a. Al hablar Jialu de política china, desconecté.
AL talk-INF Jialu of politics Chinese disconnected.1SG
 b. *Con el hablarme Jialu de política china, desconecté.
with the talk-INF-me Jialu of politics Chinese disconnected.1SG
 ‘When Jialu talked to me about Chinese politics, I disconnected’

Once this tests have shown that we are not dealing with nominalized clauses, let’s return to what the contribution of the *-l* element is. As mentioned, *a* is a conjoint preposition, but, contrary to *en*, it expresses ‘contact with a limit’ (Fábregas 2007; Brucart 2010). As the ground of the topological relation (the subordinate clause) is not nominal, *-l* is necessary as an Axial Part in order to define such a limit. In other words, *a* seems to describe an interval whose perimeter borders with another element; *-l* defines such a temporal/spatial confine (Amritavalli’s 2007 *end*). The analysis of (24), inspired in the work of Svenonius (2006) or Fábregas (2007) illustrates such proposal:

(24)



Therefore, the semantic function of the axial part is to identify a temporal or spatial point that acts as a ground. Whilst it is true that *-l* does not bear as semantic content as other elements that act as axial parts (*en-frente* (in front), *en-cima* (atop), etc.), it is true that it does have a D-feature that allows it to provide -ultimately as it is normal for articles- a notion of definiteness, which is what denotes the spatial-temporal limit.⁷ In (24), the projection *Place* plays a relational role that is common to all prepositions, while the axial part, *-l*, codifies the termination that fully likens *AL* with the preposition *en*. In sum, what I suggest is that *-l* behaves as a bounding element that expresses the limit to which the locative preposition *a* adjoins. These two elements form an integrated functional whole which occupy the C head.

4. Event identification and temporal readings

As was highlighted at the beginning of the paper, the relation of overlap that *AL-TCC* express can be temporally or causally defined, as (25) shows:

- (25) a. Al ver al león, Juan huyó.
AL see-INF to.the lion Juan ran.away.3SG
 ‘When Juan saw the lion, he ran away’ TEMPORAL
 ‘As Juan saw the lion, he ran away’ CAUSAL

If we read (25) temporally, the sentence expresses that the escape of Juan started *in the moment when* he saw the lion. In such case, the central coincidence that *AL* materializes is between the time of the two events. If the relevant head for the (temporal or causal) interpretation is I, the disparity must lie in the syntactic operations that happen inside each clause. The defectiveness of I might make one think that the infinitive can acquire one value or the other indistinctly, and that, therefore, lots of expressions are ambiguous and susceptible to have the two interpretations, like the ones in (26):

- (26) a. Al sonar el timbre, me vestí rápidamente.
AL ring-INF the doorbell me dressed.1SG quickly
 ‘When the doorbell rang, I dressed myself quickly’ TEMPORAL
 ‘As the doorbell rang, I dressed myself quickly’. CAUSAL
- b. Al ver a su amo, el perro empezó a mover la cola.
AL see-INF to his owner the dog started.3SG to wag-INF the tail
 ‘When the dog saw his owner, he began to wag his tail’. TEMPORAL
 ‘As the dog saw his owner, he began to wag his tail’. CAUSAL

⁷ Also Terzi (2004) suggests that the axial part is somehow related with definiteness features. Moreover, Real Puigdollers (2013) propounds summarily that the axial part could come from a quantification structure of the ground.

Notwithstanding the double reading that the sentences in (26) allow for the reader, in this paper I am going to claim that no such ambiguity resides in the mind of the speaker, who builds the sentences either giving them a temporal or a causal value. Throughout these pages I would like to develop an analysis that gives an account of the structural difference between the two kind of adjuncts, one difference that is linked to the temporal information relative to the event.

If we attribute a temporal reading to (26b), what it is expressed is that the dog did not begin to wag his tail because of *the fact* of seeing his owner, but that the moment of seeing him coincides with the moment of wagging his tail. If we assumed a subeventive theory (Schein 1993; Pietrosky 2005; Ramchand 2011, 2013), we could say that the temporal ground is the non-durative phase that a predicate like *seeing his owner* codifies. In other words, the main predicate is contiguous with the *telós* which is present in the structure of the event in the adjunct clause. Nevertheless, what makes it possible for (26b) to be interpreted temporally is not the existence of a limit; sentences in (27) can be read temporally in spite of being activity predicates:

- (27) a. Al correr en ese circuito experimentas nuevas sensaciones.
AL race-INF in that circuit experiment.2SG new sensations
 ‘When you race in that circuit you experiment new sensations’.
- b. Al cocinar sushi, Ignacio se pone música japonesa.
AL cook-INF sushi Ignacio puts music Japanese
 ‘When Ignacio cooks sushi he puts on Japanese music’.

In such cases, the predicates *experimenting new sensations* and *putting on Japanese music* coincide centrally with the predicates *racing in that circuit* and *cooking sushi*.⁸ Thus, one might wonder what causes the predicates in (26) and (27) to be able to denote a temporal ground, but not (28), which have necessarily a causal reading.

- (28) a. Al no regresar, llamé a la policía #TEMPORAL/CAUSAL
AL not come.back-INF called.1SG to the police
 ‘As he/she didn’t come back, I called the police’.
- b. Al parecerse a su padre, Edu es muy moreno #TEMPORAL/CAUSAL
AL look.like-INF to his father Edu is very brown
 ‘As Edu looks like his father, he is very brown’.

