

LEXICAL ASPECT IN SPANISH: CONTRASTS, SYNTACTIC STRUCTURES AND SEMANTIC INTERPRETATIONS

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ABSTRACT. The different distinctions related to lexical aspect –state, activity, accomplishments and achievements– play an important role in the grammar of Spanish, but many of the details about how these distinctions can be implemented are unclear: which features distinguish between the classes, how the classes relate to each other, what is the nature of telicity or dynamicity and how one can account for the alternations that a verb is subject to involving its aspect are some of the most important problems from this perspective. The goal of this article is to provide a sufficient empirical base to address these questions and present the current alternatives to answer them.

Keywords: lexical aspect; state; activity; accomplishment; achievement; telicity; dynamicity

RESUMEN. Las distinciones que se refieren al aspecto léxico de un verbo –estado, actividad, realización y logro– desempeñan un papel importante en la gramática del español, pero muchos detalles acerca de cómo se pueden implementar dichas distinciones son poco claros: qué rasgos diferencian a las clases, cómo se relacionan unas con otras, qué naturaleza tienen la telicidad o la dinamicidad y cómo se puede dar cuenta de las alternancias de aspecto léxico a las que está sujeto un mismo verbo son solo algunos de los problemas más importantes dentro de este dominio. El objetivo de este trabajo es el de presentar una base empírica suficiente para discutir estas preguntas y presentar las distintas opciones que se han propuesto para responder a ellas.

Palabras clave: aspecto léxico; estado; actividad; realización; logro; telicidad; dinamicidad

1. Introduction: the notion of lexical aspect or *Aktionsart*

Despite being one of the grammatical notions that has received more attention in theoretical linguistics (Vendler 1957, 1967; Verkuyl 1972, 1993; Comrie 1976, Carlson 1977, Mourelatos 1978, Dowty 1979, Bach 1981, 1986; Tenny 1987, Krifka 1989, Parsons 1990, Mittwoch 1991, Pustejovsky 1991, Smith 1991, Bertinetto 1995, Ramchand 1997, 2008, 2018, Rothstein 2004, to name just a few) and in Hispanic studies (Molho 1975, Hernanz 1988, Marco 1990, Suñer 1990, Rigau 1994, De Miguel 1992, 1996, 1999; Zagona 1996, De Miguel & Fernández Lagunilla 2000, Fernández Lagunilla & De Miguel 2002; RAE & ASALE 2009: §23.3, §23.4, again to name just a few), there are many problematic issues within the notion of lexical aspect or *Aktionsart*.

In general, it is fair to say that lexical aspect studies the properties of eventualities as conceptualised by lexical predicates (Bach 1986), where eventualities are defined as time-occupying entities. The term 'eventuality' is used to put together two classes of lexical predicates: events, interpreted as time-occupying predicates that denote some change across time (1), and states, defined as time-occupying predicates that do not involve any internal change (2).

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- (1) comer 'to eat', saltar 'to jump', llegar 'to arrive', correr 'to run'
 (2) merecer 'to deserve', significar 'to mean', yacer 'to lie'

The simpler story related to lexical aspect is well-known and has been presented in many previous studies (see, for instance, De Miguel 1999, Rothstein 2004). Here we will summarise it briefly –see §2 for a more extensive and detailed presentation–. Going back to Vendler (1957), the core idea is that eventualities are time-occupying entities. In consequence, their defining properties will also be temporal, so it follows that lexical aspect describes the temporal properties of a situation as codified by the verb.

There are three different dimensions of these temporal properties that are crucial for linguistic research:

- i) whether there are internal changes within the time that the predicate occupies (dynamicity, measure of change)
- ii) whether there is a logical culmination or natural endpoint that closes the time that the predicate occupies (boundedness, telicity)
- iii) whether the time occupied by the predicate is extended or not (temporal extension, duration)

The three dimensions are binary –change or not, culmination or not, temporal extension or not–, something that should produce $2^3=8$ classes, but there are only four main lexical aspectual classes that are defined through these parameters (see §1.1 and §2.1 for a discussion about the other possibly missing 4 classes).

i) States (*saber* 'to know'), which are predicates that lack any change. By definition, the absence of any change entails in Vendler (1957) that these verbs lack any culmination point by default. At the same time, they are temporally extended because they can always be predicated of individuals for a period of time. These are examined in §3.

ii) Activities (*volar* 'to fly'), as predicates that involve a change (when one flies, there is movement of some parts of the body and a displacement across a spatial dimension), lack a natural culmination (one can fly and fly without reaching an endpoint) and have temporal extension: the truth conditions of flying cannot be verified in one single instant, but require at least a small period of time where one can see the displacement and movement. They are discussed in §4.

iii) Accomplishments (*dibujar un círculo* 'to draw a circle'), which also involve internal change (the movement of the pencil, the incremental construction of a circle that did not exist before), require temporal extension (the drawing needs to take some amount of time) and have a natural culmination: no matter how slowly one draws the circle, there will be some moment in which the circle is completed, and thereby the event of drawing a circle is completed. They are discussed in §5.

iv) Achievements (*llegar* 'to arrive', discussed in §6), which involve some change (in this case, a change in the location of the subject that arrives to some place), have a natural culmination (the arriving event, no matter how slowly one moves, finishes when one actually arrives) but lack temporal extension: the arriving event only describes the instant when the subject reaches the intended location, and whatever movement was necessary to arrive there is not described by that lexical verb, but rather by other verbs like *walk*, *swim*, *run*, *travel*, etc. (which are actually activities or accomplishments, depending on the construal).

The following table summarises these four classes.

Table 1. The four traditional lexical aspectual classes

	Dynamicity (change)	Telicity (natural culmination or not)	Temporal extension
States (<i>know</i>)	No	No	Yes
Activities (<i>fly</i>)	Yes	No	Yes
Accomplishments (<i>draw a circle</i>)	Yes	Yes	Yes
Achievements (<i>arrive</i>)	Yes	Yes	No

As can be seen, there are three classes of verbs that involve change and are therefore called 'dynamic'; sometimes, the term 'event' is used in a strict sense to oppose them to the only traditional class of verbs lacking dynamicity, states. See, however, §3 for the proposal that there are more than one class of stative verbs that are grammatically relevant.

In terms of the presence of a natural culmination or not, the term 'telicity' is used. Verbs with a natural culmination are called 'telic' and verbs that lack a natural culmination are atelic. Two classes, states and activities, are atelic and two classes, accomplishments and achievements, are telic.

Finally, temporal extension singles out achievements as the only class that lacks it: achievement verbs are also called 'punctual' verbs, in the sense that they denote changes that happen instantaneously and which cannot be predicated of a subject for a longer time period (unless one assumes a repetition, habit, iteration or so on).

Beyond establishing these four classes (see §2.1 for more details), the traditional story about lexical aspect also agrees on the following three facts about lexical aspect, which we will expand on in §2 below:

a) Lexical aspect has a compositional nature. This means that it is frequently the case that the same lexical verb can denote an event interpreted as one or other lexical class depending on other constituents within the predicate. Typically, internal arguments projected as (some type of) direct object can influence the type of lexical aspect. See §2.2 about this issue.

b) Lexical aspect has a grammatical impact, and can be diagnosed through a set of tests aimed at identifying dynamicity, telicity and temporal extension, among other properties. That is, lexical aspect is not just a conceptual semantic notion like the difference between the entities that we call *dogs* and *cats*, but is an abstract notion that allows us to group verbs belonging to different conceptual domains in the same class through their grammatical behaviour.

c) As such, lexical aspect is a notion that can explain the grammatical behaviour of verbal predicates in a variety of phenomena (see §2.3). For instance, lexical aspect has been argued to play a role in the interpretation of verbs in combination with different tenses, grammatical aspects and periphrastic constructions, word formation processes or the availability of different types of adjuncts, among others.

In this article, we will first present a series of problems related to this traditional understanding in the remainder of this section. In §2, we present in detail the traditional account and discuss it from different perspectives, including the nature of the tests proposed. §3-§6 is dedicated each to the discussion of each one of the traditional classes, from states to achievements. §7 presents other aspectual classes that have been proposed in the literature. §8 is devoted to the presentation of the different perspectives about how lexical aspect can emerge compositionally within a predicate. §9 discusses the main types of lexical aspect alternations found in Spanish, and §10 discusses the problem of how much lexical aspect information is codified in a verb. §11 concludes.

As it is often the case, the facts that natural languages provides us with force us to move away from the simple characterisation of lexical aspect that we have just presented. Beyond the empirical problems that this simple characterisation has (see §2 below, and in essence the rest of this article), there are a lot of components of the traditional notion of lexical aspect that are under dispute.

1.1. Problems in the traditional understanding of lexical aspect classes

There are at least six issues within the notion of lexical aspect that have been controversial, even from an empirical point of view. These are all related with the following question: which properties of our conceptualisation of events and states in language are grammatically relevant within a particular language? It is not difficult to realise that in a 'real-world' event of eating an apple there is a plethora of notions that are involved: the temporal extension of that action, the participants in that action, the fact that the eating of the apple finishes when the edible parts of the apple are consumed, the incremental disappearance of the apple as the eating event progresses, the starting point of the eating, how slowly or how quickly that eating is performed, whether the eating progresses in a regular way or is interrupted several times, the intensity of the bites given to the apple, etc. The common problem to these six issues is which ones of these notions are translated into a linguistic utterance, and using which type of language in order to codify them.

Here are the six issues, presented in the order that we will discuss them:

- a) How many grammatically relevant lexical aspectual classes are there?
- b) What kind of parameters defines the grammatically relevant classes?
- c) How do these classes relate to each other, and what macroclasses can be defined over them given their empirical properties?
- d) To what extent does a lexical verb define the lexical aspect of a predicate?
- e) Is lexical aspect a semantic or a syntactic property?
- f) How does lexical aspect interact with other properties of lexical verbs, such as argument structure?

1.1.1 How many classes?

The first controversial issue is how many lexical aspectual classes should be differentiated in a grammatical analysis. The number of classes that are defined should reflect different grammatically relevant groups, that is, groups of predicates that share some common property of interest to grammar and which are differentiated at least by one other property from the rest of classes. In this sense, the received wisdom since Vendler (1957) is that there are four main lexical aspect classes (see §2.1 below), called states (3a), activities (3b), accomplishments (3c) and achievements (3d), all of them defined through the temporal properties of the predicates.

- (3) a. saber 'to know'
- b. nadar 'to swim'
- c. escribir 'to write'
- d. nacer 'to be born'

However, other lexical aspect classes have been proposed in the literature, such as so called semelfactive predicates (4), degree achievements (5) and Davidsonian states (6).

- (4) toser 'to cough'
- (5) engordar 'to become fat'
- (6) mantener 'to maintain'

The first seem to have some common property with achievements, in the sense that when they denote single events these events behave as non temporally extended, and some common property with activities, because in the imperfective forms they tend to be interpreted as an unbounded iteration of that single event. Like this, (7a) may be interpreted as Juan producing one single cough, while the natural interpretation of (7b) is that Juan coughed repeatedly during some period of time.

- (7) a. Juan tosió (una vez) para llamar su atención.
 Juan coughed.pfv (one time) to call his attention
 'Juan coughed (once) in order to draw his attention'
- b. Juan tosía.
 Juan coughed.impf
 'Juan coughed and coughed'

The second class, degree achievements, is generally interpreted as predicates – typically, but not exclusively, related to adjectives– which allow for a telic interpretation where a particular delimited degree of change is obtained and a second interpretation where some indefinite incremental change happens during a particular time period, perhaps without reaching a reference value. Like this, in (8a) the natural reading is that Juan reaches a particular reference value in a scale of fatness. This reading is related to accomplishments because that particular reference value acts like a boundary that delimits the change. In (8b), the reading is similar to the one that activities have, in the sense that there is an unbounded change across a scale of fatness that does not reach any contextual reference value.

- (8) a. Juan engordó tanto que no pudo competir.
 Juan got.fat.pfv so-much that not could compete
 'Juan got so fat that he could not participate in the competition'
- b. Juan engordó durante todo ese periodo.
 Juan got.fat.pfv during all this period
 'Juan got fatter and fatter during that period'

Another potential additional class, Davidsonian states (§3.2.1), shares properties with states and activities. Like states, they are predicates that do not involve any internal measure of change: they describe situations that are held along some time period, not subject to any modification. Like activities, however, they combine felicitously with time and place modifiers (9), can have agentive entailments for the subject (10) and

allow the progressive form (11) without any kind of semantic accommodation, among other properties that differentiate them from states (cf. §6.1).

- (9) a. Juan mantuvo la puerta atrancada en su despacho ayer de tres a cinco.
 Juan kept the door blocked in his office yesterday from three to five.
 b. Juan sabe inglés (*en su despacho) (*ayer de tres a cinco).
 Juan knows English (in his office) (yesterday from three to five).
- (10) a. Juan mantuvo la puerta abierta para recibir a los estudiantes.
 Juan kept the door open to receive A the students.
 'Juan kept his door open in order to receive students'
 b. *Juan sabe inglés para trabajar en Londres.
 Juan knows English to work in London.
- (11) a. Juan está manteniendo atrancada la puerta.
 Juan is keeping blocked the door.
 b. #Juan está sabiendo inglés.
 Juan is knowing English

In addition to these, we will also discuss verbs of change that only denote the initial point of change and not its completion (§7.2), as well as other options involving boundaries that indicate only parts of a transition (§7.4).

Thus, the first problem is how many grammatically relevant aspectual classes should be differentiated. How these classes are defined raises two different types of questions, which define the next two issues with lexical aspect.

1.1.2. The ingredients of lexical aspect

The second problem with lexical aspect refers to the nature that underlies the lexical aspect distinction. The traditional view, that comes from Vendler (1957), is that lexical aspect depends on the temporally-relevant properties of predicates, defining three well-known parameters that define the classes: change, telicity and temporal extension. However, restricting lexical aspect to only temporal properties makes it difficult to explain facts like the ones in (12).

- (12) a. Juan comió una manzana. Telic
 Juan ate one apple
 b. Juan comió manzanas. Atelic
 Juan ate apples

The same lexical verb, *comer* 'to eat', can be construed to denote two different types of events: one with a definite endpoint (12a, called telic in the technical language) and one without a definite endpoint (12b, called atelic). The minimal difference between these two sentences does not involve any verbal property, as the verb is in both cases in a perfective form. The difference, of course, involves the internal argument of the verb, which is a nominal constituent that is built as one single individual in (12a) and as an unbounded group in (12b). The endpoint of the eating event is defined in (12a) by the extension of the (edible) parts of the apple, and there is no endpoint of eating in (12b) because the thing that gets eaten is not defined as a single individual with definite limits.

However, from the perspective of the exclusively temporal definition of lexical aspect that Vendler (1957) defined, this fact is not easy to understand. On the standard assumption that a nominal like 'apple' lacks temporal information because it is a space-

occupying entity and not a time-occupying entity, how can the verb read the information contained in the nominal in order to modify its lexical aspect information? How can we combine time and place information so that place can actually interfere with the temporal information? It is quite clear that there is no easy solution to this question, and for that reason different conceptualisations of temporal aspect, not defined in strictly temporal terms (see for instance Mourelatos 1978), have been proposed after Vendler (1957). The alternatives, that will be overviewed in §8, include Dowty's (1979) aspect calculus taking into account the notion of causation, mereological approaches like Bach (1981) and approaches that dissociate the information from a verbal head, like Verkuyl (1972). In all these approaches there is an attempt to move away from a simpler temporal notion of lexical aspect and either to reduce those temporal notions to more basic elements (paths, parts, boundaries, etc.) or to make them virtually irrelevant for the definition of the grammatically relevant aspectual classes.

Note also that defining lexical aspect as a purely temporal notion has the empirical consequence of leaving outside the definition of lexical aspect a quite strong set of semantic properties that are grammaticalised through different lexical roots or through lexical derivative morphemes in languages like Spanish –and as such they should probably be considered 'properties of eventualities' at a lexical level–. De Miguel (1999), in addition to the standard temporally-based distinctions of lexical aspect, also includes in her overview, among others, the notions of 'intensification of the action', where the eventuality described happens with more strength than normal (13), and 'decreasing intensity' (14).

- | | | | |
|------|--------------------|---|---|
| (13) | a. peinar
comb | > | re-peinar
RE-comb 'to comb too much' |
| | b. llover
rain | ~ | diluviar
pour.down |
| (14) | a. dormir
sleep | > | dorm-it-ar
dooze |
| | b. llover
rain | > | llov-izn-ar
drizzle |

This position is well-motivated and empirically plausible, because (as we will see in §2.3) the intensification or aminoration of the change does have direct impact on the verb's telicity. Thus, a theory of lexical aspect that is defined so as to exclude these non-temporal notions would leave outside elements that ultimately co-define the temporal notions.

1.1.3. Aspectual macroclasses

The third issue that is problematic in lexical aspect is closely related to the problem of how the grammatically relevant classes should be differentiated. Given a set of parameters that differentiate these classes, which one of these parameters is more basic and establishes a big division between two macroclasses, and which other parameters are subordinated to that big division? In other words, are states closer to activities, to accomplishments or to achievements? If one takes for instance the notion of 'change' as the central one in lexical aspect –as it is normally done–, states would define one single class in opposition to any predicate that defines a change with or without a final boundary and of whatever temporal extension, as in (15).

- (15) states ~ activities, accomplishments, achievements

This would predict that the empirical behaviour of activities, accomplishments and achievements should be closer to each other than to any stative predicate. This should manifest itself, for instance, in that the same predicate would be able to alternate between an activity and an accomplishment construal, but that we should not find verbs that alternate between a stative and an accomplishment construal.

In contrast, if one decides that telicity is the main contrast in the lexical aspect domain, the division of the macroclasses will be different: states will pattern with activities and accomplishments will pattern with achievements, as in (16).

(16) states, activities ~ accomplishments, achievements

Again, the empirical prediction will be that several verbs should alternate between state and activity construals, and other verbs should alternate between accomplishment and achievement construals, but no verb would, for instance, show a double behaviour as activity and accomplishment. Again, as (12) above witnesses, this is the wrong empirical position. The possible groupings, which can only be established by exploring the alternations that specific verbal elements undergo, are examined in detail in §9 below.

The problem of how to define macroclasses depends largely on the previous two issues, as the definition of how many classes are differentiated and which notion defines these classes are previous to the definitions of these macrogroups of related lexical aspectual classes. At the same time, this question is closely intertwined with the fourth problem, which is to what extent lexical aspect is codified in the lexical verb.

1.1.4. How much information does the verb have

In principle, it is customary to define the lexical aspect of a single verb, in a way that specific verbs are defined as belonging to a lexical class, as in (17).

- (17) a. *parecerse* 'to seem' State
 b. *correr* 'to run' Activity
 c. *morir* 'to die' Achievement

However, every study on lexical aspect mentions its compositional nature, that is, that depending on the other elements that the verb combines with inside the predicate its lexical aspect can be altered or redefined. In particular, it has proven to be extremely difficult to find verbs that, alone and always independently of the nature of their internal argument, are defined as accomplishments –assuming a time-related definition of accomplishment–. The reason is that the temporal extension and boundedness of a predicate very frequently depend on the mereological properties of the internal argument, as in (12) or (18).

- (18) a. *beber una cerveza* Accomplishment
 to.drink one beer
 b. *beber cerveza* Activity
 to.drink beer

The whole predicate can be an accomplishment or an activity depending on whether the quantity of the substance 'beer' is bounded, as in (18a), where it is interpreted that one drinks a glass of beer, or unbounded, as in (18b), where one drinks an unspecified

quantity of beer. This contrast raises the issue of what is the basic lexical aspect information that a verb like *beber* 'to drink' has. There are, in this sense, three options: (i) it is basically an activity verb, that can get a bounded interpretation when applied to a bounded internal argument, because it means something like 'ingest' and the ingestion of a finite entity is itself finite; (ii) it is basically an accomplishment verb, meaning something like 'consume', but it can get an activity reading when the quantity of that which is consumed is unbounded; (iii) it is neither an activity or an accomplishment verb, as it leaves underspecified its possible boundedness, and it does not make sense to classify it in either class. In this last option, only predicates allow a classification in terms of lexical aspectual classes.