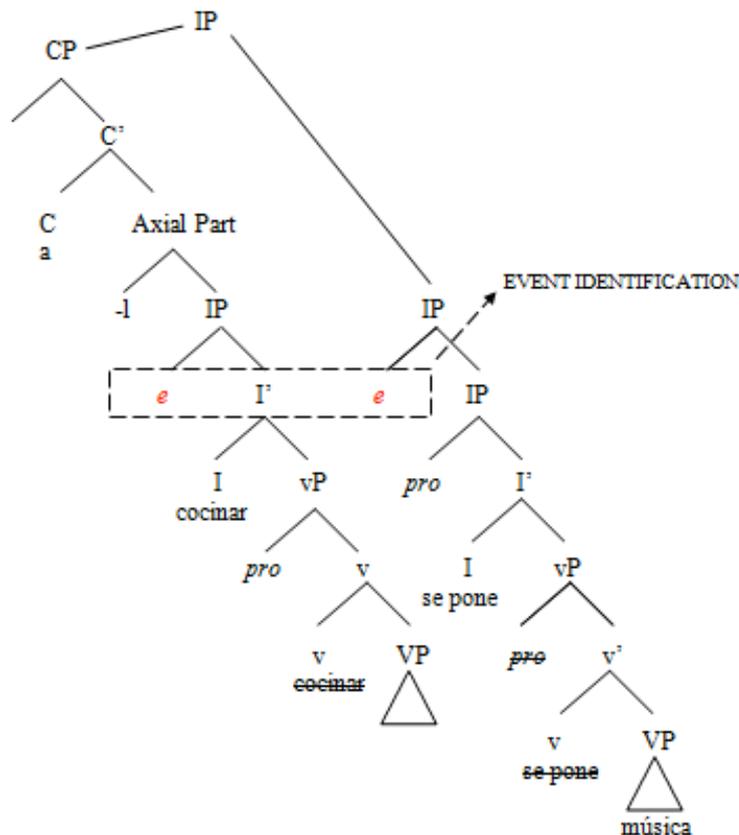
What this contrast points out is that the relevant opposition is not durativity vs. punctuality. In order to function as a temporal adjunct, the predicate must have the *event argument* when forging the topological relation. In ‘The logical form of action sentences’, Davidson (1967) concludes that what he calls ‘verbs of action’ possess an event argument (<e>) as part of their argument structure. Such an argument is distinct from the other arguments in not being marked thematically, i.e., it does not represent a participant which is saturated by marking in a structural position internal to the vP. This is why some authors, as Kratzer (1994), have proposed that the event argument is the real external argument, since it is the last argument to be saturated and, furthermore, it is the most independent one from a semantic point of view, considering that, as has usually been claimed, it is present in all predicates.

⁸ To this respect, it does not seem that *AL* can only indicate an instant, as is stated in Rigau (1995, 1998). On the contrary, in (27) the *AL*-TCC seems to denote an interval, i.e. the durative phase in which the event of the matrix clause is framed.

However, this is a controversial point: Kratzer (1995) upholds that individual-level predicates lack such an argument, because a sentence like ‘Juan is afraid of spiders’ is not actually an event, but a property of Juan. Otherwise, other authors, like Higginbotham (1985, 1987), Herburger (1993) or Uriagereka & Raposo (1995) argue that there are no purely individual-level predicates, but that such a label is assigned depending upon the syntactic operations that have an impact on the event argument and its scope. Although the details of such discussion will be retaken later, by now I would like to say that in this paper I will follow this second approach and support the uniform existence of an event argument for all predicates.

Regarding the position where such event argument is generated, I will assume that it is merged in a position higher than the vP, specifically in the spec, IP. As aforementioned, this means that the davidsonian argument is genuinely external to the vP, which appears reasonable considering, on the one hand, that the other internal argument and the external argument have cornered all the structural positions in the vP and that, on the other hand, ‘the central property of the event to which the predicate relates is the temporal localization (events are not really events if they do not take place in a moment or a temporal interval)’ (Bosque & Gutiérrez 2009: §5.5.2., translation: PR). Located in spec, IP, the <e> of the event in the adjunct can undergo a process of *event identification* (Kratzer 1994), which is the distant association of the event arguments of the IPs in the matrix clause and the adjunct clause, as (29) shows:

(29)

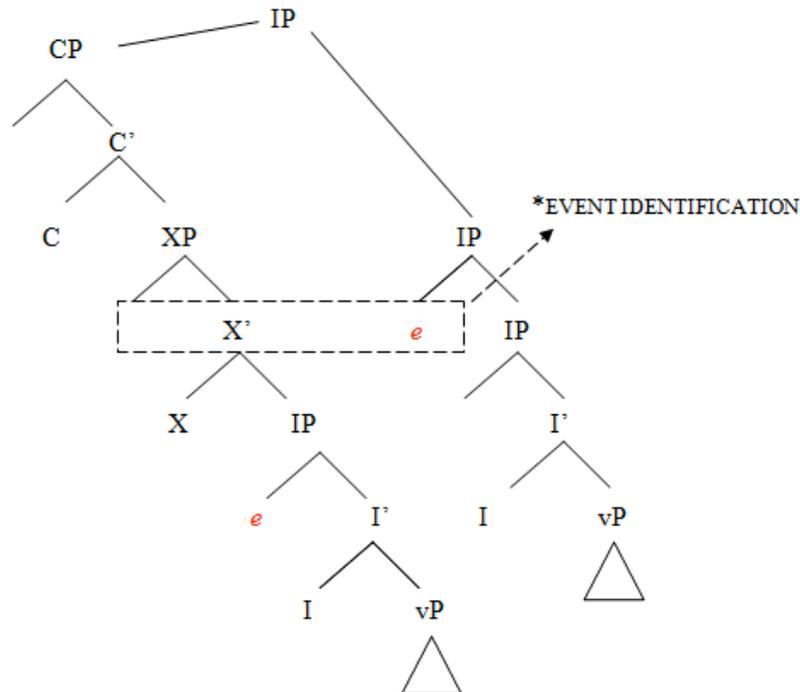


It is worth remembering that I-to-C movement has equipped the clause with a temporal anchoring that licenses the coincidence with the main predicate, but this does not guarantee that the subordinate clause obtains a temporal reading. In this

paper I will uphold that, contrary to the causal reading, the temporal reading needs to be licensed, so it is only possible if the event argument of the adjunct predicate can undergo event identification with the event argument of the matrix clause or, in other words, if *AL* can forge a coincidence relation between two IPs.

For this identification to happen, it is necessary that no intervention effect takes place, i.e., that no projection appears immediately selecting the IP. If this happened, the event of the main clause could not form a topological relation with the IP of the adjunct, for the Davidsonian argument would not be visible for the identification mechanism. The factors that impede such an identification because of an intervention effect are diverse, and their surface manifestation was listed before (examples 5-9). For the sake of clarity, let's repeat them: the stative nature of the predicate (a group which also includes root modals and *haber* ('have') + perfect, as will be seen), the degree (epistemic) quantifiers and negation. The singularities of each intervention effect will be the subject of §5. Now I would like to highlight that the temporal reading will not be possible when an intermediate projection between I and C exists. If the topological relation is established between an XP and an IP we obtain a causal reading, as happens in (30):

(30)



The representation in (30) shows that the ground of the topological relation –the adjunct– is not headed by an IP, so the figure cannot establish the identification mechanism with the event argument of the adjunct clause. It is worth noticing that the causal reading does not require an event argument, for it abstracts from the temporal location in which the described situation occur. Causes do not need such an argument, because they do not place the consequence temporally, but they just precede them logically. Put another way, causal adjuncts link two contiguous situations logically, while temporal adjuncts locate an event in a concrete temporal level, thanks to the event identification of the two event arguments.

5. Intervention effects and causal readings

In §4 we have seen the importance of the Davidsonian argument's being in a position where the event identification can take place. We have also seen that the absence of event identification is due to the intervention of a projection that causes opacity, specifically an XP that can take several specifications. Now I would like to underscore that in all cases such XP plays a similar role:

- (31) i) This projection always selects an IP, and when doing so, it offers some kind of evaluation or qualification about the propositional content of this layer. As we will see, it presents the perspective of the speaker about the event or it presents a judgment about the truth value of the proposition.
 ii) As argued, the consequence is that the event argument is not accessible when forming the topological relation. The IP of the matrix clause is adjoined to a projection which does not codify temporality, but offers a judgment about the layer that integrates it (the IP).

The positing of such a structural space between IP and CP is far from being new. Other authors have argued for the existence of functional projections that have effects over the IP, as was noted by Bosque (1996): the FP (Uriagereka & Raposo), the SigmaP (Laka 1990), the PolarityP (Culicover 1992), the ModalityP (Terzi 1991) or the FinitenessP (Rizzi 1997). Along these pages we will see the effect of all these projections in more detail, but now I would like to return to the clauses with an apparent double reading.

5.1. Clauses with an alleged double reading

In a previous section I denied that there is an ambiguity in the mind of the speaker when conceiving the sentences of (26), repeated in (32):

- (32) a. Al sonar el timbre, me vestí rápidamente.
AL ring-INF the doorbell me dressed.1SG quickly
 'When the doorbell rang, I dressed myself quickly' TEMPORAL
 'As the doorbell rang, I dressed myself quickly'. CAUSAL
 b. Al ver a su amo, el perro empezó a mover la cola.
AL see-INF to his owner the dog started.3SG to wag-INF the tail
 'When the dog saw his owner, he began to wag his tail'. TEMPORAL
 'As the dog saw his owner, he began to wag his tail'. CAUSAL

The difference of these sentences with respect to the ones in (5)-(9) is that there is not a clear factor that disables the temporal reading. Given that the identification between event arguments is possible for cases like (32), the clause is susceptible to be being read temporally. Nonetheless, if we admit the absence of indeterminacy for the speaker we must assume the existence of two distinct structures: one for temporal adjuncts and one for causal ones. On the basis of what was proposed in (31), I would like to uphold that, when sentences like (32) obtain a causal interpretation, an XP immediately dominating the IP is also projected. This conception draws our analysis close to the idea of Lyons (1977) or Alonso-Ovalle (2002) that causality is a reinterpretation of temporality. In this case, the XP allows the interfaces to read the clause detached from the mere temporality, instead of interpreting the clause as a judgment by the speaker, who conceives the adjuncts as the causes of other events.