The choice that a researcher prefers here depends on two main issues, that are examined in §8 and §10: the problem of markedness and the problem of lexical definition. The problem of markedness refers to the question of which aspectual notions can be obtained 'by default', in the absence of other elements that deny it, and which aspectual notions need to be defined by the presence of some added features or structures. A researcher that assumes that unboundedness is the default option in building lexical aspect, for instance, would favour the approach (a) over approach (b), because an alternation like (18) should be reflected in (18a) having some extra property that the verb itself does not define. If one accepts that, at least for some verbs, boundedness is the default option, then option (b) would be adopted.

The problem of lexical definition, in contrast, refers to the wide-ranging question of whether individual lexical items acquire their properties within the syntactic tree, once they are inserted in specific syntactic configurations, or they enter the tree already with their properties defined and the tree has to be built accordingly in a way that these properties are respected. The first approach has been labelled 'Exo-skeletal' (Borer 2013), while the second is known as 'Endo-skeletal'. Someone that adopts an exo-skeletal approach would favour solution (c), while someone that advocates an endo-skeletal analysis would have to choose either (a) or (b) and propose some kind of lexical operation that allows for some property of the lexical item to be suspended or overwritten.

1.1.5. Lexical aspect in syntax or in semantics?

The fifth problem is perhaps the one that has the strongest methodological consequences. Let us assume that we have managed to identify all lexical aspectual classes, the relation between them, the type of notions that define them and how much information related to these notions is actually codified within the lexical verb. At that point we should ask ourselves the question of whether these properties, wherever they are, belong to the semantic component, to the syntactic component or both. It is possible that the conclusion reached is that these properties, grammatical as they are, should be analysed within the component of meaning, and syntax does not need to say anything about them: in that case, to put it in simpler terms, the syntactic tree underlying a stative predicate and the tree associated to an accomplishment verb could be identical, and the difference between them would only emerge once the structure is interpreted. It might also be possible to reach the conclusion that the difference is essentially defined in syntactic terms, with the tree for each one of the aspectual classes being different in crucial respects, in a way that semantics will be subject to the configurations and features contained in the syntax. The choice between these two options is crucial to interpret the nature of well-known contrasts such as the ones in (19), which are other instances of constituents within the predicate co-defining the lexical aspect of the verb.

- (19) a. Juan corrió por el parque. Activity
 Juan ran by the park
 b. Juan corrió hasta el parque. Accomplishment
 Juan ran to the park

In (19a) we obtain an activity interpretation of the predicate, essentially because the PP-constituent does not define any type of boundary to the event of running: in principle, Juan can run and run within the physical limits of the park. In (19b) the interpretation is bounded, telic, because the PP defines a final point in the described event, namely the moment in which Juan arrives to the park.

An approach where lexical aspect is essentially semantic would treat this contrast as reflecting two possible conceptualisations of a running event, one where it is an event that defines a manner of moving and one where 'running' is the manner used to arrive to a particular location. The PPs could both be placed in the same syntactic position. The syntactic approach, in contrast, would have to claim that the syntactic structure is crucially different in both cases, either by the position where the PP constituent is introduced or by the internal structure of that PP constituent, perhaps proposing that in one case it defines an endpoint through a designated head. Trivial as this might seem, the problem becomes more acute when we add aspectual modifiers such as a for-phrase:

- (20) a. Juan corrió por el parque durante una hora.
 Juan ran by the park for one hour
 b. *Juan corrió hasta el parque durante una hora.
 Juan ran to the park for one hour

The example (20a) is unproblematic: in principle, it is assumed that for-phrases are associated in some way with atelic / unbounded predicates (but see §2.1), so it is unsurprising that (20a) is grammatical. From this perspective, however, the ungrammaticality of (20b) should surprise us. The reason is that for-phrases do not always produce ungrammaticality when combined with telic predicates, as (21) witnesses.

- (21) Juan leyó el libro durante una hora.
 Juan read the book for one hour

As we will see in more detail in §5, the interpretation of (21) is that the event of reading the book was active for one hour, and it is strongly implied that the reading of the book did not reach its endpoint, that is, that Juan does not finish reading the book within the temporal limits of that event. This would mean that we should get a reading for (20b) where we interpret that Juan moved by running towards the park but did not reach it during the hour that he was running.

The problem, in essence, is whether for-phrases (and in-phrases, their opposite used in many works to diagnose the telicity of a predicate) test whether a predicate is (a)telic or they actually define a verb as (a)telic. In the first case, the for-phrase does not have the power to change the aspectual definition of the predicate –they would be traditional modifiers that do not change the semantic type of the element they combine with–, while in the second case they would be elements that codefine the aspectual interpretation –thus, they are not semantic modifiers in the strict sense–. The contrast in (20) seems to suggest that they are modifiers, ways to test the telicity of a predicate, while the contrast in (21), *prima facie*, supports more the second view, to the extent that

it strongly implies that the reading was never finished and does not simply measure how long it took Juan to read it.

In a syntactically oriented interpretation of lexical aspect, this puzzle could be solved by proposing two different positions for the *for*-modifier in each one of the sentences: in (20b), the *for*-phrase could be introduced at a high VP-external position, where the lexical aspect of the predicate has already been defined, while in (21) it would be introduced in a lower VP-internal position, allowing the *for*-phrase to codefine the lexical aspect in whatever way has been determined.

The story would be very different from a semantic perspective. On the assumption that the contrast is invisible to syntax, the problem would reduce to why a derived telic predicate like 'run to the park' cannot be combined with a *for*-phrase, but one like 'read the book' can. The general take on this would have to be the different nature of the two derived telic events: in (20b) the event is actually an arriving event, with running only being the manner of arriving (Mateu 2002), and arriving events actually lack a temporal extension. Without a temporal extension, the *for*-phrase is basically vacuous, that is, it does not find any element whose measure can be given in the semantic representation. In contrast, the reading event does have a temporal extension; in both cases, the *for*-phrase could be treated uniformly like a modifier, that is, as a test for telicity. Therefore, the choice of whether lexical aspect belongs to syntax or semantics also determines which contrasts can be taken as tests for lexical aspectual classes, and which contrasts actually involve defining different lexical aspectual classes.

1.1.6. Lexical aspect and other verbal properties

Let us now move to the last issue: the interaction between lexical aspect and other verbal properties. Once one notices that lexical aspect is compositional, and other members of the predicate beyond the lexical verb play a role in defining the classes, the natural question that emerges is whether lexical aspect also plays a role in defining the properties of these other elements. Specifically, a lot of research has been produced on the question of how aspect interacts with argument structure. As we will see in detail in sections §2, §3, §4, §5 and §6, several phenomena allow to establish a correlation between the lexical aspect of a predicate and the argument interpretation of both the internal and the external argument (see also §8.2, §10.1 for its theoretical interpretation).

With respect to the external argument, it has been argued (see for instance Dowty 1979, Rothmayr 2009) that the notions of agent as opposed to causer or instrument can determine whether a verb is stative or not. The contrast in (22) is one instance of such a contrast (see also Torrego 1998).

- (22) a. Juan corta la madera.
 Juan cuts the wood
 'Juan is cutting the wood'
 b. Este cuchillo corta la madera.
 this knife cuts the wood
 'This knife cuts wood'

The preferred interpretation of (22a) is eventive: there is an actual event of cutting where Juan is producing a change in the state of the wood. Here, Juan is a bona fide agent. In (22b), the subject is an instrument without volitional properties and the interpretation of the predicate is stative: the knife is, by virtue of its properties, designed to be able to cut through wood. There is no actual event entailment, no actual change

produced on the wood, and the English translation –in fact– does not allow the progressive. On the surface, there is a strict correlation between this instrumental reading of the subject and the stative construal of a verb like *cortar* 'cut' (§9.2). See §2.2 below for more details about the potential interactions.

With these problems in mind, let us now move to a detailed presentation of the traditional distinction among the lexical aspect classes.

2. Back to the classics: Vendler's lexical aspect classes

In this section, we will concentrate on the traditional theory about lexical aspect, starting with Vendler's (1957) work (§2.1), where we detail the nature of his classification, the classes that he singles out and the tests used for that classification. One important notion of Vendler's classification is that lexical aspect is influenced by other members of the predicate, and we dedicate §2.2 to this issue. This traditional classification has been applied to the study of a broad range of grammatical phenomena, and we list some of the most crucial in §2.3. We close this section with a short note on the status that some of the tests used to identify lexical aspect classes have (§2.4).

It is important to note, before we start, that even though Vendler (1957) is generally cited in linguistics as the first proponent of this distinction, at least in a systematic way, the divisions that he discuss have antecedents. It is customary to trace the origin of the classification back to Aristotle, who in his *Metaphysic* (1048b) makes a distinction that has been reinterpreted as the distinction between telic and atelic verbs: *energiai* 'actualities' corresponds to situations that are verified as soon as they start, because they do not reach a natural culmination; in contrast, *kinesis* 'movements' corresponds to situations that need some internal development in order to be verified, because they need to reach some specific concrete landmark. As Dowty (1979: 53) notes, however, this distinction as stated in Aristotle's terms does not seem to have a direct grammatical reflection in natural language. It is perhaps more informative to trace the distinction back to Ryle (1949), who distinguishes between two classes of predicates: some predicates seem to define some concrete result as part of the situation that they denote, and he calls these 'achievements' (a class that in fact puts together what we now know as accomplishments and achievements, that is, the telic verbs) and some are defined as activities because they lack that result. The 'achievement' in this sense is a predicate that can only be verified as happening at a particular point in time (the time where the culmination is reached), while activities can be verified at different points –we will see that Dowty (1979) also uses the distinction between instants and stretches of time in his classification, although with a different sense–. Ryle further differentiates within his 'achievement' group between 'purely lucky achievements', which are the predicates where the subject does not control the result obtained, and other 'achievements'. This distinction, in fact, is very close to the distinction between our current achievements and accomplishments: accomplishments would then be for Ryle 'achievements that do not result from pure luck'.

One of the main tests that is used to differentiate telic from atelic verbs is the entailment relation between the progressive and the perfect form. If one validates the entailment 'A is (now) V-ing ---> A has already V-ed', the verb is considered atelic: if John is swimming, he has already swum; if the entailment is 'A is (now) V-ing ----> A has not yet V-ed', then the verb is telic: if John is reading a novel, he has not yet read that novel. This famous test is actually presented in Kenny (1963), who revises the Ryle (1949) distinctions and divides his class of 'activities' into two groups depending on their combination with the progressive: for Kenny (1963), 'activities' that allow the progressive should actually be classified in a more general group of performances,

where the 'achievements' as interpreted by Ryle (1949) should also be located. In this sense, then, Kenny (1963) differentiates between our current activities, which belong to a macroclass where accomplishments should also be located, and our current states. Before we move to the presentation of Vendler's classes and tests, it might be a good idea to summarise these distinctions in a table:

Table 2. Classes of lexical predicates until Vendler's standard four classes

	States	Activities	Accomplishments	Achievements
Aristotle		(roughly) <i>energeia</i>	(roughly) <i>kinesis</i>	
Ryle (1949)		activities	achievements that are not purely lucky	purely lucky achievements
Kenny (1963)	states		performances	

2.1. Vendler's tests, parameters and macroclasses

Vendler (1957) advocates for a temporal interpretation of the lexical aspectual classes. His reasoning is that, if verbs have tense, temporal properties should be what defines them. In this sense, his view of lexical aspect is one of time schemata: verbs, by virtue of the meaning that they codify, presuppose a particular structure in time that determines, among other things, whether the situation that they express occupies an extended period of time or can be verified in one instant (Vendler 1957: 147). Familiar as these notions are, determining that the lexical aspect classes are defined by some form of temporal disposition of the situations described by them is not a common assumption of all the approaches to lexical aspect, as we will see in the course of this state of the art.

His second main claim is that the grammatically relevant time schemata are actually very few: in doing so he does not exclude the possibility that other time schemata might be discovered through empirical research, but he highlights the idea that there should be a reduced amount of time schemata of relevance, because the goal is to identify some abstract properties of the way in which languages categorise the diversity of situations that one can describe with them.

The way in which Vendler defines these classes is mainly empirical, and uses specific sentences to determine their underlying time schemata through their behaviour faced with several tests.

His first division is between verbs that allow the progressive form –'continuous tenses' (Vendler 1957: 144)– and those that reject them. Here we will reproduce Vendler's examples, even though they have been questioned in the subsequent literature. In his presentation, he notes that for some verbs the appropriate question-answer pair to identify a situation that holds at the moment of utterance involves the progressive form, while for others the progressive form is not appropriate.

- (23) a. What are you doing (now)?
 I am {running / writing a novel / *knowing that / *arriving home}.
- b. What do you do?
 I {*run / *write a novel}.

This differentiates, for English, between verbs that require the progressive form in order to denote a situation that happens at the moment of utterance and those that don't. He then characterises verbs that denote situations that require a progressive form in the

immediate present as verbs that "are processes going on in time, [...] that consist of successive phases following one another in time" (Vendler 1957: 144). A situation described by 'running' involves a (quick) succession of movements whereby the subject of predication first lifts one leg, then the other, and so on.

The main division here, then, is one between verbs that denote processes and those that don't. In the group of verbs that denote processes defined as above, he differentiates between two groups of verbs. For some of those, like (24), the verb does not set any specific boundary to how long the process will go on. In principle, a subject may run as long as he or she wants, and stop at any moment knowing that he has in fact fulfilled the truth conditions of that predicate.

(24) run, push a cart

In contrast, other verbal predicates presuppose some defined endpoint in the situation expressed, such as those in (25). These predicates, in order to be truthfull, require that the subject completes the situation up to the point defined by the second constituent in the predicate, that is, that the subject will run until he or she covers one mile, or will keep drawing until completion of one single circle. These predicates, in Vendler's words, have associated to them some kind of climax that, once reached, satisfies the truth conditions of the predicate. The predicates in (24), on the other hand, lack such type of climax that 'closes' the truth conditions of the predicate.

(25) run a mile, draw a circle

This contrast is diagnosing what has later been known as 'telicity'. In the words of Vendler (1957: 145):

[...]f someone stops running a mile, he did not run a mile; if one stops drawing a circle, he did not draw a circle. But the man who stops running did run, and he who stops pushing the cart did push it.

This is the core of one of the most well-known tests about telicity: whether the situation described by the predicate allows a question that specifies a particular length from beginning to end. Some predicates, those that are telic and contain that climax, allow a question like (26), while those that will be later on known as atelic disallow it.

(26) a. How long did it take to {run a mile / draw a circle}?
b. #How long did it take to {run / push the cart}?

Atelic verbs lack that climax that closes the truth conditions of the situation described, but allow a different type of question that simply measures the extension of the period of time involving the situation:

(27) a. For how long did he {run / push the cart}?
b. #For how long did he {run a mile / draw a circle}?

In (27b), the result is either odd or opens for a different interpretation. *For how long did he run a mile?* is anomalous because the mile, as a measure of extension, already delimits the predicate, and *For how long did he draw a circle?* is at best interpretable as meaning that he did not finish drawing the circle and was attempting to do it, little

the climax, then it follows that the process designated by the predicate did not actually take place.

Another empirical test follows from here (Vendler 1957: 146): if an atelic process lacking a climax is verified at any period of time during the temporal extension of the situation, the entailment in (31) will be true of any atelic verb, and false of any telic verb (unless the extension includes the climax).

- (31) a. Juan corrió de tres a cuatro ---> Juan corría a las tres y diez.
 Juan ran from three to four Juan ran at the three and ten
 'If Juan was running from three to four, it follows that he was running at 15.10'
 b. Juan dibujó un círculo de tres a cuatro --/--> Juan dibujó un círculo a las 15.10.
 Juan drew a circle from three to four Juan drew a circle at the 15.10
 'If Juan was drawing a circle from three to four, it does not follow that he drew a circle at 15.10'

In other words: in a process that lacks a final boundary, if the process occupies a particular extension of time, the same predicate can be predicated truthfully from any subset of that period of time. If the process has a final boundary, then only the subsets of that period of time that include the boundary may exhibit the truth conditions that are imposed by that predicate. In other words, only the periods of time that include the moment in which the circle is finished would be periods of time that show us 'Juan drawing a circle', and any period of time of his drawing that does not include finishing the circle will not be periods of time that allow us to witness 'Juan drawing a circle'.

Vendler (1957: 146) calls the verbs denoting processes that have a climax 'accomplishments', while those that denote processes that lack it are called 'activities'.

The second macroclass of verbal predicates are those that, in Vendler's (1957: 146) words, lack continuous tenses.

- (32) a. *Juan está sabiendo inglés.
 Juan is knowing English
 b. #Juan está llegando a casa.
 Juan is arriving to home

Vendler's observation, which of course can be questioned empirically, is that the progressive form of the two classes of verbs illustrated in (32) does not show a 'continuous tense', in the first case because the predicate 'know English' does not involve any type of process that contains a series of sequential phases, and in the second one because the strict meaning of 'arrive home' does not denote a sequence of events, but it denotes itself some sort of climax in an event. As such, the interpretation that the progressive 'is arriving' is not continuous –it does not denote any internal phase of an arriving event–. The general interpretation that (32b) receives, rather (and we will see more about this in §6) is that the period of time referred to with 'is arriving' corresponds to some time that precedes the arriving event, that is, the period that would lead to Juan's arriving home. Vendler (1957: 147) notes already this type of difference:

The fact that we often say things like, "It took him three hours to reach the summit" or "He found it in five minutes" might tempt a novice to confuse achievements (which belong to the second genus) with accomplishments (which belong to the first). A little reflection is sufficient to expose the fallacy. When I say that it took me an hour to write a letter (which is an accomplishment), I imply that the writing of the letter

went on during that hour. This is not the case with achievements. Even if one says that it took him three hours to reach the summit, one does not mean that the reaching of the summit went on during those hours. [...] If it takes three hours to reach the top, I cannot say 'I am reaching the top' at any moment of that period.

Within this class of predicates, Vendler (1957: 147) differentiates two groups. The first group corresponds to the verbal predicates that can be predicated of an individual for a longer or shorter period of time, while the second group includes the predicates that can only be predicated "for single moments of time (strictly speaking)": that is, the second class can only be predicated for instants.

This is a distinction between punctual and non-punctual predicates. An event of reaching the hilltop, winning a race or recognising something are true only of a definite instant where their truth conditions are verified: the instant in which someone actually arrives to the hilltop, the match finishes with one single winner or realises something are the situations that are denoted by these predicates, and any (necessary) process that leads to those situations has to be denoted by other predicates. Reaching the hilltop might be preceded by an event of moving towards the hilltop, but 'reach' does not denote that preceding event; winning the match is preceded by a series of other actions and processes, which again are not part of the denotation of the predicate 'win the match', and so on. In contrast, a predicate like 'know' (or the two classes of predicates that allow a continuous tense, activities and accomplishments) can or have to be predicated of longer periods of time in order to verify their truth conditions: we can predicate of Juan that he knows English during a long period of time, and infer that if he learnt English when he was three, 'Juan knows English' is true at any instant after the age of three. In order to verify the predicate 'run', we need to consider a period of time long enough to show the subject displacing using the movement of his or her legs.

This contrast can also be verified through some specific questions. Punctual verbs, that are not truthfull of an individual at longer periods of time, allow a question like (33).

- (33) a. At what time did you reach the hilltop?
b. #At what time did you know English?

Again, the same contrast can be verified in Spanish.

- (34) a. ¿En qué momento alcanzaste la cima?
at which moment reached the top?
b. #¿En qué momento sabías inglés?
in which moment knew English?

It is clear that (33b), (34b) are anomalous, in the sense that the predicates cannot be easily interpreted as denoting the type of situation that Vendler has in mind, a situation that does not contain any internal process of change, but it seems possible under certain conditions to accommodate the question meaning something like 'at what moment did you start knowing English?' or 'at what moment did you realise that you could speak English?'; again, as we will see in §2.4, the problem is not so much that the predicate is compatible or incompatible with some marker, but rather that the presence of a marker forces an interpretation that is not intended or somehow deviates from the usual interpretation of the predicate.

In contrast, the following question excludes the punctual predicates:

- (35) a. For how long did you love Mary?
 b. #For how long did you win the race?
- (36) a. ¿Por cuánto tiempo quisiste a María?
 for how.much time loved A María?
 b. #¿Por cuánto tiempo ganaste la carrera?