It should be noted that the notion of temporality does not require the deducting exercise that has to explain the correspondence between any cause and any effect. Unlike temporality, causality always requires an inferential contribution by the speaker. When the XP forms a topological relation with the IP of the main sentence, the adjunct is not interpreted as the temporal placement of the event, but as the reason that causes it. In other words, for the speaker the ground ceases to be the temporal reference frame and becomes the cause that explains the occurrence of an event. The codification of such a structural layer allows for the abstraction with respect to the *moment* when the events take place, for there is no possibility of establishing a topological relation with event identification. Therefore, sentences in (32) fit into the analysis of (30).

Once these contexts have been seen, let me turn now to the other contexts where an intermediate projection acts as a barrier for the event identification. For convenience, the sentences in (33) repeat the ones in examples (5)-(9).

- (33) a. Al saber francés, veo Audiard en versión original. #TEMPORAL/CAUSAL
AL know-INF French watch.1SG Audiard in version original
 ‘As I speak French, I watch Audiard in original versions’
 b. Al no ver la señal de tráfico, choqué contra la farola. #TEMPORAL/CAUSAL
AL not see-INF the sign of traffic smashed.1SG against the streetlamp
 ‘As I didn’t see the traffic sign, I smashed into the streetlamp’.
 c. Al llegar tan tarde, no me dio tiempo a tomar el café. #TEMPORAL/CAUSAL
AL arrive-INF so late not gave.3SG time to take-INF the coffee
 ‘As I arrived so late, I didn’t have time to have a coffee’.

In the next sections I will see in more detail the incidence of this extra XP, taking into consideration the stative nature of the predicate, epistemic modality and the polarity of the sentence.⁹

5.2. Stative predicates

The aspectual nature of the predicate is one of the factors that influence the interpretation. It has already been mentioned that in this paper it will be assumed that individual-state predicates also involve an event argument at the level of IP, although it is not *accessible*. As shown in (34), there is not a moment of weighing thirty kilos, being an atheist or smelling like orange.

⁹ The analysis of focalized elements in the *AL*-TCC will be the object of further research. The focalized phrases are located between I and C, so is expectable that the focal projection also blocks temporal identification. Indeed, this is what seems to happen in the structures of (i) and (ii):

- (i) a. Al ver a su madre en la estación, Joaquín sonrió TEMPORAL/CAUSAL
AL see-INF to his mother in the station Joaquín smiled
 ‘As/When Joaquín saw his mother in the station, he smiled’.
 b. Al ver A SU MADRE (y no a su padre) en la estación, Joaquín sonrió. #TEMPORAL/CAUSAL
AL see-INF to his mother and not to his father in the station Joaquín smiled
 ‘As Joaquín saw HIS MOTHER (and not his father) in the station, he smiled’.
 (ii) a. Al preguntarme por Javier, puse cara de póquer. TEMPORAL/CAUSAL
AL ask-INF-me for Javier put-1SG face of poker
 ‘As/When he/she asked me for Javier, I put a poker face’.
 b. Al preguntarme POR JAVIER (y no por mi hijo), puse cara de póquer #TEMPORAL/CAUSAL
AL ask-INF-me for Javier and not for my son put face of poker
 ‘As he/she asked me FOR JAVIER (and not for my son), I put a poker face’.

- (34) a. Al pesar treinta kilos, no lo dejan subir. #TEMPORAL/CAUSAL
AL weigh-INF thirty kilos not him let.3PL go.up-INF
 ‘As he weighs thirty kilos, they do not let him up’.
- b. Al ser ateo, no entra en ninguna iglesia. #TEMPORAL/CAUSAL
AL be-INF atheist not enters in no church
 ‘As he/she is an atheist, he/she does not set a foot in any church’
- c. Al oler a naranja, ese champú tiene éxito #TEMPORAL/CAUSAL
AL smell-INF to orange this shampoo has success
 ‘As this shampoo smells like orange, it is successful’.

As will be seen later, the event argument is not visible, so the predicates in (34) do not express a happening; conversely, they denote constant properties of an individual, which are independent of the contingencies that are tied to the events. A way of approaching this problem is by assuming that the aspectual nature of the verbal primitive is the one that impedes the event identification. This view contends that the *vs* whose primitive is BE (according to Hale & Keyser 1993’s theory) can only obtain a causal reading, since they disable the manifestation of the Davidsonian argument *per se*. Raposo & Uriagereka (1995) delve into the notion of stativity and argue that a predicate is considered stative if the Davidsonian argument is subsumed under the expression of a property of the subject through the application of some purely syntactic operations. Ultimately, this entails defining stativity as a non-inherent notion, and thus assuming that all predicates have eventive characteristics. This conception, contrary to Kratzer (1994), seems to make sense if we observe that the event argument is retrievable if certain syntactic mechanisms enter into play, as happens with aspectual auxiliaries like the ones in (35), where the sentence can be read temporally.

- (35) a. Al volver a ser republicano, Tomás fue más feliz.
AL return-INF to be republican Tomás was more happy
 ‘When Tomás was a republican again, he was happier’.
- b. Al dejar de tener veinte años, Ana renunció a la paga
AL leave-INF of have-INF twenty years Ana renounced.3SG to the pay
 ‘When Ana stopped being twenty, she renounced the pay’.

In order to explain what constitutes a stative predicate, Raposo & Uriagereka take profit from the terminology by Kuroda (1972) and argue that the relevant difference is the kind of judgment -categorical orthetic- that the speaker carries out when making an utterance. Categorical judgments are related to the prominence of an argument which designates the features that define and differentiate an entity;thetic judgments just present a happening. True individual-level predicates are fully in line with categorical judgments, whilst stage-level predicates can also obtain an eventive reading. This is why only stage-level predicates can have a temporal reading, while individual-level predicates do not.

- (36) a. Al ser joven tienes muchos problemas.
AL be-INF young have.2SG a.lot.of problems.
 ‘When you are young you have a lot of problems’ TEMPORAL
 ‘As you are young, you have a lot of problems’. CAUSAL
- b. Al estar embarazada comía mucho.
AL be-INF pregnant ate.3SG a.lot

‘When she was pregnant, she ate a lot’.

TEMPORAL

‘As she was pregnant, she ate a lot’.

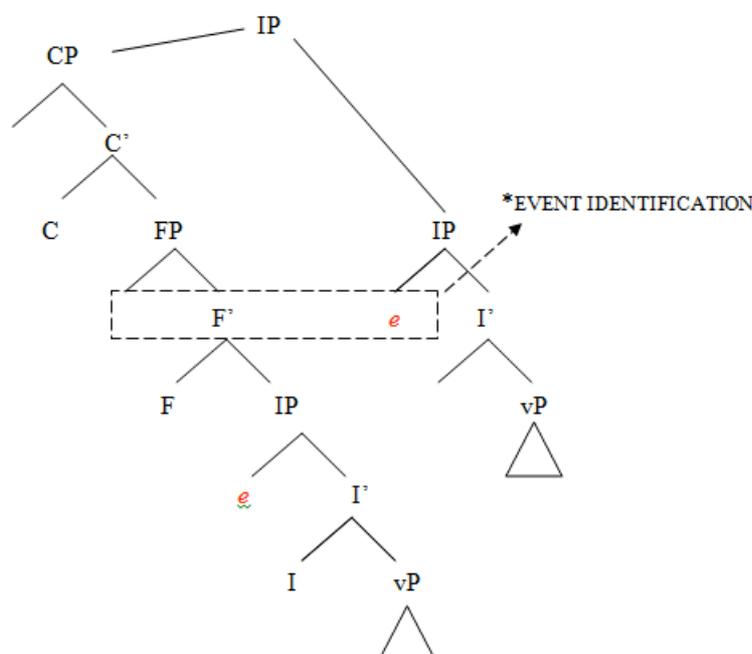
CAUSAL

Herburger (1993) posits that the interpretation of the predicate as stative depends upon the scopal relations between the subject and the ‘event operator’ that all predicates select: in stative predicates, the subject has scope over such operator, while in non-stative predicates the operator has scope over the subject. Raposo & Uriagereka (1995) present a similar idea, even though they argue that the visibility of the event argument is attached to information structure operations. According to these authors, in order for a predicate to be stative it becomes necessary a sort of topicalization that makes the property of the subject -the category- more prominent than the event. Thus, in order to make a categorical judgment, a topicalization operation is needed. Put another way, in sentences with stative predicates, the subject is what the sentence is about (the ‘aboutness’); hence these subjects are considered topics. In Raposo & Uriagereka’s work, in these stative context the subject moves to FP, whose specifier is the landing site of topicalized phrases. Of course, this projection FP corresponds to the XP layer that was posited in (30).

The preeminence of the subject over the event entails that, in a sentence like (34c), the stative predicate denotes a temporal interval in which the time of execution of the shampoo smelling like orange includes all the times in which it smells like orange. Given the fact that the temporal limits of the phrase are not precise, these adjuncts receive a causal reading, because ‘(t)he essential properties or dispositions of an individual are, of course, naturally viewed as being among the reasons or causes for that individual behavior’ (Stump 1985: 311).

Leaving aside the syntactic details of Uriagereka and Raposo’s theory, what I want to point out is that a structural layer acts as a barrier for event identification. As a result, the sentences in (34) receive a causal reading, for temporality is opaqued by the FP layer, as (37) shows. CP does not act as a barrier because it is the layer that incorporates the preposition, i.e. the relational element that relates the figure (the IP of the main clause) and the ground (the IP or the XP of the subordinate clause):

(37)



The retrieval of the eventive characteristics of the predicate, which was shown in the examples of (35), can be carried out through the intervention of a phase-aspectual auxiliaries, like *empezar a* ('start to'), *dejar de* ('stop'), *acabar de* ('finish'), etc. These periphrases express the internal development of an event, and are capable of denoting the verbal action by themselves.

- (38) Óscar empezó / dejó / acabó la novela
Óscar started / left finished the novel

Given that the sentences in (35) do not highlight the property of the subject, but a happening, there is no FP projection, and thus the event argument is available for the identification mechanism.

As was advanced at the beginning of the paper, predicates with root modals can fit into the notion of stativity. As is well known, modality is used to talk about hypothetical situations that may not occur in the real world (Lewis 1973, Kratzer 2012). In other words, they express states of things that go beyond the actual world. However, the extension of the term 'modality' encompasses some phenomena that behave in quite different ways. In §6 we will see that epistemic modality expresses the possibility or the necessity that a given proposition occurs across worlds according to the view or the knowledge of the speaker. Conversely, root modality is relative to a set of rules or physical possibilities that have an impact on the subject. This kind of modals is the one that (39) illustrates:

- (39) a. Al tener que respetar las normas, conduce lento.
AL have that respect-INF the rules drives slowly
 'As he/she must respect the rules, he/she drives slowly'
 #TEMPORAL/CAUSAL
- b. Al poder levantar 100 kilos, Juan presume de ser fuerte.
AL can lift-INF 100 kilos Juan boasts of be-INF strong
 'As he can lift 100 kilos, Juan boasts of being strong'
 #TEMPORAL/CAUSAL