(35b) and (36b) are expected to be ungrammatical in the interpretation that the question wants to know the temporal extension of the event of winning the race. However, note that in some cases it is also possible to accommodate the sentence as meaning 'during how much time was it accepted that you had won the race' (think for instance on the judges determining one winner and then, after examining the slow motion video of the race, adjudicating the win to someone else), or in other cases 'for how long did the result of this event last?', as we will see in §5 and §6.

Vendler (1957: 147) notes that there is some type of entailment involving these punctual predicates that is not true of the other three classes: as they denote events that happen as single instants, it is common to report that they happen using already a recent past form like the perfect.

- (40) a. En este momento, Juan ha ganado la carrera.
 in this moment, Juan has won the race
 b. *En este momento, Juan ha amado a María.
 in this moment, Juan has loved A María
 c. *En este momento, Juan ha corrido.
 in this moment, Juan has run.
 d. #En este momento, Juan ha dibujado un círculo.
 in this moment, Juan has drawn a circle

Note that with atelic predicates lacking a climax, like the activity in (40c) and the predicate in (40b) –which the reader already knows is a state–, the use of the perfect in this context is ungrammatical. The reason is that these predicates do not contain a climax that can be interpreted to understand why a recent past form is used to report something that has just happened. In (40d), with the accomplishment verb, there is a climax as part of its denotation, but the sentence in (40d) does not report, as (40a), the whole situation that is denoted by the predicate: it concentrates only in the last part of the process, the culmination where the circle is completed.

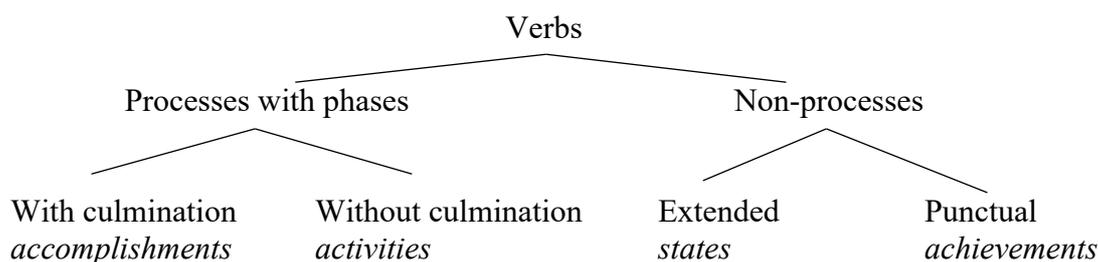
Vendler (1957: 148) calls the punctual verbs 'achievements', and the non-punctual verbs that do not denote processes 'states'. Like this, he defines four classes –although remember that he does not claim that these are the only four classes–, which he defines through the following time schemata:

- (41) a. Activities: "A was running at time t" means that time instant t is on a time stretch throughout which A was running.
 b. Accomplishments: "A was drawing a circle at t" means that t is on the (only) time stretch in which A drew that circle.
 c. Achievements: "A won a race between t1 and t2" means that the (only) time instant at which A won that race is between t1 and t2.
 d. States: "A loved somebody from t1 to t2" means that at any instant between t1 and t2 A loved that person.

In this purely temporal characterisation of lexical aspectual classes, Vendler identifies the truth conditions associated to each class with the referential possibilities of the time periods that they occupy: activities involve periods of time that are not unique or definite, in contrast to accomplishments; achievements involve unique and definite instants, and states involve time instants in an indefinite sense. In a sense, then, states are the only predicates that can always apply to each single instant of the period of time that they occupy –a property that we will go back to in §3 and that has been known as the Strict Subinterval Property–.

In this way, Vendler is proposing two macroclasses that are defined through one single contrast, the notion of process.

Diagram 1. Macroclasses according to Vendler (1957)



Note that in these time schemata, the property of change across time, which is generally assumed to be part and parcel of the traditional way of differentiating between the lexical aspectual classes, is not present. The distinction between processes and non processes does not have much to do with change, given that achievements are classified as non processes together with states. Instead of dynamicity, Vendler uses a notion of progression through time viewed as a sequence of ordered phases.

Telicity is part of the distinction between types of processes only, and does not play a direct role in the definition of achievements or states –although, as we have seen, it is possible to extend it to them–. In any cases, for Vendler there is no explicit mention that the presence of a climax cross-cuts across the two macroclasses.

Finally, temporal extension does overlap to some extent with the notion of process vs. non-process. Processes must be considered in time stretches or periods, while non-processes reject or do not need a reference to stretches. An achievement cannot be truthfully predicated from a time period, and a state may be predicated from a time period, but does not need to because any instant covered in the time period that it occupies also verifies the relevant truth conditions.

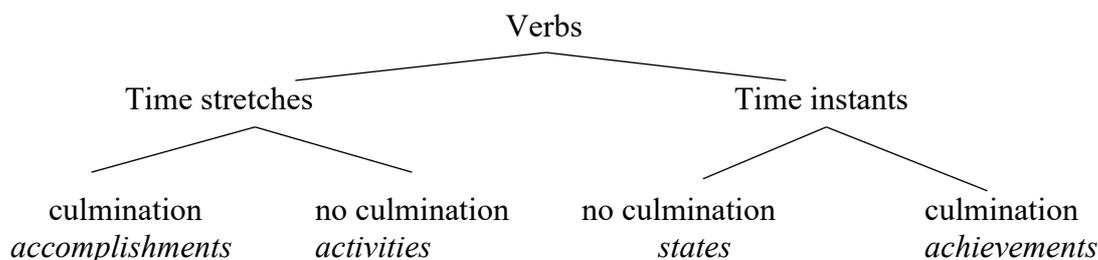
Thus, in the case of Vendler we have two, perhaps three, ingredients: the general distinction between being a process with internal phases or not, the distinction between presence or absence of a climax, which applies only to the first group, and the general distinction between time stretches and instants, which largely overlaps with the distinction between processes and non-processes. These three ingredients, binary in all three cases, should have produced eight classes if one computes in logical terms:

- (42) a. process, no climax, stretch
 b. process, climax, stretch
 c. process, no climax, instant
 d. process, climax, instant
 e. no-process, no climax, stretch
 f. no-process, climax, stretch

- g. no-process, no climax, instant
- h. no-process, climax, instant

Out of these eight potential combinations, only four are discussed in Vendler –and in fact these are, in a sense, the only four attested combinations, because as we will see in §7 all other lexical aspect classes in actuality can be considered mixtures of two of the previous classes–. (42a) corresponds to activities, (42b) to accomplishments, (42g) to states (perhaps, if one wants, in combination with 42e, as a state can occupy both time spans and instants) and (42h) to achievements. The reason that there are no more classes is, presumably, some kind of conceptual incompatibility: the notion of process, once defined as a sequence of phases, must always involve time stretches, something that eliminates as logically contradictory options (42c) and (42d). By the same reasoning, that a non-process must lack a sequence, option (42f) should also be discarded as contradictory. The resulting system, then, should be close to diagram 2, where the properties of processes are reduced to the nature of the temporal objects that they apply to, time stretches or time instants.

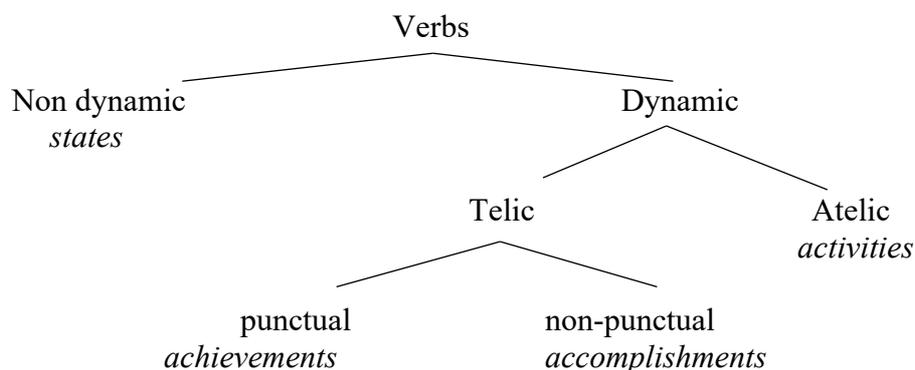
Diagram 2. Reinterpretation of the classes in Vendler (1957)



Viewed in this way, there are only two binary alternatives, resulting in the expected $2^2=4$ classes.

There are two reasons why I am bringing this up at this point. The first one is that I want to highlight that, despite the traditional understanding of lexical aspect as what has also been termed 'the Vendler-Dowty' classification, Vendler is not using the three parameters that we generally assume in organising our lexical aspect classes. In fact, in the definition of his macroclasses, Vendler puts together states and achievements defined as non-processes. This contrasts with the standard understanding of the distinction as presented in plenty of textbooks and articles, where it is generally assumed that the first cut into the classification refers to the notion of dynamicity, as we saw in §1 above, distinguishing states from all other classes. The second cut is generally assumed to differentiate telic from atelic verbs, a distinction that is well-known in philosophical studies –going back to Aristotle, see for instance De Miguel (1999: 2982)– and which has been used in traditional Spanish grammars (Diez 1844, Bello 1847, Lenz 1935, among many others). The third cut refers to the time stretch vs. instant distinction, but once applied to a set of macroclasses that had already states, only makes achievements different from the other members. The generally assumed lexical aspect classes, as shown in diagram 3, are then different from the ones that Vendler argued for, and are close to the classification that Kenny (1963) proposed, and the way in which Mourelatos (1978; §8.3) and Dowty (1979; §8.2) interprets the distinctions. I dare to say that the diagram in 3 corresponds in many cases to the underlying assumption about macroclasses that researchers make implicitly in their work.

Diagram 3. The lexical aspect macroclasses starting from dynamicity



The second reason why I am bringing this up is that, in the literature, there are three parameters to differentiate the lexical aspect classes, not two like in Vendler (once one reduces process~non-process to stretch~instant). Being the three parameters binary, one should expect 8 classes of lexical aspect unless one makes, as in diagram 3, the assumption that some distinctions only apply to one subclass: in diagram 3 we have only four classes at the cost of assuming that the distinction between punctual and non-punctual only applies to verbs that are telic, and telicity is only relevant for verbs that are dynamic. Nothing tells us that this should be so, in logical terms. Is there anything that prevents us from expecting that some states would apply to stretches of time and some to instants? Is there, in fact, anything that tells us that atelic should not be viewed as a defining characteristic of states? See §3 for a discussion of these problems.

On the other hand, if our solution to prevent an overgeneration of the lexical aspectual classes is to propose some subordination of some parameter to the other, as in diagram 3, resulting in a feature geometry, note that the decisions we take about that are not conducted by any internal logic. Diagram 3 takes the choice of using the dynamic ~ non-dynamic contrast as the matrix one, but given that states are atelic and can be truthfully predicated of stretches of time, we could have used telicity (diagram 4) or temporal extensions as the matrix one (diagram 5), resulting in the definition of different macroclasses.

Diagram 4. The lexical aspect macroclasses starting from telicity

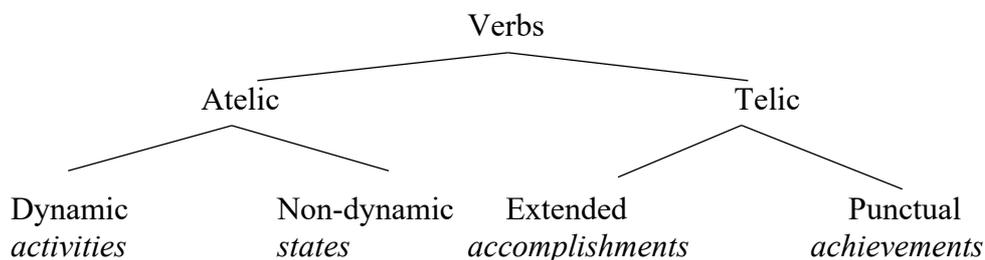
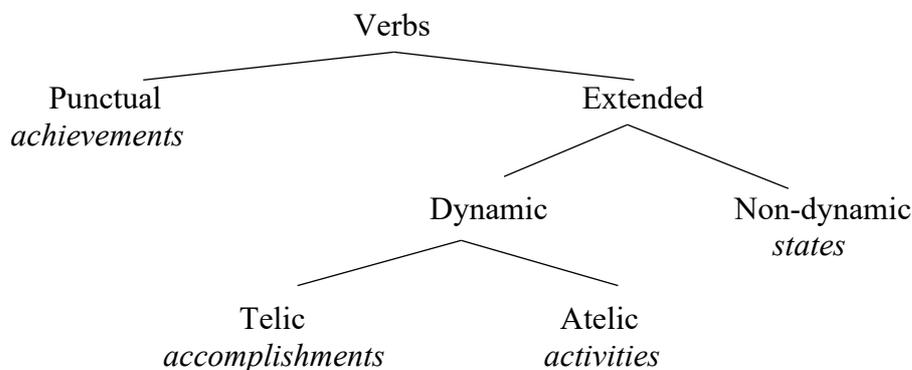


Diagram 4, I believe, is close to the underlying assumptions made in Ryle (1949), with his distinction between achievements and activities, and it is the clearly main distinction in mereological approaches based on quantisation (§8.3).

Diagram 5. *The lexical aspect macroclasses starting from temporal extension*



This division, with achievements being special with respect to the other classes, is very close to what Piñón (1997) proposes (see §6.2).

One could argue that diagram 4 makes in fact more sense from a Spanish-internal perspective, given that in other domains the difference between including a culmination or not is grammaticalised in Spanish –see the contrast between imperfective and perfective past tenses in (43)–, while it is unclear that we have specific markers that differentiate in the verbal domain between dynamic~non-dynamic or extended~punctual.

- (43) a. *canta-ba*
 sing-past.impf
 b. *cant-é*
 sing-past.pfv

The point is that deciding which one of the three parameters generally used is the matrix one produces very different macroclasses. In Vendler, achievements and states pattern together; in diagram 3, states are special; in diagram 4, states pattern with activities, and in diagram 5, achievements are special. All these choices, necessary unless one wants to overgenerate the existing lexical aspect classes, have very different empirical consequences that will be explored below in section §8. However, note for the time being the simple point that the more parameters we use in order to define lexical aspectual classes, the more such classes that should emerge if we allow those parameters to combine freely with each other, and the more problems emerge if we have to subordinate one parameter to the other.

At the same time, it is generally assumed that different semantic verb classes have a strong tendency to fall into one specific lexical aspect group. For instance, most verbs that denote events of motion where the manner is specified fall into the class of activities –unless some other constituent in the verbal predicate adds telicity to them–, such as *nadar* 'swim', *correr* 'run', *cojear* 'limp', *volar* 'fly', and so on. The following table presents the main semantic verb classes that are visible in each one of the four traditional lexical aspect groups; see §7 for the main verb classes of the less traditional verb classes.

Table 3. Main semantic verb classes depending on the lexical aspect class

Lexical aspect group	Main semantic classes within the group
<i>State</i>	<p>i. Copulative predicates combined with nouns or adjectives that ascribe a set of properties to the entity or to the situation and that express physical properties of any type, origins (<i>español</i> 'Spanish'), materials (<i>metálico</i> 'of metal'), propositional judgements (<i>verdadero</i> 'true', <i>falso</i> 'false'), or any other type of property excluding those that refer to how an entity behaves in the course of an action (see Class i of activities).</p> <p><i>Juan es alto.</i> Juan is tall</p> <p><i>Juan está enfermo.</i> Juan is sick</p> <p>ii. Verbs denoting existence (<i>existir</i> 'exist'), modal meanings related to capacity, ability (<i>poder</i> 'can'), deserving something (<i>merecer</i> 'deserve') or epistemic judgement (<i>parecer</i> 'seem', <i>parecerse</i> 'look alike', <i>aparentar</i> 'seem'), among other notions (<i>necesitar</i> 'need', <i>querer</i> 'want').</p> <p><i>Juan y Pedro se parecen.</i> Juan and Pedro look alike</p> <p>iii. Verbs denoting psychological states (<i>amar</i> 'love', <i>saber</i> 'know').</p> <p><i>A Juan le gustan las manzanas.</i> to Juan him likes the apples</p> <p>iv. Verbs that express a causal or consequence link between two states of affairs (<i>significar</i> 'mean', <i>implicar</i> 'imply', <i>radicar</i> 'cause'), specially when the subject is interpreted as the sign of a particular state of affairs and not an individual.</p> <p><i>Su silencio sugiere que acepta lo que dices.</i> His silence suggests that he accepts what you say</p> <p>v. Verbs expressing cognition in general, or that represent the mental knowledge of the subject.</p> <p><i>Juan entiende de matemáticas.</i> Juan understands of mathematics</p> <p>vi. Verbs denoting possession (<i>tener</i> 'have', <i>disponer de</i> 'have') or lack of possession (<i>carecer</i> 'lack'), as well as verbs that introduce the</p>

	<p>component parts of something (<i>consistir</i> 'consist', <i>constar de</i> 'consist of', <i>componer</i> 'compose'...)</p> <p>vii. Verbs denoting the stable location of something in a particular place (<i>encabezar</i> 'to be at the head of something', <i>contener</i> 'to have inside') or present an entity as being located in some place (<i>hay</i> 'there is'), possibly with a qualification about its quantity (<i>abundar</i> 'to be abundant', <i>sobrar</i> 'to be too much', <i>faltar</i> 'to be too little').</p> <p>viii. Predicates expressing physical posture in a non-dynamic situation (<i>yacer</i> 'lie', <i>estar sentado</i> 'sit', <i>estar de pie</i> 'stand')</p> <p>ix. Verbs that measure the dimensional properties of an entity, either physical (<i>pesar</i> 'weigh', <i>medir</i> 'to be of a particular size') or not (<i>costar</i> 'cost')</p> <p>x. Verbs and verbal expressions used to describe the more or less stable properties of an entity, such as <i>tener los ojos verdes</i> 'to have green eyes', <i>llevar gafas</i> 'to have glasses', <i>liderar</i> 'liderate', <i>amargar</i> 'to be bitter', <i>transparentar</i> 'to be transparent', etc.</p> <p>xi. Verbs that denote being a representation of something else, such as <i>representar</i> 'represent', <i>manifestar</i> 'to manifest', <i>mostrar</i> 'show', <i>encarnar</i> 'represent'...</p>
<p><i>Activity</i></p>	<p>i. Copulative structures with nouns or adjectives expressing the manner in which someone behaved when performing some action (Stowell's 1991 evaluative adjectives), such as <i>amable</i> 'nice', <i>cruel</i> 'cruel', <i>insensato</i> 'unwise' and valorative noun expressions like <i>un payaso</i> 'a clown', <i>un cabrón</i> 'an asshole', and so on:</p> <p><i>Juan fue cruel con María en la fiesta.</i> Juan was cruel with María in the party 'Juan acted in a cruel way with María at the party'</p> <p><i>Juan fue un cabrón con María.</i> Juan was an asshole with María 'Juan was an asshole to María'</p> <p>ii. Verbs expressing manner of motion.</p> <p><i>Juan rodó por las escaleras.</i> Juan rolled down the stairs</p> <p>iii. Verbs expressing directional motion provided that the direction can be iterated in a natural way (<i>girar</i> 'to rotate', <i>rotar</i> 'to rotate')</p>