Some recent literature (Bosque 2000; Hommer 2010; Hacquard 2011) has discussed the nature of root modals. These authors have argued for the 'stativizing' properties of these auxiliaries. Some evidence is presented in Jaque (2014):

A) THEY DO NOT ACCEPT LOCATIVE MODIFICATION¹⁰:

- (40) a. Al tener que respetar las normas (#en Canadá), conduce lento.
AL have that respect-INF the rules in Canada drives slowly
 'As he/she must respect the rules (#in Canada), he/she drives slowly'.
- b. Al poder hablar (#en el circo), el perro sorprendió al mundo.
AL can-INF speak-INF in the circus the dog surprised.3SG the world
 'As the dog was able to speak (#in the circus), he surprised the world'

B) THEY DO NOT ACCEPT THE MODIFIER *UN POCO* ('A LITTLE')

¹⁰ Locative modification is only possible if it is interpreted as a frame-setting phrases, in which case it is not of our interest, because they are not modifiers of the event.

- (41) Al tener que comer sano (#un poco), Juan cenaba ensalada.
AL have to eat-INF healthy a little Juan had-dinner.3SG salad
 ‘As Juan had to eat healthy (#a little), he had a salad for dinner.’

C) THEY DO NOT ACCEPT THE MODIFIER *LENTAMENTE* (‘SLOWLY’)

- (42) Al saber conducir (#lentamente), siempre lleva él el coche.
AL know-INF drive-INF slowly always brings he the car
 ‘As he can drive (#slowly), he always brings the car’.

Something similar happens with the auxiliary *haber* (‘to have’) + perfect. As previously mentioned, these sentences have only a causal reading:

- (43) a. Al haber llorado, Laura tenía los ojos rojos.
AL have.inf cried Laura had.3sg the eyes red
 ‘As Laura had cried, she had watery eyes’.
 #TEMPORAL/CAUSAL
- b. Al haber aprobado, el estudiante irá a la universidad.
AL have.inf passed the student will-go to the university
 ‘As the student has passed, he will go to the university’.
 #TEMPORAL/CAUSAL

Some previous literature has dealt with the stative nature of *haber* + perfect (Katz 2003, Nishiyama & Koenig 2004, 2010, Michaelis 2011, Piñón 2014, Carrasco 2014). The reason why perfects are defined as stative varies according to how the analysis is carried out. Carrasco (2014: 2) presents a quite accurate overview of the matter:

Katz (2003) adopts a *resultant state* analysis. That means that Perfect predicates are thought to denote the state from the occurrence of the verbal event (Parsons 1990; Kamp & Reyle 1993). In Nishiyama & Koenig (2004, 2010) and Piñón (2014), the Perfect is responsible for the insertion of states into discourse. Their interpretation is determined lexically (especially with telic predicates) or contextually (with telic or atelic predicates). Finally, according to Michaelis (2011) the Perfect is a grammatical mechanism of aspectual coercion to obtain stative predicates.

Leaving the discussion of the details aside, what interests us is that sentences with *haber* + perfect pass all the stativity tests presented above (40-42), as (44) illustrates. It is important to note that the properties highlighted in (44a, b, c) do not refer to the resultant state, but to the event below.

- (44) a. Al haber cenado (#en el comedor) ya, no tengo hambre
AL have-INF suppered in the dinning.room already not have.1s hunger
 ‘As I have already had dinner (#in the dinning room), I am not hungry.’
- b. Al haber concursado con anterioridad (#un poco), Fernando no puede volver a participar
AL have-INF contested with anteriority a little Fernando not can return to participate
 ‘As Fernando has previously contested, he cannot participate again’.
- c. Al haber finalmente invadido Crimea (#lentamente), la Comunidad
AL have-INF eventually invaded Crimea slowly the community

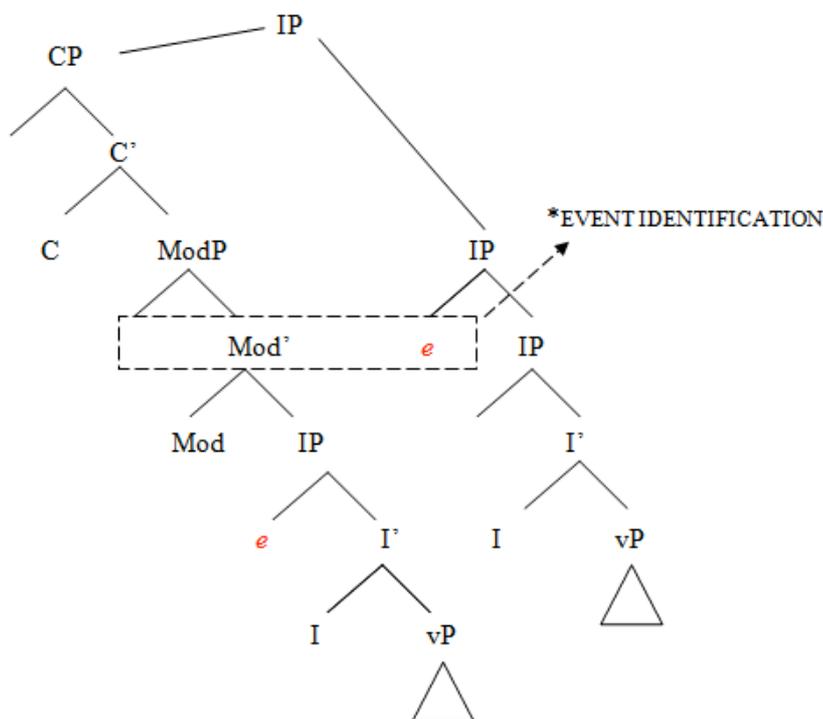
Internacional decidió tomar medidas
international decided take-INF measures
 ‘As Crimea has eventually been invaded (#slowly), the International Community decided to take action’.