	<p>iv. Verbs denoting repeated internal bodily movements that do not imply a displacement across a path: <i>temblar</i> 'to tremble', <i>vibrar</i> 'vibrate', <i>bailar</i> 'to dance', <i>respirar</i> 'breathe', <i>latir</i> 'to beat'.</p> <p>v. Verbs denoting non-punctual meteorological events (<i>llover</i> 'rain', <i>nevar</i> 'snow', <i>soplar</i> 'to blow')</p> <p>vi. Verbs denoting physical perception: <i>oír</i> 'hear', <i>ver</i> 'see', <i>escuchar</i> 'listen to', <i>oler</i> 'to smell', <i>admirar un cuadro</i> 'to admire a painting'</p> <p>vii. Verbs denoting intellectual perception: <i>prestar atención</i> 'pay attention', <i>supervisar</i> 'supervise', and so on</p> <p>viii. Verbs denoting acts of searching or looking for something during an indefinite amount of time (<i>buscar</i> 'search', <i>investigar</i> 'research', <i>indagar</i> 'research', <i>examinar</i> 'examine')</p> <p>ix. Verbs denoting the action of continuing doing something that had already been started (<i>seguir</i> 'continue', <i>continuar</i> 'continue'...)</p> <p>x. Verbs of directed motion, such as <i>conducir</i> 'drive', <i>empujar</i> 'push', <i>pasear al perro</i> 'walk the dog', etc.</p> <p>xi. Verbs of emission of sound (<i>gritar</i> 'shout', <i>susurrar</i> 'whisper', <i>zumbar</i> 'buzz'), light (<i>proyectar</i> 'project', <i>brillar</i> 'shine', <i>iluminar</i> 'illuminate') and substance (<i>sangrar</i> 'bleed', <i>babear</i> 'drool', <i>orinar</i> 'urinate'), among others</p>
<p><i>Accomplishment</i></p>	<p>i. Verbs denoting the creation of an entity, when the entity is created piece by piece as the event progresses, such as <i>tejer un jersey</i> 'knit a sweater', <i>pintar un cuadro</i> 'paint a painting', <i>componer una canción</i> 'compose a song', <i>construir</i> 'to build', <i>crear</i> 'create', and so on.</p> <p>ii. Verbs denoting the destruction of an entity, when the entity is destroyed piece by piece as the event progresses, such as <i>destruir</i> 'destroy', <i>comer un bocadillo</i> 'eat a sandwich', <i>tomarse un café</i> 'have a coffee', <i>derretir</i> 'melt', and so on</p> <p>iii. Verbs denoting a change in the properties of an entity that reaches a value considered to be maximal or minimal: <i>madurar</i> 'to grow up', <i>cocinar</i> 'cook', <i>freír</i> 'fry', <i>pintar una pared</i> 'paint a wall', <i>teñir</i> 'dye'...</p> <p>iv. Verbs denoting movement across a physical dimension that reaches some kind of reference point: <i>colocar</i> 'locate', <i>llevar a un lugar</i> 'carry to some place', <i>mover a la esquina</i> 'move to the corner', etc.</p>

	<p>v. Verbs denoting the act of producing a representation of an entity, such as <i>interpretar una canción</i> 'perform a song', <i>traducir un texto</i> 'translate a text', <i>grabar una conversación</i> 'record a conversation'</p> <p>vi. Verbs of perception where the object of perception is itself bounded: <i>leer un libro</i> 'read a book', <i>ver una película</i> 'watch a movie', <i>escuchar una canción</i> 'listen to a song', etc.</p>
<p><i>Achievement</i></p>	<p>i. Verbs that specify the directionality of movement, when that directionality is not iterable in a natural way: <i>llegar</i> 'arrive', <i>alcanzar</i> 'reach', <i>despegar</i> 'take off'</p> <p>ii. Verbs of initiated or ceased physical contact, such as <i>tocar</i> 'touch', <i>soltar</i> 'let go', <i>chocar</i> 'crash', <i>interrumpir</i> 'interrupt'</p> <p>iii. Verbs denoting change of physical state that is already verified in one single instant: <i>morir</i> 'die', <i>nacer</i> 'be born', <i>explotar</i> 'explode', <i>reventar</i> 'blow', and so on.</p> <p>iv. Verbs denoting the initiation of a state of affairs: <i>empezar</i> 'begin', <i>comenzar</i> 'start', <i>arrancar</i> 'start'...</p> <p>v. Verbs denoting the end of a state of affairs: <i>acabar</i> 'finish', <i>terminar</i> 'complete', <i>cesar</i> 'end'...</p> <p>vi. Verbs denoting the acquisition or loss of an entity: <i>conseguir</i> 'get', <i>recibir</i> 'receive', <i>perder</i> 'lose'...</p> <p>vii. Verbs denoting the sudden acquisition of a particular knowledge, perception through the senses or property: <i>pillar</i> 'spot', <i>captar</i> 'understand', <i>descubrir</i> 'discover', <i>notar</i> 'notice', <i>darse cuenta</i> 'realise', <i>detectar</i> 'detect', <i>despertar</i> 'awaken', <i>dormirse</i> 'fall asleep'...</p> <p>viii. Verbs denoting appearing and disappearing: <i>aparecer</i> 'appear', <i>mostrarse</i> 'show', <i>asomarse</i> 'show', <i>presentarse</i> 'appear', <i>personarse</i> 'attend', <i>desaparecer</i> 'disappear', <i>ocultarse</i> 'hide'...</p>

2.2. Members of the predicate that influence lexical aspect

Vendler (1957: 150) notes that during his article he has been forced to refer sometimes not to a single verb, but rather to the combination of a verb with other constituents in the predicate. He notes that in some instances, there is an intuitive sense in which the verb alone can be classified in a lexical aspect class through its temporal properties, but that in many other cases the predicate formed with the verb may show an alternating behaviour depending on the other elements it cooccurs with.

The point can be made clear when one considers the list of verbs used by Vendler in his article: for one, *run* is classified as an activity but *run a mile* is classified as an accomplishment. The following quote shows some of the cases that Vendler (1957: 150) classifies as almost unambiguous members of one of the classes:

There is a very large number of verbs that fall completely, or at least in their dominant use, within one of these categories. A little reflection shows that running, walking, swimming, pushing or pulling something, and the like are almost unambiguous cases of activity. Painting a picture, making a chair, building a house, writing or reading a novel, delivering a sermon, giving or attending a class, playing a game of chess, and so forth, as also growing up, recovering from illness, getting ready for something, and so on, are clearly accomplishments. Recognizing, realizing, spotting and identifying something, losing or finding an object, reaching the summit, winning the race, crossing the border, starting, stopping, and resuming something, being born, or even dying fall squarely into the class of achievements. Having, possessing, desiring, or wanting something, liking, disliking, loving, hating, ruling, or dominating somebody or something, and, of course, knowing or believing things are manifestly states.

Note that for most of the accomplishments Vendler is forced to specify a particular direct object, while in most of the activities, states and achievements it is possible to present the verb without an internal argument or leave the internal argument underspecified as 'something' or 'somebody'. The reason is that, predominantly in the class of accomplishments, it is not a single verb but a whole verbal phrase including the verb and one or more additional constituents, that can be defined as belonging to a unique lexical aspectual class.

Here is a list of the main constituents that influence the lexical aspect of a predicate.

2.2.1. Nominal constituents

Within the predicate, the general observation is that lexical aspect is mainly influenced by the internal argument –assumed, in most theories, to occupy the complement position of the relevant verbal head, called (depending on the theory) V or Proc (Tenny 1987, Krifka 1989, De Miguel 1999, Ramchand 2008)–. In many cases this internal argument is projected syntactically as a direct object. (44) shows how this argument can influence the telicity of the situation expressed by the verb, depending on whether the entity denoted by the direct object is conceptualised as an unbounded mass or as a bounded individual.

- | | | |
|---------|-------------------------|------------------------|
| (44) a. | Juan fumó tabaco. | Atelic (activity) |
| | Juan smoked tobacco | |
| b. | Juan fumó un cigarro. | Telic (accomplishment) |
| | Juan smoked a cigarette | |

The contrast between the two lexical aspects corresponds, largely, to the distinction between mass nouns (non countable nouns) and count nouns (countable nouns), but it is not the only relevant distinction. Collective nouns, that is, nouns which denote collections of bounded individuals, may also influence lexical aspect in a relevant way. Some events act as achievements when applied to direct objects that are single individuals but do not denote punctual events when the direct object involves a collection of entities. Consider in this respect the verb *encontrar* 'find'. This verb is generally an achievement –thus, punctual– both with mass nouns and with (individual) count nouns, because it can be said that finding any amount of a substance, no matter how small, already counts as finding, and that finding one individual is fulfilled as soon as the entity is seen. For this reason, in both cases in (45) we have a punctual achievement.

- (45) a. Juan encontró oro. Mass noun - Achievement
 Juan found gold
 b. Juan encontró un billete. Count noun - Achievement

However, finding the entity denoted by a collective noun requires some internal temporal extension, because –even when the person finds the first element in the collection, say for instance a single book– it is impossible to determine yet that the entity found is a collection of objects. If one wants, one may conceptualise this duration as reflecting some kind of internal iteration of the single event of finding, but this iteration is forced by the nature of the internal argument. Consider in this regard (46):

- (46) Schliemann encontró el tesoro de Agamenón durante todo un verano.
 Schliemann found the treasure of Agamenon during all one summer
 'Schliemann found Agamenon's treasure piece by piece during a whole summer'

The combination with a for-phrase measuring the finding event shows that now the event is conceptualised as having some non trivial internal duration that the cases in (45) lack. The obvious difference is that 'treasure' has one meaning where it means a collection of bounded individuals, such as we interpret that Schliemann put together these individuals, found at different points in time, in order to compose the treasure that allegedly belonged to Agamenon.

One can wonder what happens with groups or collections of single individual mass nouns, as in plurals like *libros* 'books' or *personas* 'people'. Undoubtedly, combining such plural direct objects with a verb has the effect of adding temporal extension to the event and atelicising it (cf. *Juan leyó poemas durante todo el verano* 'Juan read poems for the whole summer'), but it is unclear whether this affects the lexical aspect of the verb or should rather be viewed as a marker that forces the repetition of one single telic event of reading a poem in an unbounded series of events. In this second case, the effect of the plural marker for count nouns would affect the grammatical aspect of the clause, not strictly its lexical aspect. RAE & ASALE (2009: §23.4b) cites *escribir cartas* 'to write letters' as one case of activity, thus assuming that the plural affects lexical aspect, while other authors like Ramchand (2008) associate pluralities to event repetition, and thus to a manifestation of grammatical aspect that does not affect the telicity of the event in a direct way. To be fair, RAE & ASALE (2009: §23.4c) notes that in *escribir cartas* it is still possible to access the internal bounded duration of each one of the events, as in *escribir cartas en cinco minutos* 'to write letters in five minutes', where the five minutes measure how long it takes to write one single letter and not the duration of the repetition of the events of writing letters, which is unbounded. This can constitute an argument in favour of the view that plurals do not really affect the telicity of the event they are related to.

At this point it is relevant to say that not all direct objects can influence the nature of the lexical aspect of the verb they combine with. Although in some works, such as Tenny (1987), one can get the impression that this is so, Krifka (1989) and Ramchand (2008) restrict the direct objects that can influence lexical aspect to the type of argument that defines, through its internal parts, the progression of the event. Ramchand (2008) calls these arguments 'paths' or 'rheme paths', in order to differentiate them from what she calls 'undergoers'. Undergoers, against paths, are arguments that denote the entity that somehow experiences some internal change across a dimension.

Thus, the difference between paths and undergoers is the difference between the entity that measures the change itself and the entity that undergoes that change. Consider as an illustration the contrast in (47) and (48).

- (47) a. Juan destruyó la poesía. Telic - mass noun
 Juan destroyed the poetry
 b. Juan destruyó un poema. Telic - count noun
 Juan destroyed a poem
- (48) a. Juan lee la poesía medieval. Atelic - mass noun
 Juan reads the poetry medieval
 'Juan reads medieval poetry'
 b. Juan lee un poema. Telic - count noun
 Juan reads a poem

In (48) we have the by now familiar alternation between telic and atelic construals which depends on whether the direct object is mass or count. In (47), however, the verb's telicity is not influenced by the fact that one direct object is a mass noun. In the terms that we have just presented, this means that the direct object of the verb in (48) corresponds to a path: the event of reading is internally measured by the extension of the object read, so that each part of the object read defines one different part of the progression of that event—as we read, we 'consume' more parts of the object of reading—. The change that the event of reading defines is itself verified by the parts of the direct object that are affected, in a way that progressing through the book is the same as progressing through the reading.

In contrast, an event of destroying is not conceptualised as measured by whatever one destroys. The direct object of this verb is an entity that undergoes that event of destruction, where the change is measured by the destruction itself—that is, by a result state that defines the object as ceased to exist, in the relevant sense—. That result state involved in the definition of the 'destroy' event is what defines the change: the entity is destroyed as soon as it passes from a state of 'existing' or 'being' to a state of not existing or not being. This result state, although apparently implicit, is part of the denotation of the verb, as shown by the behaviour of a *for*-phrase.

- (49) a. Juan destruyó la poesía durante un año.
 Juan destroyed the poetry for one year
 b. Juan leyó la poesía medieval durante un año.
 Juan read the poetry medieval for a year

Although apparently compatible with both verbs, the interpretation of the *for*-phrase is very different in both cases. In (49a) there is a possible reading where the *for*-phrase measures for how long poetry is considered to be destroyed. Imagine that Juan is a horrible poet, although very popular, and produces a book that the speaker considers that has the effect of destroying poetry because it influences other writers in trying to reproduce Juan's style. Imagine that after one year people realise that the book is nonsense and go back to writing as the speaker believes good poetry should be written. In this context, (49a) can be used truthfully although it is not true that Juan was doing something for a whole year that involved a sequential destruction of poetry.

This reading of result is not available in (49b), where the meaning 'medieval poetry was in a state of read for one year' is impossible to obtain given the denotation of the verb. Here, only the atelic reading that Juan was reading poetry for one year is available,

that is, the verb does not denote any result state because the change that it defines depends on the internal argument, that measures it, and not on the existence of some defined result state.

Ramchand (2008) highlights the correlation between having result states and not having path internal arguments able to measure the event, for telic verbs, suggesting that this is a real generalisation.

- (50) For telic verbs, a verb may have a path object that measures the event through its internal properties or it may have a result state, but not both at the same time.

The explanation of this correlation is, in Ramchand's (2008) view, syntactic (see §10 for more details about her system). Rheme path objects and the projection that defines a result state (Res) occupy the same syntactic position (51), the complement of the head that denotes the progression of the event, Proc(ess).



Being in the same position, it follows that the two entities cannot co-occur.

In terms of types of verbs, verbs that include a path object –also known as an incremental theme object, in the sense that the progression of the event is measured as the incremental affecting of the internal parts of that object– tend to be verbs of creation, verbs of destruction, and verbs of change where different parts of the object are affected by that change at different moments in time (RAE & ASALE 2009: §23.4).

(52) Verbs of creation: escribir 'write', hacer 'to make', preparar 'to prepare', componer 'compose', construir 'to build', armar 'to put together', pintar 'to create by painting'...

(53) Verbs of destruction: quemar 'burn', beber 'drink', comer 'eat', cortar 'to cut'...

(54) Verbs of change: colorear 'to colour', rellenar 'to fill', vaciar 'to empty', ordenar 'to order', desordenar 'to mess', pintar 'to put painting to'...

Note that here we are not differentiating between change in location and change in some other property. As can be seen, the distinction between these verb classes is rather conceptual, and sometimes the same verb can fall into several classes depending on the type of entity that the direct object refers to. In (55), the same verb is a verb of creation (55a) when it denotes the act of bringing to be through painting –the portrait does not preexist the act of painting– and a verb of change where more paint is added to different parts of an object that preexisted the act of painting (55b).

- (55) a. Juan pintó un retrato.
Juan painted a portrait
b. Juan pintó la pared.
Juan painted the wall

Verbs whose internal argument is typically an undergoer tend to fall into two groups: verbs of directed motion where an object is displaced across some trajectory –here the trajectory defines the incremental theme or rheme path, as we will see soon–, like those in (56), which are atelic despite the definite object (Verkuyl 1989), and verbs that

denote change that affects the internal argument as a whole and the change is not applied in different points in time to different parts of the entity (57). Note that burning a book –where the object is a rheme path– involves burning at different points in time different parts of the book, while the process where a child gets fat does not affect different body parts at different times: so to say, the getting fat happens to the child as a whole, with all (relevant) body parts affected at the same time.

- (56) a. Juan condujo el coche.
Juan drove the car
b. Juan empujó el carro.
Juan pushed the cart
c. Juan arrastró la mesa.
Juan dragged the table
- (57) a. La comida rápida engordó al niño.
the food fast fattened the child
b. Pedro blanqueó la ropa.
Pedro whitened the clothes
c. Marta secó la pintura con un secador.
Marta dried the painting with a hair dryer

Thus, in these verbs the direct object does not affect the telicity of the verb. It is generally the case, too, that verbs like those in (57) are morphologically related to adjectives, which are visible in the internal structure of the verb (*gordo* 'fat', *blanco* 'white', *seco* 'dry'). These verbs, that frequently fall in the class of degree achievements (§7.3) are generally assumed to behave in a way that shows that the rheme path that measures change is in fact the adjective itself, more specifically the scale of ordered values that underlies that adjective. Thus, in (57a), for instance, the change that the verb denotes is measured by the change in the scale of fatness, and the direct object is the entity that experiences that change.

Direct objects are not the only option for internal arguments to project. We find also nominal complements influencing the lexical aspect of verbs whose properties place them between direct objects and quantity modifiers. This is typically the case with some activity verbs that denote manner of movement, and where a quantity corresponding to the measure of the trajectory that is covered can appear. In (58) we have accomplishment verbs, because the nominal complement denotes a specific quantity of space (or time, 58e) that the verb covers, and that creates a bound event where the climax is reached once that quantity is reached.

- (58) a. correr dos kilómetros
to run two kilometers
b. andar veinte metros
to walk twenty meters
c. recorrer el parque
to cover the park
d. nadar dos largos
to swim two lengths
e. durar dos horas
last two hours

As it is well-known since Perlmutter (1978), that internal arguments can project as subjects of verbs considered to be unaccusative –that is, verbs whose subject acts, in fact, as a patient–. It should be expected that with these verbs the nature of the subject might influence lexical aspect; however, they generally do not, but the reason is that as internal arguments the subject of unaccusative verbs generally denote undergoers, not paths. Unaccusative verbs tend to fall into two classes: verbs of directional motion, where the subject is the entity that moves along a path that itself measures the event (59) or verbs of change that affect the entity as a whole (thus, they are also undergoers; 60).

- | | | |
|---------|--|-------------------------------|
| (59) a. | Un soldado entró en la ciudad.
one soldier entered in the city | Punctual - individual subject |
| b. | El ejército entró en la ciudad.
the army entered in the city | Punctual – collective subject |
| (60) a. | Juan nació aquí.
Juan was.born here | Punctual - individual subject |
| b. | Todo el pueblo nació aquí.
whole the town was.born here
'The whole town was born here' | Punctual - collective subject |

The same can be seen with respect to the mass-count distinction: given that the internal argument is an undergoer, they do not affect the properties of the lexical aspect as defined by the verb.

- | | | |
|---------|---|-----------------------|
| (61) a. | Cayó agua en la mesa.
fell water on the table | Telic - mass subject |
| b. | Cayó una hoja en la mesa.
fell a leaf on the table | Telic - count subject |

2.2.2. Prepositional constituents

Prepositional constituents can influence lexical aspect in three different senses. In the first sense, a prepositional constituent –when selected by the semantic entailments of the verb– can constitute itself an internal argument that measures the event. This is the case, in particular, with verbs of motion, both manner of motion and directional motion. Consider the contrast in (62) and (63).

- | | | |
|---------|--|--------|
| (62) a. | Juan nadó hasta la orilla.
Juan swam to the shore | Telic |
| b. | Juan nadó hacia la orilla.
Juan swam towards the shore | Atelic |
| (63) a. | El globo se elevó hasta el techo.
the balloon SE rose to the ceiling | Telic |
| b. | El globo se elevó hacia el cielo.
the balloon SE rose towards the sky | Atelic |

The choice of preposition influences the telicity of the predicate, in an already familiar way. The use of *hasta* 'until' sets a spatial limit to the movement, that ends as soon as the location introduced by that preposition is reached. In contrast, *hacia* 'towards' does not introduce the limit of movement, but rather an unbound direction that in principle can be extended indefinitely. Like this (see Pancheva 2012), one can talk

of telic and atelic path prepositions, depending on whether they denote an endpoint of movement or not:

- (64) a. Hasta: -----]
b. Hacia: -----...

These prepositional complements are, as the name suggest, rheme paths: they, like the direct objects that behave as paths, define the progression of the event itself by their internal mereological parts. Movement across a path is itself defined by the chunks of the path that are covered in that movement, so the definition of a rheme path or incremental theme is satisfied.

In order to be able to influence lexical aspect, however, the PP path must be selected by the verb as an argument. In the abundant cases where these prepositional complements appear as temporal or aspectual modifiers with verbs that do not select them, there is no influence on lexical aspect (RAE & ASALE 2009: §23.4k). Even though in (65) the prepositional modifier introduces a boundary that defines the temporal end of the event, the behaviour is the one expected from an atelic predicate.

- (65) Juan corrió hasta las tres (*en dos horas).
Juan run until the three in two hours
'Juan run until three o'clock (*in two hours)'.
'Juan run until three o'clock (*in two hours)'.

If the prepositional modifier had the power to telicise the event in (65), it should mean something like 'Juan's running lasted two hours, and ended at three o'clock', but this is not the case. The reason is, as explained, that the presence of this modifier – important as it may be for the grammatical aspect of the sentence– does not change the telicity of the verb, which stays as atelic, and therefore the in-complement *en dos horas* is rejected.

The second sense in which a prepositional complement may influence the lexical aspect of a verb is through some possible alternations that some verbs exhibit with respect to whether the internal argument is projected as a nominal constituent or with a preposition. These alternations, that are known in other languages as 'conative alternations' (66, Levin 1993) are not very common in Spanish, but it is possible to find some relevant cases (67).

- (66) a. shoot the tiger
b. shoot at the tiger
(67) a. pensar la respuesta Telic
 think the answer
 b. pensar en la respuesta Atelic
 think on the answer

In (67a), the verb is interpreted along the lines of 'work out an answer', and the answer itself has the capacity to telicise the verb: as soon as the answer is put together, the event of determining it is done. This is reflected in the combination with an in-modifier, that measures how long it took to reach the climax of the event (68).

- (68) Juan pensó la respuesta en un momento.
Juan thought the answer in one moment

In (67b), in contrast, the meaning is rather to reflect about an answer that was already there before the reflection started, and as such the reflection can be extended in time unboundedly, as shown by the incompatibility with an in-phrase –unless one interprets that the in-phrase measures how long it took Juan to start reflecting on the answer, measured from an unspecified time point, for instance the moment in which the answer was first given to Juan–.

- (69) Juan pensó en la respuesta (#en un momento).
Juan thought on the answer in one moment

The third sense in which a prepositional complement may influence lexical aspect is through the properties of the nominal element that it contains. This can be visible in some cases of indirect objects. Consider, in this sense, (70):

- (70) Juan donó una casa a Pedro.
Juan donated a house to Pedro

(70) is clearly telic. One way of making the event denoted atelic is, as we have seen, by making the direct object a plurality or a collectivity, which opens for the possibility that some kind of repetition is interpreted that manages to atelicise the event described.

- (71) Juan donó cosas a Pedro durante sus últimos años de vida.
Juan donated things to Pedro during his last years of life

However, even with a singular, individual, count noun it is possible to obtain an atelic interpretation if the nominal used as indirect object is manipulated accordingly. Consider (72).

- (72) Juan donó una casa a muchas personas.
Juan donated a house to many people

Here, both if one thinks of the same house and of a different house, the event of donating a house can be interpreted as repeated an unbounded number of times if each donation of a house was made to a different person at a different time. Again, as in the case of plurals, the open question is whether this type of alteration in telicity should be considered a modification of lexical aspect or should be viewed as a higher-order operation where a macroevent is built through repetitions of one single telic event, but the modification is parallel to the one seen with internal arguments.

Again, what makes this change possible is the combination of two factors: one is that the indirect object for a verb like *donar* 'donate' and, in general, verbs of transfer is a selected argument; the second is that in a transference event, the nature of the implied path that has to be covered until the object arrives to the goal has the potential to be defined as a rheme path that measures the transference itself. Note in this sense that the direct object, as expected, is not defined as a rheme path but rather as an undergoer, as witnessed by the fact that the mass-count distinction does not influence in this case the telicity of the event.

- (73) a. Juan donó una casa a Pedro. Telic - count object
 Juan donated a house to Pedro
 b. Juan donó dinero a Pedro. Telic - mass object

Juan donated money to Pedro

To wrap up the discussion about the notions of boundary, mass and collectivity, a set of generalisations seems to apply to both cases where the element is nominal and the cases where the element is prepositional (or embedded under a preposition, but still accessible to the semantic construal of the event).

- a) Only selected arguments have the potential to influence lexical aspect
- b) From those, only arguments that are classified as rheme paths can influence lexical aspect. In particular, the mass / count distinction is only operative for arguments defined as rheme paths.
- c) The contrast between singular individuals and groups of individuals seems to be a bit more general than the one between mass and count nouns, and perhaps does not influence directly the lexical aspect of the predicate. In particular, under some conditions pluralities in an undergoer argument may have an effect on the temporal construal of the sentence, even though the mass / count distinction does not have an effect.

Let us now move to the last class of elements that may influence lexical aspect.

2.2.3. Morphological elements

Lexical aspect may be influenced also by some derivational morphemes, as Portolés (1999) discusses in detail. In particular, a class of so-called interfixes that combine with verbs have the effect of affecting telicity in a way similar to the conative alternation in English. As we saw in §2.2.2, the conative alternation refers to cases where an internal argument can be introduced by a preposition or not, with the effect that in the prepositional case the event is interpreted as atelic.

- (74) a. John ate the sandwich. Telic
 b. John ate at the sandwich Atelic

In (74b), the event of eating is interpreted as irregular, non-culminating, and perhaps performed in a particular manner. As we saw also in §2.2.2, the conative alternation is not frequent in Spanish, and one possible explanation is that Spanish has some derivational morphemes that can have the same effect.

- (75) a. Juan comió el bocadillo. Telic
 Juan ate the sandwich
 b. Juna com-isc-ó el bocadillo. Atelic
 Juan eat-inf-ed the sandwich

There are other pairs of verbs where the verbal interfix adds a notion of atelicisation through the meaning that the event was not culminated, perhaps because it was performed in an irregular and careless way.

- (76) a. lavar los platos Telic
 wash the dishes
 b. lav-ot-ear los platos Atelic
 wash-inf-vbl the dishes
(77) a. fregar el suelo Telic

- wash the floor
 b. freg-ot-ear el suelo Atelic
 wash-inf-vbl the floor

In other cases these interfixes imply a notion of unbounded repetition of a single event, which again produces an atelic construal.

- (76) a. morder algo Telic
 bite something
 b. mord-isqu-ear algo Atelic
 bite-inf-vbl something
 (77) a. tirar Telic
 throw
 b. tir-ot-ear Atelic
 throw-inf-vbl
 'to shoot repeatedly at'

These notions related to the temporal dimension frequently overlap with other notions that authors like De Miguel (1999) consider different dimensions of lexical aspect, such as the intensity or absence of intensity in the notion described. In this sense, it is possible to identify a use of these interfixes where they already combine with an atelic predicate but add to it the idea that the event happened in an irregular, diminished way:

- (78) a. correr
 run
 b. corr-et-ear
 run-inf-vbl
 'to run around, aimlessly'
 (79) a. llover
 rain
 b. llov-izn-ar
 rain-inf-vbl
 'to drizzle'

2.3. *Some phenomena where lexical aspect has been claimed to play a role*

Lexical aspect is empirically important in the study of natural languages because of the explanatory role that it plays in a broad variety of phenomena. Here we will list only some examples of them so that its importance for describing generalisations within Spanish is highlighted. We will divide them in three groups: (i) grammatical aspect, through periphrasis and the use of imperfect and perfective, (ii) syntactic constructions and (iii) morphological constructions.

2.3.1. Grammatical aspect

Starting with grammatical aspect –which imposes a particular perspective on the eventuality that is defined at the level of the lexical predicate–, the choice between imperfective and perfective in Spanish is partially dependent on the type of lexical aspect that is found in that predicate. Sometimes the choice is fully conditioned by the lexical aspect and in many other occasions both aspects are possible but the interpretation that these forms receive is different (see Fábregas 2015 for a full

overview). Like this, state predicates tend to go with imperfective unless there is an overt delimiter in the clause (such as a for-phrase or a temporal modifier indicating the endpoint of the state):

- (80) a. Juan era alto.
Juan was.impf tall
b. #Juan fue alto.
Juan was.pfv tall
c. Juan fue alto hasta que tuvo el accidente.
Juan was.pfv tall until he had the accident

On the other hand, achievements take perfective unless one coerces them into a habitual or iterative interpretation through an unbounded repetition of the event, or a preparatory stage reading (see §6).

- (81) a. Juan murió.
Juan died.pfv
b. #Juan moría.
Juan died.impf
c. Los soldados morían en el campo de batalla.
the soldiers died in the field of battle
'The soldiers died, one after the other, in the battlefield'

Moving now to periphrases, it has been claimed that the progressive periphrasis takes activities and accomplishments, with marked readings for achievements and states (see §3.2.3, §6.1).

- (82) a. Juan está nadando.
Juan is swimming
b. Juan está escribiendo una carta.
Juan is writing a letter
(83) a. *Juan está sabiendo inglés.
Juan is knowing English
b. #Juan está muriendo.
Juan is dying

Phase verbs that pick the initial, final or intermediate point of an eventuality do not combine well with achievements, because they are punctual and therefore it is impossible to differentiate in them between the starting, ending or intermediate points.

- (84) a. Juan comenzó a esperar.
Juan started to wait
b. *Juan comenzó a llegar.
Juan started to arrive
(85) a. Juan acabó de leer el libro.
Juan finished of read the book
b. *Juan acabó de alcanzar la cima.
Juan finished of reach the summit
(86) a. Juan siguió corriendo.
Juan continued running

- b. #Juan siguió muriendo.
Juan continued dying

The interpretation of tenses can also vary depending on the lexical aspect class of the verb. For instance, states, activities and accomplishments allow an immediate present reading (right now) in the present, while achievements are marked in that interpretation and prefer imminent future readings (88a) or habitual interpretations (88b) (Marín & McNally 2011).

- (87) a. Juan tiene fiebre en este momento.
Juan has fever in this moment
b. Juan conduce en este momento.
Juan drives in this moment
c. Juan prepara la cena en este momento.
Juan makes the dinner in this moment
(88) a. Juan llega en este momento.
Juan arrives in this moment
'Juan is about to arrive in this moment'
b. Juan se enfada.
Juan SE gets angry
'Juan typically gets angry'

2.3.2. Syntactic constructions

There are also syntactic constructions that are sensitive to the distinction between aspectual classes. The absolute participle structure (89) has been argued to be restricted to telic predicates –atelic are either ungrammatical (90a) or get coerced to a telic reading (90b)–, see De Miguel (1999).

- (89) a. Muerta la abuela, heredaron todos.
dead the grandma, inherited all
'Once the grandma was dead, they all inherited'.
b. Escrito el libro, lo llevó a la editorial.
written the book, it took to the publisher
'Once the book was written, he took it to the publisher'
(90) a. *Sabido inglés, viajó a Londres.
known English, travelled to London
Intended: 'Once he knew English, he travelled to London'
b. #Conducido el coche, lo dejó en el taller.
driven the car, it left in the garage
'Once he tested the car by driving it, he left it in the garage'

The same telicity requirement is imposed in stative passives (Marín 2000), which cannot be built with atelic predicates unless they are coerced to a telic reading:

- (91) a. *El sospechoso está buscado.
the suspect is searched.for
b. #El coche está conducido.
the car is driven
'The car is tested by driving it'
c. *El agua está manada de la fuente.

the water is emanated from the fountain

Torrego (1998) notes that for some verbs, differential object marking –direct objects introduced with *a* 'at'– also depend on the lexical aspect: dynamic versions of the verb assign the preposition (91) while the stative interpretation has the possibility of avoiding the differential mark (92) (see also §9.2 for stativity and instrumental subjects and §9.5 for alternations between achievement and state):

- (91) a. Juan conoció a mucha gente. Achievement
 Juan met A many people
 b. La ópera conoce muchos aficionados. State
 the opera knows many fans
 'Opera has many fans'

The argument structure of a verb in the sense of how many arguments it can have, and how they are interpreted, are also partially intertwined with lexical aspect (see §8.2 and §10.1). It is for instance easier to build a transitive predicate as intransitive when the interpretation is stative (§9.2 and §9.3):

- (92) a. Juan bebe.
 Juan drinks
 'Juan is a drinker'
 b. Juan ve.
 Juan sees
 'Juan is able to see'

It is also easier to assign a dynamic interpretation to a verb when the subject is interpreted as an agent than when it is interpreted as an instrument or causer.

- (93) a. Juan está pintandose las uñas de rojo. Dynamic
 Juan is painting the nails in red
 b. Este pincel pinta las uñas de rojo. Stative
 this brush paints the nails in red
 c. *Este pincel está pintando las uñas de rojo.
 this brush is painting the nails in red

The interpretation of subordinate clauses, for instance with infinitives, is also dependent on lexical aspect (Hernanz 1999). For instance *al* + infinitive structures can in principle have a temporal (94a) or a causative reading (94b), but that is only with dynamic verbs. Statives only allow the causative reading (95).

- (95) a. Al llegar a casa, puso la televisión.
 at arrive to home, turned.on the TV
 'When he arrived home, he turned the TV on'
 b. Al ganar la lotería, pudo retirarse.
 at win the lottery, could retire
 'As he had won the lottery, he could retire'
- (96) a. #Al estar enfermo, puso la televisión.
 at be sick, put the TV on
 Intended: 'When he was sick, he turned the TV on'

- b. Al estar enfermo, tuvo que retirarse.
 at be sick, had to retire
 'As he was sick, he had to retire'

2.3.3. Morphological structures

The distinction is also relevant for word formation operations, where the distinction between states and the other classes of predicates is particularly relevant. It has been noted, for instance, that VN compounds whose second member is interpreted as the internal argument of the verb (97) require the verb to be dynamic (98), and reject stative verbs (99, Varela 1990).

- (97) limpia-botas
 clean-shoes
 'shoe cleaner'
 (98) aprende-cosas
 learn-things
 (99) *sabe-cosas
 know-things

Prefixes such as *re-* and that codify iteration can only combine with dynamic verbs (Martín García 1998) and prefer telic readings that allow to determine that some atomic and bounded unit of the event has concluded and another iteration has emerged:

- (100) a. re-leer un libro
 re-read a book
 'read a book again'
 b. *re-caminar
 re-walk
 c. re-caminar el mismo sendero
 re-walk the same path
 'walk along the same path again'
 d. *re-estar enfermo
 re-be sick
 Intended: 'to be sick again'

Adjectival suffixes like *-idad* 'ity' combine with adjectives that denote individual level predicates, and reject adjectives that only have stage level readings:

- (101) a. mortal-idad
 mortal-ity
 b. español-idad
 spanish-ity
 'spaniardness'
 (102) a. *desnud-idad
 naked-ity
 Intended: 'nakedness'
 b. *borrach-idad
 drunk-ity
 Intended: 'drunkness'

These are of course only a few examples intended to illustrate how crucial this lexical aspect is for different aspects of the grammar of a language, determining the availability of some operations and how others can be read semantically. Let us leave here this issue and move now to a few remarks on the tests that identify lexical aspect.

2.4. *The problem with tests*

After having introduced the notion of lexical aspect in its traditional interpretation, we will now dedicate the next five sections to a discussion of each class, introducing both their properties and the tests that have been used to identify them. However, before we start presenting test after test there is a general comment that is in order: it is frequently the case that when one tries to apply one of these tests to a particular predicate, instead of ungrammaticality one obtains rather a coercion to a different interpretation. It is in fact rare to find tests that produce an absolute ungrammaticality with some verb class, and it seems to be possible—at least in a high proportion of cases—to accommodate the meaning of the predicate so that it satisfies the conditions that the element combined with it imposes.

As a result of this, in practice there are many cases where the researcher identifies a verb as belonging to one class because of the interpretation that it obtains with a particular modifier rather than by the rejection or acceptance of that modifier. There are two distinct typical situations related to meaning when one combines the objects used as tests with predicates that are 'of the wrong type'.

- a) The object added adopts an interpretation that is not the intended one
- b) The object added forces the predicate to a reading that is not the intended one

One case of the first type is the famous modifiers with *for* and *in*. In principle one interprets that atelic predicates combine with the first and telic predicates combine with the second, but this is not true: both combine with most telic or atelic verbs, and what varies is their interpretation. With atelic verbs like states and activities, an *in*-modifier can adopt a meaning of delayed event, where the time that is being measured is the one that takes to start the situation, counted from an implicit point in time—for instance, the time where one is expected to start the situation—. This delayed event reading is visible in the following examples—note that the initial position favours the reading—:

- (103) a. En un año Juan sabía inglés.
 in one year Juan knew English
 b. En unos minutos el pájaro voló.
 in some minutes the bird flew

This delayed reading is also possible with accomplishments, and compulsory with achievements—as they do not have an internal duration that can be measured—. The initial position is not even compulsory with activities to obtain that reading:

- (104) Juan corrió en unos minutos.
 Juan ran in some minutes

The *for*-modifiers can also be combined with telic events, and in those cases they can modify not the duration of the event, but the duration of a result, as we will see in §5 and §6:

- (105) Juan guardó el libro en la caja durante un rato.
 Juan put the book in the box for a while
 'The book was in the box for a while'

In the face of these readings, the researcher cannot simply say that a verb is telic or atelic because of the combination with for- or in-modifiers, but needs to take into account the possible readings. When the modifier is accepted, but does not have the interpretation that was originally intended, the researcher generally assumes that the intended interpretation is the one that determines the class of lexical aspect, and determines the nature of the verb accordingly.

Coercion of the meaning of the predicate is the second type of situation, and it is typical also with for-modifiers in combination with verbs that do not have duration – achievements–. In such cases, the for-modifier is possible but forces a reading where the event is repeated for some time; if the event is not iterable for the predicate as it is described (someone cannot die several times), ungrammaticality emerges.

- (106) a. Juan llegó tarde durante varios meses.
 Juan arrived late for several months
 b. *Juan murió durante varios meses.
 Juan died for several months
 c. Los soldados murieron en la batalla durante varias horas.
 the soldiers died in the battle for several hours

A typical case of coercion is found with the progressive periphrasis in combination with states. It is generally said that statives reject the progressive periphrasis –at least when they are not stage level states, see §3.2.1–, but the fact is that many stative verbs can appear in the progressive (Leech 1971, Comrie 1976, Mourelatos 1978).

Take for instance intellectual psychological states related to knowing. These verbs will be considered basically states because they follow the so-called Strict Subinterval Condition (see §3). Imagine a situation where Juan thinks about a problem between 2 and 3; assume that he never gets distracted. Any instant within 2 and 3, which constitutes an infinite series of instants, will show that Juan thinks about the problem: as a state does not involve any internal change, any instant will show the same situation as the next one and the previous one. However, it is easy to interpret these verbs in the progressive:

- (197) a. Juan está pensando en el problema.
 Juan is thinking on the problem
 b. Juan está reflexionando sobre el problema.
 Juan is reflecting on the problem
 c. Juan está entendiendo el problema.
 Juan is understanding the problem

The same goes for sentimental psychological states.

- (108) a. A Juan le está gustando María.
 to Juan him is liking María
 b. Me está encantando la película.
 me is loving the movie
 c. Juan está odiando a María.

Juan is hating to Maria

This does not necessarily mean that these verbs are not statives, or that the progressive test should be completely ignored, because the presence of the progressive periphrasis with these verbs has some type of 'marked' interpretation. Generally the interpretations are two.

The first one, established since Carlson (1977) and Dowty (1979), is that the progressive presents an episodic manifestation of the mental state that the subject holds. In a way, the progressive in some of these cases allows us to view a situation that shows Juan concentrated looking at some paper, and lets us infer that he is now engaged in a state of reflecting or thinking, or perhaps the external manifestation of Juan's attitude allows us to infer a hating state. Note that the episodic manifestation that the subject is engaged in a situation is a typical reading of the progressive with non stative verbs:

(109) Juan está buscando a María.
Juan is looking for María

The second reading that emerges is a type of inchoative degree reading where one says that the psychological state has not yet been reached but it is coming close to being reached. If we say that someone is understanding the problem, we say that it is starting to understand it, or is close to starting to understand it; if we say that someone is loving a movie, one possible reading is that for the time being, what he has seen so far is something that he loves, but the movie is not finished and for this reason he cannot guarantee that he will love it all: what is clear is that he has started to love it. Again, this inchoative reading appears with the progressive in some eventive verbs, such as achievements (see §6.1). The following two sentences, one an achievement and one a state, are parallel in their reading:

(110) Juan está llegando.
Juan is arriving
'Juan is about to arrive'
(111) A Juan le está encantando María.
to Juan him is loving María
'Juan is about to fancy María'

Another manifestation of the semantic interpretations that involves gradable readings can be found with modifiers such as *completamente* 'completely' and *parcialmente* 'partially'. In principle they require telic events with duration – accomplishments –, because they measure how much of the event was performed: if the event does not have duration, as an achievement, it is impossible to perform it only in part (an instant is an instant, so either you perform it fully or you don't) and it is redundant to state that it was performed completely (because there is no other option). Similarly, if there is no telic culmination, one does not have a boundary that allows one to determine whether that culmination was reached (completely) or not (partially), so states and activities should also be out.