All these tests let us link root modals and *haber* (‘have’) + perfect with the FP layer that was propounded in (37). These auxiliaries seem to check their stative nature in the FP projection above the IP. This means that the event identification is not possible, so these clauses can only have a causal value.

5.3. Epistemic quantifiers

In opposition to root modality, epistemic modality has been conceived as the cognitive qualification of events according to the speaker, or, in a more general sense, the link between his thoughts and the acts he/she verbally describes (Bosque 1996). In other words, epistemic modality introduces a referential frame to value events and calculate the possibility or the necessity of their execution in the real world. Thus, epistemic modals behave like quantifiers over possible worlds (Copeland 2002; Hacquard 2011). On this basis, it is conceivable that the structural layer that corresponds with the expression of this sort of modality is located in a high position, in order to evaluate the propositional content of the clause according to the knowledge of the speaker. As has been argued (Picallo 1990; Poletto 1993; Cinque 1999), the ‘Mod’ head occupies a fixed hierarchic position above IP and, in turn, it is selected by the illocutionary features of C in order to introduce the point of view of the speaker, thus providing a modal ‘flavor’ of possibility or necessity. This would lead us to equate this projection with the XP posited in the previous sections. In all cases, the existence of this ‘extra’ layer allows the interfaces to read the information relative to the point of view of the speaker about what he or she asserts. As has been said, such XP (here, specified as ModP) immediately dominates IP, the layer that expresses temporality in Spanish, and in consequence of this it becomes ‘buried’ and incapable of providing the temporal reference thanks to the event argument. Again, we see that the XP presents in all cases an evaluation of the content codified in IP:

(43)



All in all, sentences with epistemic predicates in *AL*-TCC are strange. The great majority of Spanish speakers judge the sentences in (44) as ungrammatical:

- (44) a. ?*Al deber de trabajar de directivo, José ganará mucho dinero.*
AL must of work-INF as directive José will.earn a.lot.of money
 ‘As José must work as a directive, he must earn a lot of money’
 b. ?*Al poder llover, nos quedamos en casa.*
AL can-INF rain-INF stayed.1PL at home
 ‘As it may rain, we stayed at home’
 c. ?*Al parecer tener prisa, le atendí primero.*
AL seem-INF have-INF hurry him attended first
 ‘As he seemed to be in a rush, I attended her first’

The reason why these epistemic modals seem to need finite contexts remains an outstanding issue that I am not going to address in this paper. Nevertheless, there are other phenomena that fit under the umbrella of expressions related to epistemicity. In this regard, I would like to include in this section the degree quantifiers (epistemic quantifiers, henceforth) that appear in the sentences in (45):

- (45) a. *Al trabajar poco, los jefes echaron a Pepe.*
AL work-INF little the employers fired.3PL to Pepe
 ‘As Pepe works little, the employers fired him’.
 #TEMPORAL/CAUSAL
 b. *Al beber demasiada cerveza, Luis iba borracho.*
AL drink-INF too.much beer Luis went drunk
 ‘As Luis drank too much beer, he was drunk’.
 #TEMPORAL/CAUSAL
 c. *Al llegar tarde, Sonia se perdió el concierto.*
AL arrive-INF late Sonia missed the concert
 ‘As Sonia arrived late, she missed the concert’.
 #TEMPORAL/CAUSAL
 d. *Al comer tanto, le duele el estómago.*
AL eat.inf so.much him hurts the stomach
 ‘As he/she has eaten so much, he/she has stomach aches.’
 #TEMPORAL/CAUSAL

As can be seen, these sentences have a causal reading. What I want to uphold is that this is due to the existence of a ModP in these sentences, a layer where elements like *poco* (‘little’), *demasiado* (‘too much’), *tarde* (‘late’) or *tanto* (‘so much’) check their intensional features. This idea, put forward by Bosque (1994, 1996) allows us to explain how the kind of valuation that the speaker performs -in this case, of an element internal to the vP, which is considered inadequate- results in an intervention effect. Bosque & Masullo (1998) posited the existence of a DegreeP which is present in the sublexical structure of measurable predicates. The quantifiers in (45) force a subjective measuring of the degree in which an event occurs: the scarcity of hours that Pepe works, the quantity of beer that Luis drinks or the delay of Sonia. These predicates unfurl a syntactic structure that permits this sort of evaluation.

- (46) [CP [C *Al* [ModP *poco* [Mod [IP [I *trabajar* [DegreeP ~~*poco*~~]]]]]]]]

The raising to the spec, ModP happens because the meaning of these quantifiers is a modal one, so it has a syntactic effect. The variable that they leave allows us to understand that the interpretation of these epistemic quantifiers is relative to the intensional frame of the vP. The movement causes that the quantifiers are recognized as such by the conceptual-intensional system. Also by this raising operation epistemic modalities can introduce the referential frame to relativize what is asserted in the proposition. Given that the IP in the adjunct is selected by the XP that makes a judgment about the event, this projection is not available for providing the temporal reference that locates the event.