This is not the case: some achievements can combine with them.

(112) a. El cuchillo entró completamente en el cuerpo.
the knife entered completely in the body
b. Pedro desapareció completamente.

Pedro disappeared completely

However, the readings here do not measure whether the event happened or not. What one does to interpret these sentences is to construct scales associated to the subject or to the event, and the modifier applies to those scales. In the first case, what we see is that the knife was, in all the extension of the blade, inside the body –not just the tip of the blade was inside–, so we build a scale that takes the length of the blade. Entering is satisfied as soon as the first part of the blade enters the body. In the second case, we build some scale that considers 'disappearing' as a situation that can have more or less intense values: we say that Juan disappeared in all possible meanings of disappearing, for instance that he did not show up in meetings, was not active in social networks, did not answer phone calls, etc., as opposed to him disappearing partially, which only takes into account some of these cases. Similarly for activities:

(113) Juan corrió parcialmente.

Juan ran partially

This can be interpreted as him moving quickly but not enough to count as running, only running parts of the time stretch, etc. Again, the researcher does not assume that these modifiers do not diagnose accomplishments, and accepts that these readings are not the intended ones.

This observation about interpretations should be taken into account when analysing the tests that we are going to present for each class, which is the part of the article that we move to now.

3. Empirical aspects (1): properties and tests for states

Let us start then with the description of the first class of traditional lexical aspect groups, states. In this section we will first (§3.1) discuss the main tests that have been proposed to identify them –with the caveats that have been presented in §2.4–, and then we will discuss some of their properties, from the perspective of how many internal divisions seem to be necessary to account for more fine-grained distinctions between stative predicates (§3.2).

However, before we present the tests there are three observations that need to be made. First of all, within the standard theory states generally play the role of acting as 'eventualities by default'. This means in practice that states are identified as the group which lacks the elements that single out the other classes. That is, assuming that states are non-dynamic, non-telic and durational eventualities, this means that verbs that are dynamic must contain some feature, syntactic head or constituent in their internal structure that adds dynamicity to them. Similarly, this also means that telicity should be added to atelic predicates as an additional feature, and that punctuality should also be codified in some positive way.

This defective nature means that in many approaches states are assumed to be the most basic and less complex of eventualities: for instance, in Dowty (1979) (see §8.2) every predicate contains the representation of a state, and the other classes are derived from states by predicate operators. This position is of course not logically forced, and for instance Smith (1991, see §7.1) considers that the most basic type of predicate is a semelfactive verb, which she treats as an achievement without initial or final states.

However, when one considers the tests used to identify states something that they have in common is that they are all designed to identify negative properties, that is, things that states cannot do but that other lexical aspect classes can do. As we will see,

tests related to states identify a predicate as a state because it fails to accept a particular aspectual construction, to combine with a modifier or because it lacks some interpretation that other verb classes allow in combination with either (see Marín, this volume, for some positive tests for states).

This has lead researchers like Parsons (1990) to the claim that some non verbal categories, such as adjectives and some prepositional phrases, may also be considered states. This position, however logically and semantically motivated once one takes the choice of defining states by lack of properties, fails to account for a relevant distinction between the lexical classes in natural language: stative verbs frequently combine with tense, while adjectival predicates do not in the absence of a verb.

- (114) a. Sé inglés
know English
'I know English'
b. Sabía inglés.
knew English
'I knew English'
c. Sabré inglés.
will.know English
'I will know English'
- (115) a. Soy alto.
am tall
'I am tall'
b. Era alto.
was tall
'I was tall'
c. Seré alto.
will.be tall
'I will be tall'
- (116) a. *Alto.
tall
Intended: 'He talls'
b. *Altoba.
tall-past
Intended: 'He talled'
c. *Altoré.
tall-fut
Intended: 'He will tall'

Another effect of the defective nature of states is that other researchers like Jaque (2014) have argued that stativity is a verbal property that can be defined at different points in the structure of the verb, with some verbs being stative at the VP level and other predicates allowing a stative reading at higher domains, once an operator that suspends the positively-defined properties of dynamicity is introduced.

Be it as it may, the initial classification of a verb as a state depends a lot on the intuitive notion of change that it should lack. For this purpose, perhaps the criterion that is most useful is a strict version of Bennett & Partee's (1972) Subinterval condition. The subinterval condition is formally defined as follows, and was first designed to identify atelic verbs in general:

- (117) I is a proper subinterval of I' if and only if $I \in [T]$ & $I \subseteq I'$. P is a subinterval predicate if when P is true for I' it follows that it is also true of all minimal I'.

Take for instance a subinterval predicate like the one in the following sentence:

- (118) *correr*
run

Imagine that John is running non stop between 14 and 15. It follows then that John was running between 14.01 and 14.02. There is a set of proper subintervals of those 60 minutes that are 'long enough' to allow us to see that John was running during that shorter period of time. Compare this with a non subinterval predicate like the following:

- (119) *correr hasta casa*
run til home

Only the subintervals that include the final point of arrival will be able to let us say truthfully that in those subintervals John runs home; if John starts running home at 14 and arrives home at 15, the interval between 14.01 and 14.02 does not satisfy the truth conditions of 'run home' because John has not arrived home.

However, *correr* 'run' is not a stative verb, and this means that the situation that is described is defined by some internal changes. This means that, strictly, it is not true that any subinterval, no matter how short, within the running time of the event will verify the predicate 'run': if we go down to virtual instants during that period of time we will not see John running, but perhaps something closer to John jumping, John keeping both legs up in the air at once, etc. The subintervals would have to be the minimal ones that would satisfy our definition of what run entails, which might depend on world knowledge; for instance, they could be small intervals long enough to show John moving first one leg and then quickly the other. These subintervals are arbitrarily defined, then, and can overlap with each other (see §7.1 for other verbs where the subintervals are naturally defined).

With state predicates, on the other hand, the lack of internal progression means that they meet the subinterval condition in a strict sense: any subinterval, down to the instants within the time period, satisfy the description of the predicate. If we say that John knew English since he learnt it in 1972 until he died in 2054, it is true of any instant between those years that John knows English.

The strict subinterval condition allows us to identify predicates as stative because they denote situations that are true of any instant within the period defined—as we saw in the case of Vendler (1957), they can be predicated of instants as well as of time stretches—. This, however, has the effect that it puts together as stative predicates that sometimes differ greatly in their grammatical behaviour, as we will see in §3.2 below.

But let us first consider the tests.

3.1. Tests for states

Let us start then by listing the main types of test that have been used to single out states as a grammatically relevant lexical class of predicates. As we have already mentioned, these tests can be problematic for several reasons (see Marín, this volume, for a more detailed presentation), so we will be careful to differentiate between the tests that are used to diagnose for the internal time-occupying entities and the ones that actually single out states on the assumption that they always lack agentive subjects.

These tests appear, among others, in Vendler (1957), Lakoff (1966), Dowty (1979), De Miguel (1999) and Jaque (2014) and are standardly used to identify states. The first test is the combination with the progressive (although remember §2.4 above and see §3.2 below for more cases). In principle, it is assumed that the progressive presupposes that the verb has some type of internal process, distinct from the starting and ending point, so that only verbs that involve some internal change can be combined with this periphrasis.

- (122) a. *Juan está mereciendo un castigo. Stative
 Juan is deserving a punishment
 b. Juan está haciendo algo malo. Non-stative
 Juan is doing something bad

As we will see in §3.2, however, not all state types reject the progressive: it is perhaps more exact, then, to say that predicates that reject the progressive are 'pure states'.

The second test, which also applies only to a subclass of properly stative predicates, is that states do not denote situations that can be located in place.

- (123) a. *Juan sabe inglés en su casa. Stative
 Juan knows English at his place
 b. Juan estudia inglés en su casa. Non-stative
 Juan studies English at his place

In the first sentence, the location is not compatible with the meaning of the predicate; it is assumed generally that in order to combine with a place modifier a predicate should contain a variable that indicates that the situation described is relevantly located in a spatial dimension, as it is the case frequently with processes. Maienborn (2005) notes that sometimes what seems to be a place modifier can be combined with a stative predicate, but in those cases it is interpreted as a conditional statement and not a location:

- (124) a. En su casa, Juan sabe inglés.
 in his house, Juan knows English
 b. En el coche, el pelo de María es azul.
 in the car, the hair of María is blue
 c. En Marte, Juan pesa veinte kilos.
 in Mars, Juan weighs twenty kilos

The apparently locative modifiers in the examples above are actually interpreted as conditional prothesis: Juan may not know English, but the sentence means that if he is at home there is the belief that he does, or Juan may know English but he is so shy that he only uses it when he is at home; María's hair is not blue, but if she is in the car, the internal light of the vehicle makes it look blue; Juan's weight is of twenty kilos only if it is measured in the conditions of Mars.

The third test for states is the incompatibility with manner modifiers. Manners are assumed to be predicates that denote how a particular action is performed, so if there is no action, there is no entity that a manner can be predicated from.

- (125) a. *Juan se parece a María rápidamente. Stative

- Juan SE seems to María quickly
 b. Juan se disfrazó como María rápidamente. Non-stative
 Juan SE disguised as María quickly

The fourth test is the verbal proform *hacerlo* 'do it' used in pseudo-cleft constructions. This proform only identifies events and leaves states outside.

- (126) a. *Lo que hizo Juan fue tener un buen trabajo. Stative
 that what did Juan was to.have a good job
 '*What Juan did was have a good job'
 b. Lo que hizo Juan fue conseguir un buen trabajo. Non-stative
 that what did Juan was get a good job
 'What Juan did was get a good job'

The fifth test is that for Spanish statives reject a habitual interpretation in the present, because they already denote situations that are not subject to change. Most eventive predicate classes allow the habitual interpretation in the present.

- (127) a. Juan está enfermo. Stative
 Juan is sick
 b. Juan se pone enfermo. Non-stative
 Juan SE gets sick

In the second sentence, the immediate present reading is basically impossible, and for this reason one tends to interpret that Juan gets sick habitually; this habitual reading is not available for the corresponding stative predicate.

For the same reason –sixth test– stative predicates reject iterative complements of any type:

- (128) a. Juan odia a María (*tres veces). Stative
 Juan hates A María three times
 b. Juan insulta a María tres veces. Non-stative
 Juan insults A María three times

In the first member of the pair, in any case, an iterative reading where the hating eventuality happens three times in a sequence is out –perhaps one could interpret the complement as a degree modifiers, close to 'three times as much as it is normal'–; the iterative reading is unproblematic in the second pair.

The seventh test is that, for Spanish, the unmarked way of putting a stative verb in the past tense is through the imperfective form; in the absence of aspectual markers that introduce an arbitrary endpoint for the state, the perfective past form is frequently ungrammatical.

- (129) a. *Esa tarde, Juan yació en el suelo. Stative
 that afternoon, Juan lied.pfv on the floor
 b. Esa tarde, Juan yacía en el suelo.
 that afternoon, Juan lied.impf on the floor
 (130) a. Esa tarde, Juan se tumbó en el suelo. Non-stative
 that afternoon, Juan SE lied on the floor
 b. *Esa tarde, Juan se tumbaba en el suelo.

that afternoon, Juan SE lied on the floor

Jaque (2014) also notes that the interpretation of the future form as indicating a hypothetical statement, or a conjecture, is possible only with stative verbs. Non-stative verbs in order to allow this reading need to combine with a stativising periphrasis, such as the progressive form or the perfect. The conjecture interpretation of the first member of the following pair shows that the predicate is stative, and the only future oriented reading of the second determines that it is a non-eventive predicate.

- (131) - ¿Por qué no ha venido Juan?
 for what not has come Juan?
 'Why isn't Juan here?'
 a. Tendrá fiebre. Conjecture Stative
 will.have fever
 'He probably has a fever'
 b. #Estará en casa. Future Non-stative
 will.study at home
 Intended: 'He probably is studying home'
- (132) Estará estudiando en casa. Conjecture Stativising periphrasis
 will.be studying at home
 'He is probably studying home'

Other tests identified in the literature produce less clear results, in part because they are more fine-grained and actually aim for specific types of states. De Miguel (1999) cites a number of these tests. For instance, stative predicates generally reject the combination of the temporal modifier *hace X 'X ago'* and the perfective form.

- (133) a. *Hace dos días, supo inglés. Stative
 made two days, knew.pfv English
 'Two days ago, he knew English'
 b. Hace dos días, aprendió inglés. Non-stative
 made two days, learnt.pfv English
 'Two days ago, he learnt English'

However, note that several verbs that pattern with states in other tests allow this construction. The problem has to do with the fact that the temporal expression *hace dos días* in combination with the perfective picks the temporal point corresponding to the end of the eventuality, and some states are supposed to be temporally persistent while others are not. It is also possible, as with *gustar*, that one interprets an episodic instance of liking that applies to a particular set of apples that was tasted in some occasion.

- (134) a. Hace dos días, estuvo enfermo. Stative
 made two days, was.pfv sick
 b. Hace dos días, le gustaron las manzanas. Non-stative
 made two days, him liked the apples

The same access to a final endpoint of the situation is witnessed by the compatibility with *después de 'after'*. Only some states, those that are associated to persistent situations that only finish when the subject disappears, reject this test.

- (135) a. *Después de ser alto, se sintió mejor. Stative
 after of be tall, SE felt better
 b. Después de volverse alto, se sintió mejor. Non-stative
 after of become tall, SE felt better
 'After becoming a tall person, he felt better'
 (136) Después de estar enfermo, se recuperó. Stative
 after of be sick, SE recovered

Note that the perfect form of the infinitive also licenses the construction, in general, also for states (De Miguel 1999: 3018).

- (137) Después de haber sido alto, se deprimió. Stative
 after of have been tall, SE depressed

The same effect, and the same more fine-grained distinction, is made by auxiliary verbs that denote the endpoint of some situation. States that can be stopped accept it.

- (138) a. *Juan dejó de saber inglés. Stative
 Juan stopped of know English
 b. Juan dejó de estudiar inglés. Non-stative
 Juan stopped of study English
 (139) Juan dejó de estar enfermo. Stative
 Juan stopped of be sick

There are also several tests that are frequently used to identify states, but that actually are diagnosing for the agentivity entailments of their subjects, on the assumption that states never have agentive subjects –a position that, as we will see now– has been questioned. The first of such tests is the imperative: statives are supposed not to have imperatives because an imperative commands someone to do something and for the command to be felicitous that person must be able to control and initiate the event consciously. In this sense, it is interesting to note that Spanish speakers have difficulty producing the imperative form of *saber* 'to know', one of the prototypical stative predicates.

- (140) a. ??¡Gústale a Juan! Stative
 like-him to Juan
 'Be liked by Juan!'
 b. ¡Seduce a Juan! Non-stative
 seduce A Juan
 'Seduce Juan!'

As the reader can see, the ungrammaticality of the stative verb is not as sharp as for the other tests.

For the same reason, stative verbs that are non agentive cannot be selected by the verbal expressions that indicate command: *hacer* 'make', *forzar* 'force', *obligar* 'force', etc. Again, the grammaticality is somehow deviated but it is clear that it is not as strong as with the temporal-based tests (in the first example one might interpret that Juan forced Pedro to wear blue lenses).

- (141) a. ??Juan obligó a Pedro a tener ojos azules. Stative

- Juan forced A Pedro to have eyes blue
 b. Juan obligó a Pedro a ponerse el abrigo. Non-stative
 Juan forced A Pedro to put-SE the coat

Volitionally-oriented adverbs and modifiers are also supposed to be rejected by stative predicates.

- (142) a. ??Juan carece voluntariamente de casa. Stative
 Juan lacks willingly of house
 b. Juan vendió voluntariamente la casa. Non-stative
 Juan sold willingly the house

Adverbial modifiers that indicate the way in which a subject performs an action are also excluded from stative predicates.

- (143) a. ??Juan amablemente está sentado. Stative
 Juan kindly is seated
 b. Juan amablemente respondió. Non-stative
 Juan kindly answered

3.2. Properties of states

There are five relevant distinctions in the domain of states, which define different types of state given their internal properties as witnessed by the empirical tests that they pass.

- a) Individual-level and stage level states
- b) Interval states and momentary states, which only partially overlaps with the former
- c) Kimian states and Davidsonian states
- d) Agentive and non agentive states
- e) Target and result states

The first three divisions proposed are relevant to differentiate predicates that, even meeting most tests about stativity, differ from pure states in allowing some form of progressive aspect or a freer combination with some aspectual modifiers.

3.2.1. Statives in the progressive and the distinctions used to explain them

The individual-level / stage-level distinction is probably one of the most influential in the domain of states, and we will not revise it here because that was already done in Fábregas (2012). Here we will restrict ourselves to highlighting the aspects of the distinction that are relevant for the nature of states. In the way that Carlson (1977) defines the distinction between these two classes of predicates, the difference reflects a distinction between predicates of objects (individual-level predicates) and predicates of situations where those objects are included (stage-level predicates).

- (145) a. ser alto, 'to be tall'
 $\lambda x[\text{tall}(x)]$
 b. estar alto 'to be tall'
 $\lambda x \lambda y[\text{R}(y, x) \ \& \ \text{tall}(y)]$

- (150) a. You are looking well.
b. He is being ill.

These predicates, however, are difficult to translate to Spanish:

- (151) a. Tienes buen aspecto.
have good aspect
'You look fine'
b. ??Estás teniendo buen aspecto.
are having good aspect
(152) a. Está enfermo.
is sick
b. *Está estando enfermo.
is being sick

There are two important caveats that must be added at this point. The first one is that the stage-level category is not considered to be restricted to states in Carlson (1977; see also Kratzer 1995). Eventive verbs like activities, accomplishments and achievements are also stage-level predicates: following the same logic as before, if we say that Juan is running we are not describing a characterising property of Juan as an individual, but we say that he participates in a situation which can be properly described as a running situation. The same goes, of course, for accomplishments and achievements, and contrast this with a statement like the following, where we characterise Juan by an ability he has:

- (153) Juan habla inglés.
Juan speaks English
'Juan is able to speak English'

This means that the example above is in fact a case of an individual-level state derived from an activity verb (see §9.2). But we want to put the emphasis at this point on the fact that stage-level predicates include some stative verbs, as well as every non-stative verb when used to define properties of the situations where an individual is found and not to characterise an individual.

In fact, grammatically non-statives pattern with stative stage-level predicates in the tests we just mentioned:

- (154) a. Juan cantó a las tres.
Juan sang at the three
b. Juan cantó de dos a tres.
Juan sang from two to three
c. Cada vez que Juan canta, llueve.
each time that Juan sings, it rains

In a sense, then, one can say that individual level states are pure states, while any other type of predicate is a stage-level one, stative or not.

The second caveat refers to the combination of the progressive form with possible stative predicates. Here we find two situations: (i) the stative predicate allows a progressive form that is however interpreted episodically, meaning that the stative verb is coerced and does not display its normal meaning –as in the cases we saw in §2.4–,

(ii) the verb seems to be stative at least by the strict subinterval property but allows in an unproblematic form the progressive, without having to adapt its meaning to the conditions imposed by it.

The first case has already been covered, so here we will concentrate ourselves in the second one. We think of predicates like the ones below, which in every case seem to be defining situations without internal change –for instance, if one waits between 2 and 3, it is true that he was waiting at any instant within that interval, no matter how small–.

- (155) a. esperar
wait
b. Juan estaba esperando a su jefe.
Juan was waiting to his boss
- (156) a. vivir en Madrid
live in Madrid
b. Juan estaba viviendo en Madrid.
Juan was living in Madrid
- (157) a. yacer
lie
b. Juan estaba yaciendo en el suelo.
Juan was lying on the floor
- (158) a. brillar
shine
b. La lámpara estaba brillando en la ventana.
the lamp was shining in the window
- (159) a. dormir
sleep
b. Juan está durmiendo en el hotel.
Juan is sleeping in the hotel

Within this theory it is reasonable to think that these statives are stage-level ones, and that in the sense of Carlson (1977), stative predicates can combine with the progressive form when they are stage-level predicates that describe situations and not individuals.

However, this position is in a sense too strong. Leaving aside the fact that achievements do not allow the same interpretation of the progressive than other classes (see §6.1 below), not every stative predicate that is intuitively a stage-level one can combine with the progressive. Dowty (1979) notes that the following sentence does not have a corresponding progressive form in English:

(160) The book is on the table.

However, it is intuitive to think that the location of the book does not characterise the book, and it would be the same one when John takes it to his office and puts it back on the shelf.

For this reason, other researchers proposed divisions within the stage-level class, aimed at differentiating between those stage-level predicates (stative or not) that allow the progressive and those stage-level ones that reject it. Here is where the distinction between interval states and momentary states emerges as a subpartition of the stage-level class.

The distinction between interval states and momentary states is first proposed by Dowty (1979) aiming at explaining why some stative verbs –stative under the light of other evidence– are compatible with the progressive without forcing an eventive interpretation. The following examples are Dowty's (1979) own:

- (161) a. The socks are lying under the bed.
b. Your glass is sitting near the edge of the table.
c. The long box is standing on end.
d. One corner of the piano is resting on the bottom step.

Even though Spanish does not have a lot of verbs of bodily posture, like those above, and prefers to use copulative constructions using participles or other modifiers (*estar sentado* 'to be sit', *estar de pie* 'to be standing'), it is possible to find similar examples.

- (162) a. Juan está yaciendo junto al cuerpo de su esposa.
Juan is lying next to the body of his wife
b. La columna está apoyándose en la pared.
the column is leaning to the wall

In contrast, remember that other stative verbs disallow the progressive, even when they can be said to be stage level predicates.

- (163) a. *The book is being on the table.
b. *John is being asleep.
c. *John is being naked.

Dowty (1979) views the distinction between interval and momentary states as a subdivision between the class that Carlson (1977) associates to stage-level predicates, in the sense that both contrast with what Dowty calls 'object-level statives', that are predicated from individuals and not from its stages. The difference between these two classes of predicates is the following: interval states are non-dynamic situations whose truth condition can only be perceived in specific extensions of time, while momentary stage-predicates are those whose truth conditions already can be verified at a single moment –and are only true of an interval if all moments of time that compose the interval verify the same situation–. In this way, a predicate like *yacer* 'lie' is viewed as an interval state because in order to verify that someone lies at some place one needs to consider not a single moment (which might correspond to the end of an event of falling, for instance) but an interval when one verifies that the body posture is kept, while in order to verify that someone is naked or on the table it is enough to look at a particular snapshot of that situation in order to verify is as true.

If the semantics of the progressive in some way acts by picking one single moment in time in an extended interval, it follows that interval states can combine with this periphrasis in a meaningful way, because the periphrasis has the function of moving from an interval construal to a moment construal; on the other hand, the progressive does not add anything semantically relevant to a momentary stative verb, and the momentary stative verb does not provide directly the temporal interval that the progressive form is looking for.

Additionally, it is possible to take an interval state and turn it into an individual level state when one assumes that the properties of the subject are such that there will be no

change in the posture and location that it occupies, explaining that interval states, with some particular subjects (Dowty 1979: 178) do not allow the progressive.

- (164) a. New Orleans lies at the mouth of the Mississippi River.
 b. *New Orleans is lying at the mouth of the Mississippi River.
- (165) a. Sanlúcar yace en la desembocadura del Guadalquivir.
 Sanlúcar lies at the mouth of the Guadalquivir
 b. *Sanlúcar está yaciendo en la desembocadura del Guadalquivir.
 Sanlúcar is lying at the moughth of the Guadalquivir

However, this distinction can be easily disputed. In particular, the semantic conditions that allow us to diagnose that a predicate corresponds to an interval or to a momentary state are not spelled out in detail by Dowty. For instance, why shouldn't we think that a momentary situation of something being at the table is not the endpoint of someone putting it there and require that a longer interval is considered, as we do when we see that someone lies on the floor? In principle, it seems that the distinction does not really follow from any other empirical phenomenon beyond the compatibility with the progressive that the distinction aimed to explain to start with.

Finding an explanation of the distinction that does not use interval states vs. momentary states is what underlies Maienborn's (2003) proposal that there should be a differentiation between Kimian states, or pure states, and Davidsonian states. The distinction, in contrast to Dowty's (1979), involves explicitly rejecting the distinction between individual-level states vs. stage-level states. That is, while Dowty (1979) saw his distinction as a refinement of the individual-/stage-level opposition, Maienborn (2003, 2005, 2007) proposes that the difference between Kimian states (after Kim 1969, K-states) and Davidsonian states (after Davidson's 1967 notion of event; D-states) should substitute the distinction between individual states and stage-level states, in a way that it should be interpreted as two ways of interpreting K-states.

In this sense, D-states are not stage-level states, and the verbs that are classified as stative but allow the progressive should be considered D-states, not stage-level states. D-states are predicates that contain an eventuality argument that can be used, among other things, as a placeholder to locate the situation that they describe in place and time, while K-states are not eventualities in the strict sense but temporally bound exemplifications of sets of properties. The distinction between these two types of states follows from Davidson's (1967) of eventualities as spatiotemporal entities that have functionally integrated participants. As such, Maienborn (2003) associates three ontological properties to eventualities.

- (166) a. Eventualities are perceptible.
 b. Eventualities can be located in space and time.
 c. Eventualities can vary in the way they are realised.

The first test, in particular, has been criticised among others by Rothmayr (2009), who notes that there might be events that are not directly perceptible by the senses, even being clearly spatiotemporal objects. However, the point is that these ontological properties can be reflected in specific linguistic tests. In the case of the perception of eventualities, the consequence of the property is that eventualities can be embedded under verbs of perception –with possible coercion in what type of situation is required so that someone perceives the eventuality through the senses–.

It is clear that standard activities, accomplishments and achievements pass this test:

- | | | |
|----------|---|----------------|
| (167) a. | Juan vio a María correr.
Juan saw A María run | Activity |
| b. | Juan vio a María leer un libro.
Juan saw A María read a book | Accomplishment |
| c. | Juan vio a María llegar.
Juan saw A María arrive. | Achievement |

Among predicates that pass the strict subinterval condition and thus can be considered states for this criterion, D-states pass the test, because they are eventualities:

- (168) a. Juan vio a María esperar al jefe.
Juan saw A María wait A-the boss
- b. Juan vio a María dormir.
Juan saw A María sleep.
- c. Juan vio a María yacer en el suelo.
Juan saw A María lie on the floor

In Maienborn's view, K-states are not eventualities, and they are expected to produce negative results with this test. Note below that it is possible, in principle, to imagine that the height, the clothes that someone has on or the colour of an object should be perceptible through the senses, but grammatically these verbs cannot be the object of a perception verb:

- (169) a. *Juan vio a María ser alta.
Juan saw A María be tall
- b. *Juan vio a María estar desnuda.
Juan saw A María be naked
- c. *Juan vio el papel transparentar.
Juan saw the paper be.transparent

Note that, even though projected as verbs –and not even always copulative verbs– the claim in Maienborn is that these predicates are not eventualities. This goes against approaches such as Chierchia (1995) which assume that any VP has an extra argument position corresponding to Davidson's event argument. Other verbs that should be classified as K-states according to this test are the following:

- (170) a. *Juan vio a María saber inglés.
Juan saw A María know English
- b. *Juan vio a la chica llamarse María.
Juan saw A the girl be.called María
- c. *Juan vio a María odiar el jamón.
Juan saw A María hate the ham

The second set of tests refer to eventualities being entities that can be located in space and time; consequently, one expects D-states to allow place and time modifiers, but K-states to reject them (unless the modifiers are interpreted as conditionals, as we saw).

- (171) a. La lámpara brillaba en la ventana. Place modifiers
the lamp shined in the window
b. Juan espera en el despacho.
Juan waits in the office
- (172) a. #La chica se llama María en Italia.
the girl se calls María in Italy
Possible interpretation: 'If she is in Italy, she is called María, and if she is in England she is called Mary'
b. *Juan es rubio en su casa.
Juan is blonde at his home
- (173) a. La lámpara resplandecía a las dos. Time modifiers
the lamp shined at the two
b. Luis esperaba a las dos.
Luis waited at the two
- (174) a. *El papel transparentaba a las dos.
the paper was transparent at the two
b. *Juan era alto a las dos.
Juan was tall at the two

The third criterion is that eventualities can be performed in different ways, which manifests in D-states allowing manner modification, as well as comitatives, instrumentals and so on:

- (175) a. Juan esperaba impacientemente.
Juan waited impatiently
b. Luis yacía desconsoladamente.
Luis lied unconsolably
- (176) a. *Juan sabía inglés sabiamente.
Juan knew English wisely
b. *El chico se llamaba Luis oportunamente.
the boy se called Luis opportunely

Predicates that are considered to be D-states generally fall in one of these classes (Fábregas & Marín 2017):

- a) Verbs of static body posture, such as *yacer* 'lie'
b) Verbos of emission of light, substance or sound, when those emissions are conceptualised as continuous unbounded entities: *sangrar* 'bleed', *brillar* 'shine', *fluir* 'flow' (see §7.1 for verbs of emission where what is produced is conceptualised as atomic, bounded individuals).
c) Verbs denoting homogeneous thinking states: *pensar* 'think', *creer* 'believe', *reflexionar* 'reflect'...
d) Verbs denoting resting positions where the subject is unable to perform actions or inhibits from producing them: *dormir* 'sleep', *aguardar* 'wait', *esperar* 'wait'...
e) Verbs that express situations where a change is avoided: *aguantar* 'bear', *soportar* 'maintain', *sujetar* 'hold', *mantener* 'maintain'...
f) Verbs meaning preserving some entity in a good state: *cuidar* 'care', *conservar* 'preserve', *guardar* 'keep safe', *proteger* 'protect'...

g) Verbs that express situations of keeping a situation according to a set of rules: *controlar* 'control', *coordinar* 'coordinate', *dirigir* 'direct', *supervisar* 'supervise', *vigilar* 'oversee'...

h) Verbs denoting blocking of a change: *contener* 'stop', *evitar* 'avoid', *prohibir* 'forbid', *impedir* 'prevent', *inhibir* 'inhibit'...

Note that it might depend on the context whether the predicate is considered a state or should rather behave like an activity. In fact, some of these verbs seem to be non-stative in the sense that they allow the pseudocleft construction with *hacerlo*:

(177) a. Lo que hizo Juan fue reflexionar sobre el problema.

that what did Juan was reflect over the problem

'What Juan did was reflecting on the problem'.

b. Lo que hizo Juan fue controlar a sus empleados.

that what did Juan was control A his employees

The observations that we made in §2.4 about the status of tests are relevant here. The question is whether this test means that these verbs should actually be classified as activities whose meaning allows them to be true at very small subintervals –like states– or they should be considered as stative verbs that, under certain conditions, can be coerced to denoting events –sort of like the external episodic manifestation of that state in some action that the person starts doing–. In this regard, note that in other contexts these verbs are strictly stative and do not denote any type of process:

(178) a. Juan reflexiona sobre el problema.

Juan reflects on the problem

b. El mando a distancia controla la televisión.

the control to remote controls the television

'The remote control controls the television'

The answer to this question –whether the verbs that allow *hacerlo* are activities or D-states coercible by the *hacerlo* proform into an event reading– depend greatly on the status that we want to associate to these tests and coercion. See also for this §2.4 and §9.1.

In contrast, K-states are predicates that denote properties of an individual, physical or otherwise, that are manifested in temporal periods.

Remember that in this theory, Maienborn (2005) proposes that the proper division between individual level predicates and stage level predicates is not grammatically codified directly –unless one reinterprets stage level as being an eventuality, which is a possible interpretation of Carlson's (1977) claim that activities, accomplishments and achievements are also stage-level predicates–. In this theory, the standard difference between individual level and stage level is a non grammatically defined pragmatic subpartition of the K-state domain, and moreover one that is pragmatically conditioned in terms of whether the property that is being exemplified in time is interpreted as more or less stable of the individual.

The following table summarises the discussion so far.

Table 4. Partitions in the state domain based on the progressive

	<i>be tall</i>	<i>be naked</i>	<i>lie</i>
Carlson (1977)	Individual level	Stage level	
Dowty (1979)	object state	momentary stage state	interval stage state
Maienborn (2003)	K-state		D-state

Globally, there is a common observation that we want to make about these three ways of splitting the domain of states: in none of the theories is the partition of states coextensive with the partition between copulative verbs (or adjectival and prepositional predicates without them) and lexical verbs. We have both types of grammatical objects in either class. Carlson (1977) will consider individual level predicates both verbs like *know* and copulative expressions like *be tall*, and stage level predicates verbs like *run* or *lie* and copulative expressions like *be available*, and the same, as we have seen, applies to K-states and D-states (see also §4.2 for the cases of copulative verbs with adjectives that act as events).

3.2.2. Statives and results

There is another dimension in the distinction between states that refers to the possible interpretation of these predicates as expressing or not a result of a previous event. Here the terminology is a bit confusing and counterintuitive in some cases, but we will do our best to present it little by little.

In short, some states seem to require the interpretation that they are the consequence of a previous (completed or ended) event. The main distinction here can be traced back to Parsons (1990: 235), who in a sentence like the one below differentiates between two different types of states that emerge after the event is completed.

(179) Juan lanzó la pelota al tejado.
Juan threw the ball to.the roof

In this event, there are two states relevant after its completion. First of all, the ball ends in the roof –it is placed in the roof– for some time after the event is completed. This state can be held by the ball forever, but it can also be reverted if someone moves the ball out of the roof. This reversible result state is called by Parsons 'target state'.

In contrast, there is another result that cannot be reversed: the fact that, after the event is completed, it is true from now on that Juan has thrown the ball to the roof. This result, the fact that Juan actually did that event, holds forever and is not reversible. Parsons calls this state 'resultant state'.

Thus the difference between the two types of states involves whether it is possible to reverse them or not. Kratzer (2000) reuses the distinction made by Parson (1990) and reinterprets it as a distinction between states that are associated to the verb by its lexical semantics (target states) and the states that are not already codified within the verbal semantics and therefore must be created or built by the use of specific operators (resultant states). The distinction between the two has to do with the participles of the corresponding verbs, and can be illustrated as follows:

(180) a. romper Target state
'break'

- b. La lavadora todavía está rota.
the washing.machine still is broken
- (181) a. ver Resultant state
'watch'
- b. La película (*todavía) está vista.
the movie (already) is seen

The idea is that a verb like *romper* codifies within its lexical meaning already a state that follows the completion of the event, and that state –given the right circumstances in our real world knowledge, that is, that the entity broken can be fixed– is in principle reversible. In contrast, a verb like *ver* does not codify in its lexical entry the state that follows the possible completion of an event like watching a whole movie, and the state that follows is built or derived by the event finishing; as once the event has finished one cannot ever state that the event never happened, those states cannot be reversed in the same world as the event happened.

As an additional test for this distinction, note that the verbs that have target states allow for an interpretation where the for-phrase measures how long the result of the completion lasted.

- (182) Juan rompió la negociación durante una semana.
Juan broke the negotiation for one week

The salient reading in this example is that there was only one event of breaking that did not last one week (Juan was not breaking the negotiations for one week, once and again, or little by little), but that Juan broke them at some point and they remained broken for one week. This is expected if the verb as a lexical element codifies a state. In contrast, verbs which only have resultant states because they do not codify a stative component reject that reading:

- (183) Juan vio la película durante una semana.
Juan watched the movie for one week

Here we interpret that Juan watched the movie several times during a week or that he used a whole week to watch it little by little, but never that the movie was watched only during one week. See §5.2 for the question of whether telic verbs have result states or not.

The terminological confusion emerges in Embick (2004). Embick also uses the term 'target state' and 'result state', the second reminiscent of resultant state, but applies them to a very different distinction that in principle does not reflect directly whether a verb contains a state component in its lexical meaning or not. In Embick (2004), target states are those that do not come with the implication that they are preceded by an event. In contrast, result participles are those that imply that the situation described by them is preceded by an event. Consider, in this sense, the following examples;

- (184) a. La cueva está sucia.
The cave is dirty
- b. La habitación está ensuciada.
the room is dirtied

In the first case, we do not need to interpret that there has been an event that has somehow moved the cave from being clean enough to being dirty enough. This is visible by the difficulty of interpreting a phase adverb that presupposes that the current state contrasts with a previous state:

- (185) a. #La cueva ya está sucia.
 the cave already is dirty
 b. La habitación ya está ensuciada.
 the room already is dirtied

Another relevant contrast is the one in this pair:

- (186) a. Madrid está en España.
 Madrid is in Spain
 b. Juan está en España.
 Juan is in Spain

In the first case, it is easy to interpret that, for all its lifetime, Madrid has been in Spain and there has not been any previous event of movement that has placed Madrid in Spain. In the second case, it is easy to infer that there might have been an event whereby Juan moved from another place to Spain. Consequently:

- (187) a. #Madrid ya está en España.
 Madrid already is in Spain
 b. Juan ya está en España.
 Juan already is in Spain

It is easy to see that Embick's (2004) distinction is not coextensive with Parson (1990) and Kratzer's (2000) distinction, as both target and resultant participants in their terminology allow *ya* 'already'.

- (188) a. La televisión ya está rota.
 the television already is broken
 b. La película ya está vista.
 the movie already is watched

Let us now move to the relation between states and agents.

3.2.3. Statives and agents

Despite Vendler (1957) and Lakoff (1966, 1970), who argued that states are always non agentive, studies following them have accumulated a mounting body of evidence that there are indeed agentive states. Dowty (1979: 184) argued in fact that verbs of bodily posture such as *sit*, *lie* and *stand* should be considered agentive because in them the subject controls the position adopted by his body and therefore can willingly change it.

Determining whether states can be agentive depends greatly on how one differentiates between agents and other types of subjects that bring about the process. In Grimshaw (1990), Arad (1998), Pykkänen (2000), Marín (2011), Rothmayr (2009) and Landau (2010) agentivity in the proper sense is restricted to dynamic events that allow for the subject to control the process, and states can be at best causative without

any volitional control of the subject. In these approaches, the contrast between the two pairs of verbs associates the agentive reading of the subject with an event change:

- (189) a. John scared Mary on purpose. Agentive, accomplishment
 b. John frightens Mary. Causative, state

A different position can be adopted if one considers, as Ramchand (2008) does, the distinction between agents and causers as a conceptual semantic one that is not relevant for grammar, with both notions being possible interpretations of one single syntactic concept: Initiator. In Ramchand (2008), the initiator is the role that the entity whose properties bring about the eventuality has. These initiators can be conceptually interpreted as causers –if they are assumed to not control volitionally the event–, agents –if they are volitional–, instruments, etc. In this sense, the stative verb in the following example has an initiator, which is Juan, because the psychological state that he has is made possible and initiated by his internal properties –phobias, thoughts, etc.–.

- (190) Juan teme a las arañas.
 Juan is afraid of the spiders

However, even in Ramchand (2008) one would not say that Juan is interpreted as an agent in this sentence. Harley & Folli (2008) on the other hand propose to define agentivity as teleological capability, that is, that one has the capacity to bring about the event. In this sense, note that the following predicates that meet the strict subinterval condition –any subinterval, no matter how small, of the running time of the event satisfies the truth conditions of the event– do have subjects whose teleological capacities would define them as agents:

- (191) a. La fuente manaba agua.
 the fountain flowed water
 'The fountain flowed with water'
 b. La vela iluminaba el suelo.
 the candle illuminated the floor
 c. El espejo reflejaba su imagen.
 the mirror reflected his image

None of these verbs allows for a pseudocleft construction with *hacerlo* 'do it', which also supports a stative status. Moreover, the verbs that are considered as D-states in Maienborn (2003) and those that are identified in Fábregas & Marín (2017) are also cases of eventualities that can be considered stative by virtue at least of the strict subinterval property and have been argued to be agentive, even though some of them pass the *hacerlo* test, which might suggest they should rather be interpreted as activities.

García Pardo (2018), on the other hand, presents a number of stative locative verbs where agentivity is interpreted in the strict sense. These are examples such as the following:

- (192) Ahora mismo, los bandidos flanquean el camino para asaltar a los viajeros.
 now right, the bandits flank the path to assault the travellers
 'Right now, the bandits flank the road to be able to assault the travellers'
(193) Ahora mismo, los manifestantes obstruyen voluntariamente la carretera.
 now right, the demonstrators block willingly the road

'Right now, demonstrators willingly block the road'

In these cases the interpretation can be stative: the bandits and the demonstrators occupy specific positions within a location –no path of movement is required–, in this particular now –no habitual or generic reading is necessary–, but they seem to have agent entailments as witnessed by the presence of purpose clauses and agent-oriented adverbs.