It is worth noting that some quantified phrases, which receive a valuation by the speaker, do not consist of a morphologically specified quantifier. In such occasions, there is null quantificational element relative to the expression of inadequacy. A sentence like (47) can have two interpretations:

- (47) Al entregar el trabajo el lunes, el profesor se enfadó.
AL deliver-INF the work the Monday the teacher got-mad.3SG
 ‘When he/she delivered the work on Monday, the teacher got angry’.
 ‘As he/she delivered the work on Monday, the teacher got angry’.

However, note that only the temporal reading is compatible with the expression of another cause:

- (48) a. When he/she delivered the work on Monday, the teacher got angry (because it was written in pencil).
 b. As he/she delivered the work on Monday, the teacher got angry (#because it was written in pencil).

This is due to the fact that only when (47) is interpreted as (48b) an inadequacy is codified: Monday is conceived as late in time, and it is the quantification over the event of delivering that allows for the reading of the clause as the reason that causes the event of the main clause. This is why in that case the sentence is incompatible with the expression of another cause. Instead, (47) receives a temporal reading if ‘delivering the work on Monday’ is exempt from any valuation by the speaker. In such a case, the event argument of the adjunct just coincides, as an apposition, with the one that *Monday* provides. What this indicates, in short, is that the event of the main clause cannot find the temporal reference in another event whose propositional content is being evaluated.

5.4. Negation

As was seen in (7), negative sentences must receive a causal reading. This is because negation also constitutes an intermediate projection that blocks the access to the event. The last studies in generative grammar about negation conceive this notion as a functional category that heads its own phrase: NegP. In the cases of sentential negation, the negative head dominates IP syntactically. This results in a categorical hierarchy as follows: CP > NegP > IP.¹¹ Conceiving negation as a projection helps to have a better understanding of some singularities of negative sentences, as we can deduce some interpretative effects of this fixed syntactic position.

¹¹ As Laka (1990) notes, such a hierarchy is subject to linguistic variation.

From a syntactic point of view, negation acts as a polarity operator which has scope over the sentence, thus affecting the truth value of it: as it appears dominating IP, negation expresses that in a sentence like (49a) the event of coming did not happen, and in (49b), that the property of intelligence is not possessed by the president:

- (49) a. *Al no venir, mi amigo se perdió la fiesta.* #TEMPORAL/CAUSAL
AL not come-INF my friend missed the party
 ‘As my friend did not come, he missed the party’.
- b. *Al no ser inteligente, el presidente no da explicaciones* *AL*
not be-INF intelligent the president not gives explanations
coherentes. #TEMPORAL/CAUSAL
coherent
 ‘As the president is not intelligent, he does not give coherent explanations’.

The structural position of NegP allows us to explain the causal reading through the same embedding effects that have been explored proposed in the previous cases. NegP (=XP) allows for the evaluation of the propositional content of the subcategorized element, indicating its falsity or its absence of realization.^{12,13}

7. Conclusions

Along these pages I have analyzed the *AL*-TCC in order to find out what the relevant syntactic factors that have an impact on its interpretation are. I argued:

- I) that in *AL*-TCC the conjunction *AL* acts as a copy of I in C in order to anchor the infinitive in a temporal coordinates that it naturally lacks;
- II) that *AL* is a central coincidence particle that allows both clauses (the adjunct and the main one) to be in a contiguity relation.

¹² In our case, it is not obvious that the analysis of negation should be extended to emphatic positive polarity, since speakers have difficulties to accept the emphatic *sí* (‘yes’) in *AL*-TCC:

- (i) a. ??*Al sí contestarme el mensaje, cambié mi opinión.*
AL yes answer-INF-me the message changed.1SG my opinion
 ‘As he/she did answer my message, I changed my opinion.
- b. ??*Al sí darse la vuelta, le dije adiós con la mano.*
AL yes give-INF the turn him/her said.1SG goodbye with the hand
 ‘As he/she did turn around, I waved bye-bye.

Nevertheless, some speakers do accept these sentences as grammatical. However, they can just give these sentences a causal value, not a temporal one. This would confirm the existence of an intervening PolP (Culicover 1992) above IP that generates opacity. The Davidsonian argument and the temporal information become buried under the emphatic assertion that spotlights the occurrence of an event.

¹³ As a reviewer notes, the presence of negation in the main clause can also lead to a causal reading, as in (i):

- (i) *Al ver a Laura, no llamé a la policía.*
AL see.inf to Laura no called to the police
 ‘As I saw Laura, I did not call the police’.

The reason why negation also rules out the temporal reading in these cases will not be explored in this paper, and thus remains as a future subject of research.

III) that *A* is a conjoint preposition which expresses the ‘contact with a limit’. - *I* behaves as an axial part that identifies such a limit.

IV) that the reading -temporal or causal- depends upon the kind of topological relation: between two IPs or between an XP and an IP.

V) that the temporal reading is possible when there is event identification between the two event arguments, both in spec, IP.

VI) that the causal reading is due to the existence of an intervening XP: a layer between CP and IP which blocks the identification and offers some kind of valuation.

VII) that XP can have multiple specifications: FP, ModP or NegP.

VIII) that in order to denote the point of occurrence of the event, R and E must coincide centrally in the subordinate event.

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