The evidence seems to suggest, then, that even though not very frequent there might be agentive states and that the number of states that contain an agent-related subject increases if the proposals that propose to redefine agentivity as the capacity to initiate an event are correct; see §10 for a further discussion about this.

The question of agentivity, in fact, might solve an issue that emerged in the study of the relation between argument structure and lexical aspect: the so-called Burzio's generalisation (Burzio 1986: 178).

(194) All and only the verbs that can assign a theta-role to the subject can assign accusative case to an object.

Given the ancillary assumptions adopted by Burzio, the subject can only receive the agent theta-role, which means that all verbs with an agent must be transitive and all transitive verbs must be agentive. Leaving aside the problem of what to do with seemingly intransitive agentive verbs like *correr* 'run', the second problem that comes from this generalisation is that there should not be transitive stative verbs if states never have agents. This is obviously false:

(195) *denotar* 'to denote', *significar* 'to mean', *merecer* 'to deserve', *preceder* 'to be in front of', *acompañar* 'to be with', *saber* 'know', *temer* 'fear', *amar* 'love', *revelar* 'reveal', *implicar* 'imply', *pensar* 'think', *contener* 'contain', *superar* 'be higher than', *necesitar* 'need'...

In these verbs, one can apply a notion of initiator or teleological agent to them, resulting in that they do have the syntactic position associated to agents filled, and therefore they are expected to be transitive following Burzio's generalisation. However, in other cases the stative verb is transitive but an initiator or teleological agent reading is not naturally obtained. Consider for instance the following examples:

(196) *Juan tiene dos hermanos.*
Juan has two brothers

The notion of 'internal properties that bring about the situation' cannot be easily applied to this case, because there is nothing in the internal nature of Juan that causes him to have two brothers, and there is no control for that. Thus, Burzio's generalisation does not seem to be tenable in light of these examples.

Let us now move to the discussion about activities.

4. Empirical aspects (2): properties and tests for activities

Although the definition of activity is less controversial than the one of states, several comments are in order before we present our tests. By their internal complexity, activities –as also happens with accomplishments– can be divided in two groups. Some verbs are defined as activities by their lexical meaning, as the ones in the following list:

(197) nadar 'swim', aullar 'scream', vibrar 'vibrate', zumbiar 'to buzz'...

Other verbs cannot be easily conceptualised as activities or accomplishments until they are combined with their participants. Consider for instance *beber* 'drink': authors like Jackendoff (1990) consider this verb, in fact, as involving some kind of path that through the mouth of the subject ingests some liquid. From this perspective, there are reasons to believe that this verb can be both telic and atelic: telic because the liquid has to reach a particular point for someone to drink it and atelic because liquids are generally mass entities such as that any portion, no matter how small of it, satisfies its denotation. This makes it extremely arbitrary to determine whether this verb is an activity or an accomplishment, but it is easy to determine the class once we combine the verb with a direct object:

- (198) a. beber zumo
 drink juice
 b. beber un vaso de zumo
 drink a glass of juice

This problem is relevant for theories that try to explain the compositional nature of aspect (see §8).

A second relevant observation refers to the Subinterval Condition of Bennett & Partee (1972). Remember that this condition was first proposed to identify atelicity: in an atelic predicate, any minimal subinterval within the running time of the event describes the same situation as the whole event –any subinterval during the time that someone is trembling is itself a trembling event–. However, the problem is what counts as minimal in this sense.

As we saw in the case of states, states are the only predicates that fulfill the subinterval condition in a strict sense, because the entailments of the predicate are verified even in instants. This is not the case for activities: even a trembling event, where one shakes quite quickly, is not verified at the instant level, because at intervals that are short enough we would not see the person shake, or we would only see something that might be interpreted as twitching. Thus, the problem is what counts as minimal.

In principle, minimal is interpreted as 'as small as possible given our world knowledge', so in the case of trembling the subinterval must minimally contain enough body movements to define what the speaker understands as trembling. These intervals are arbitrarily defined, nothing within the lexical representation of the verb tell us how long they should be, and can overlap with each other.

This notion of minimal is relevant for two empirical phenomena that will be discussed in §7: whether semelfactive verbs (*saltar* 'jump'; §7.1) can be reduced to types of activities and the way in which the atelic reading of degree achievement verbs (*engordar* 'become fat'; §7.3) is obtained.

After having made these comments, let us move to the tests.

4.1. Tests for activities

Once one has determined that the predicate in question is not stative because it has failed a significant set of the tests that diagnose this notion, there is a set of tests that can diagnose collectively that the predicate in question is eventive, atelic and of course durative. Most of these tests are used to differentiate activities from accomplishments,

in practice, and again are reproduced in Dowty (1979), De Miguel (1999), among others.

The first test is the compatibility with a *for*-phrase that measures the length of the event, combined with the incompatibility of an *in*-phrase that measures the complete running time of the event from its starting point to its culmination. As activities lack a culmination, they are assumed to reject *in*-modifiers because they, crucially, require the final point of the event to coincide with a culmination or climax. *For*-phrases do not impose this condition, and therefore are compatible with events that do not reach a culmination.

- (199) a. Juan corrió durante una hora. *for*-phrase
 Juan ran for one hour
 b. #Juan corrió en una hora. *in*-phrase
 Juan ran in one hour

The second test is that activities, being atelic, also reject the combination with verbal expressions that explicitly measure the length of an event from its starting point to its culmination, among others *tardar en* 'to take some time for' and *usar X tiempo para* 'to use some time for'. Here, the sentences are ungrammatical unless one assumes that the verb is measuring the time that passed until the subject started performing the action (Dowty 1979: 57).

- (200) a. #Juan tardó una hora en nadar. Atelic
 Juan lasted one hour in swimming
 b. Juan tardó una hora en nadar un largo. Telic
 Juan lasted one hour in swimming one length
 (201) a. #Juan usó dos horas para conducir el coche. Atelic
 Juan used two hours to drive the car
 b. Juan usó dos horas para lavar el coche. Telic
 Juan used two hours to wash the car

The third test goes back to Kenny (1963) and refers to the entailment relation between the progressive form and the perfect: for atelic verbs, as soon as it is true that someone has been performing the event, it is true that that person has performed the event; in contrast, accomplishments lack this entailment.

- (202) a. Juan está temblando. Atelic
 Juan is trembling

 therefore

 b. Juan ya ha temblado.
 Juan already has trembled
 (203) a. Juan está escribiendo una carta. Telic
 Juan is writing a letter

 therefore

 b. Juan aún no ha escrito una carta.
 Juan yet not has written a letter

Given that, once initiated, the event of an activity does not progress towards a culmination, expressions that trace the cumulativeness of the change cannot be compatible with activities, but will be compatible with accomplishments. One such example is *poco a poco* 'little by little', or *gradualmente* 'gradually'. Note the following contrast:

- (208) a. *Juan investigó poco a poco. Atelic
 Juan investigated little by little
 b. Juan comprendió poco a poco. Telic
 Juan understood little by little
 (209) a. *Juan buscó novia gradualmente. Atelic
 Juan looked for girlfriend gradually
 b. Juan llenó la piscina gradualmente. Telic
 Juan filled the swimming-pool gradually

The eighth test refers to the incompatibility of activities with modifiers that qualify the type of result that is obtained, and whether the culmination of an event is intended or not, such as *casualmente* 'by chance', *de chiripa* 'by chance', *accidentalmente* 'accidentally' or *definitivamente* 'definitely'.

- (210) a. *Juan buscó la carta accidentalmente. Atelic
 Juan looked for the letter accidentally
 b. Juan destruyó la carta accidentalmente. Telic
 Juan destroyed the letter accidentally
 (211) a. *Juan voló definitivamente. Atelic
 Juan flew definitely
 b. Juan terminó el libro definitivamente. Telic
 Juan finished the book definitely

In contrast, manner modifiers that refer to how the event is performed during its internal progression are allowed by them (Rodríguez Ramalle 2001).

- (212) Juan buscó la carta cuidadosamente. Atelic
 Juan looked-for the letter carefully

The tests above have concentrated on the notion of telicity, in order to delimit the class of activities from those of accomplishments, but there are other additional tests that an activity verb is supposed to pass by virtue of its internal change and its duration, and that to some extent are expected also to be passed at least by accomplishment verbs. Among these tests we find the compatibility with expressions that measure the speed of change (*rápidamente* 'quickly', *velozmente* 'fast', *lentamente* 'slowly'), which states do not pass –and which trigger a special reading in achievements–.

- (213) a. Juan nadó rápidamente. Atelic
 Juan swam quickly
 b. Juan leyó el libro rápidamente. Telic
 Juan read the book quickly

4.2. Properties of activities

In this section we will revise a number of interesting properties of activities: in this order we will revise the connection that is found in many cases between activities and manner specification (§4.2.1), the connection with intransitivity at least for non derived activities (§4.2.2) and the possible existence of copulative verb activities (§4.2.3) in the form of evaluative adjectives.

4.2.1. Activities and manners

As we have noted, there are many verbs that can be classified as expressing activities even when they are presented without their participants. Generally these predicates have one common property: they express manners of executing some action through their lexical meaning. Consider a verb like *decir* 'say': in principle this verb means something along the lines of 'uttering some message', and it can be telic or atelic depending on the nature of the message uttered, namely if that message is conceptualised as a substance (*decir cosas* 'to say things') or as a defined bounded entity (*decir una cosa* 'to say one thing'). In contrast, verbs that specify the manner of saying are clearly atelic and only become telic when combined with an appropriate direct object, when present:

(214) *susurrar* 'whisper', *gritar* 'shout', *murmurar* 'murmur', *farfullar* 'mumble', *cuchichear* 'whisper', *aullar* 'scream', *tartamudear* 'stutter'...

The same goes for verbs of manner of contact: *tocar* 'touch' is telic, but the following verbs expressing manners of contact are atelic.

(215) *acariciar* 'caress', *frotar* 'scrub', *lijar* 'sand', *magrear* 'fondle', *cepillar* 'brush', *barrer* 'sweep'...

Also verbs of manner of movement are atelic:

(216) *nadar* 'swim', *bailar* 'dance', *rodar* 'roll', *arrastrarse* 'crawl', *gatear* 'crawl', *deslizarse* 'slid', *caminar* 'walk'...

Manner verbs, even when they are applied to an object, do not license the entailment that after the activity is applied to the object, there is a result obtained: we can scrub a surface all day and the surface can still be dirty. Verbs which license that entailment are, by opposition, called 'result verbs', to describe the proposal that they codify a result and no manner.

- (217) a. *Froté los platos toda la mañana, pero seguían sucios.* Manner
 scrubbed the dishes all the morning, but stayed dirty
 b. *Limpié los platos toda la mañana, #pero seguían sucios.* Result
 washed the dishes all the morning, but stayed dirty

This observation goes back at least to Gentner (1978) (see also Jackendoff 1990, Gropen et al. 1991, Levin & Rappaport Hovav 1991, 1995, Rappaport Hovav & Levin 1998, 2005, 2010, Goldberg 2001, Mittwoch 2005) and has two parts: one that is expected by the pure semantic meaning of the verb and one that is not easily derived.

The expected part is the following: a manner is visible in the way that a process is conducted, so verbs that codify some manner should be verbs that contain a process part. This successfully eliminates state verbs and achievements from manner manifestations, because the first do not have a dynamic process that can allow us to see

a manner –but remember the notion of Davidsonian state invoked by Maienborn (2003); cf. §3.2.1–, and the second because they do not involve processes that occupy extended portions of time. This is, of course, not the same as claiming that any activity verb should be a manner verb, as there are seemingly activity verbs that are defined not by how the action is performed but by the nature of its participants (eg., *protagonizar una película* 'to act in the main role of a movie', which is satisfied provided that the agent is the star, or *sangrar* 'to bleed', which is satisfied provided that what flows out of something is blood).

Conversely, and leaving aside degree achievements (§7.3), it is true that verbs that codify a result (*morir* 'die', *nacer* 'be born', etc.) are telic verbs, which is what one expects if 'result' means what we assume that it should mean. See however §5.2.3 for the observation that telicity and result cannot be conflated as the same notion, as there are telic verbs without a result.

As manners need to be controlled by entities, and sometimes reflect the internal properties of these entities, one also expects that manner verbs have agents, which is also the case for the verbs listed above. Note, however, that in the same way that not all activity verbs denote manners, not all activity verbs have agents: some of them seem to act as experiencers, as it is the case with perception events.

- (218) a. Juan oía música.
 Juan heard music
 b. Juan veía un brillo.
 Juan saw a shining
 c. Juan escuchaba ese pitido.
 Juan heard that whistle

Note that a definition of 'agent' together with causers and instrumentals, such as Ramchand's (2008), might consider the subjects also initiators, because they can see and hear due to their internal properties, but these are clearly not teleological agents that make the event possible or control it in some way.

The part of the story that does not directly follow from the semantic meaning is why manner verbs cannot be telic unless they are combined with objects that delimit them. Rappaport Hovav & Levin (1995) relate this question to what they call 'manner-result incompatibility'. Her idea goes as follows: having two main classes of eventive verbs, verbs that codify lexically the manner and verbs that codify a result, the two notions are in complementary distribution. No verb defines lexically both a manner and a result – even if, as we will see later, the same shape can be adopted by verbs that can get the two meanings–, and this means that a verb that expresses a manner does not codify at the same time a result, and therefore will be atelic. Conversely, a verb that codifies a result does not codify a manner.

One semantic domain where this difference is very clear is in the domain of movement. We have already seen examples of verbs that denote manners of movement and we have noted that they are prototypical cases of activities. Conversely, the prototypical verbs of movement that are achievements –thus, telic– denote directions of movement, not manners of movement:

- (219) llegar 'arrive', irse 'leave', entrar 'enter', salir 'exit', subir 'go up', bajar 'go down', cruzar 'cross'...

These verbs do not tell us anything about how the movement is performed, and one can arrive by car, walking, swimming, flying, limping, etc., provided that one reaches a particular location coming from a place outside that location. The same goes for the rest of verbs.

There are two questions regarding this problem: (i) is this complementarity real, empirically? and (ii) if it is real, or at least there is a strong tendency to codify either result or manner, why is there a complementary distribution? With respect to the first question, there have been several verbs that have been argued to codify the two components. A significant class of verbs are verbs which denote changes of state that, in principle, seem to be performed necessarily with one particular instrument that is used for the change (see Guerssel et al. 1985):

(220) *cortar* 'cut', *ahorcar* 'hang', *fusilar* 'kill by shooting'

In principle, these verbs specify a particular manner but also a result; in our normal understanding of these verbs, they bring about a result (someone is dead, something is cut), which is sometimes reflected in the entailment patterns that cannot be denied:

(221) *Juan cortó el pan, #pero no estaba cortado.*
Juan cut the bread, but not was cut

An argument for treating these verbs as having a manner component is that they require to have an external causer, which somehow controls that manner: for this reason they cannot have an anticausative construal:

(222) **El pan se cortó.*
the bread SE cut

(223) **Juan se fusiló.*
Juan SE died by shooting

Levin & Rappaport Hovav (2010), however, propose that the verb 'cut' is only a result verb in its normal use, as the event of cutting can be performed with different instruments that are not specified in the lexical entry (a paper, a knife, a saw, etc.). When the verb acts as atelic it is because it is used in a different lexical meaning where there is a conventionalised associated activity which involves removing the result component from its lexical entry: in a sense, this means that the verb is ambiguous between the two readings, codifying directly the result, and being reinterpreted as a conventionalised activity when there is no result. In neither way the two components of meaning are present, but the verb can oscillate between the two classes.

For other verbs that seem to have the two readings, what seems to happen is that the verb codifies the manner internally, and the result is simply inferred:

(224) *Fusilaron a Gila, pero siguió vivo.*
shoot A Gila, but he stayed alive
'Gila was shot, but he stayed alive'

We might infer that hanging or shooting someone brings about his death, but this can be felicitously denied without incurring in a contradiction, showing that the manner is what counts for the lexical meaning of these verbs. In other verbs, Levin & Rappaport Hovav (2010) argue that the change in the object is only inferred because it is

In this approach, a verb that alternates between the two readings (manner and result) is a verb that allows the root to be placed in either position, but the root cannot be in two positions at once, so it is predicted that no verb will codify both. In other verbs, the root will always be an adjunct to the head and in a third class of verbs, it will always be a complement.

The second alternative to explain the distinction is treating manner and result as two different types of ontological change. In Levin & Rappaport Hovav (2010), for instance, manner is treated as a non scalar change, that is, as a type of change that does not happen incrementally across a particular dimension: when one runs –forget now about the complements of the verb and concentrate only on that lexical meaning– the change that we describe cannot be characterised as an alteration in the set of values that characterises one single property, because running implies multiple complex changes in different dimensions. Running involves a complex pattern of changes in the position of the legs and their internal posture that is different from what we call walking, limping, jogging, etc. In contrast, result is simply a type of scalar change that considers only one dimension and expresses, within that dimension, a cumulative linear change in the value that this dimension expresses: cleaning means to move within a scale of cleanness up to a possible maximal value, and any other change that happens while one cleans, like the movement of the hands or the position of the body adopted, are irrelevant for the entailments of that verb.

Some verbs, then, might belong to one basic type and stay there, denoting either scalar or non scalar change; other verbs might develop uses in which they also denote the other type of change, but no verb in one single use will denote both manner and result because each one of them expresses an ontologically different type of change and no change can be both scalar and non scalar.

4.2.2. Activities and intransitivity

There is also a tendency for activity verbs to be intransitive, that has to be nuanced. Note, to begin with, that nothing forces an activity verb to be intransitive and there are plenty of verbs that are both transitive and activities, such as the class of verbs of searching:

(230) *buscar* 'search', *indagar* 'investigate', *cachear* 'frisk', *husmear* 'sniff', *explorar* 'explore', *rastrear* 'to follow a lead', *tantear* 'test', *registrar* 'search'...

These verbs, when they mean something along the lines of 'examine something in order to obtain an information', are activities irrespective of the nature of their internal argument. Verbs that involve directed motion involving a particular manner also are transitive without the referential properties of the object influencing their telicity:

(231) *pasar* 'walk', *arrastrar* 'drag', *deslizar* 'slide', *remolcar* 'tow', *empujar* 'push', *jalar* 'pull', *acarrear* 'lug'...

By extension, verbs of metaphorical motion of attraction or repulsion also fall in this class (*seducir* 'seduce', *influir* 'influence'...). A third class of transitive activities where the object does not delimit the event is the one formed by verbs that express, in different ways, the event of using something as an instrument or as means to fulfill a function:

(233) alquilar 'rent', usar 'use', emplear 'use', practicar 'practice', manejar 'handle', arrendar 'rent', aplicar 'apply'...

Of course, we leave aside the cases of activity verbs that can also be interpreted as accomplishments depending on the referential properties of the incremental theme or path, as they emerge with verbs that are at least vague between activities and accomplishments, but these should also be taken into account to relativise the claim that activity predicates tend to be intransitive.

The correlation between activities and intransitivity is noticeable through two main phenomena. First of all, even when the verb expresses a situation that involves an internal argument, as noted in Rappaport Hovav & Levin (1998), activities that express manners tend to license in a simple way a generic or existential object, in contrast with telic verbs that express an endpoint, where the possibility of licensing that implicit argument is lexically conditioned:

- | | | |
|----------|---|--------|
| (234) a. | María ha estado lijando toda la mañana. | Manner |
| | María has been sanding all the morning | |
| b. | *María ha estado vaciando toda la mañana. | Result |
| | María has been emptying all the morning | |
| (235) a. | María ha estado barriendo toda la mañana. | Manner |
| | María has been sweeping all the morning | |
| b. | ??María ha estado lavando toda la mañana. | Result |
| | María has been washing all the morning | |

The second correlation between activities and intransitivity is that a very high number of prototypical activities –verbs which can be categorised as activities even without looking at other elements of the predicate– happen to be intransitive verbs. This includes at least the class of manner of motion verbs (*correr* 'run') but also a significant class of verbs that express manners of behaviour and ways of performing an action:

(236) tontear 'flirt', bromear 'joke', bobear 'act silly', disparatar 'act crazy', loquear 'act crazy', coquetear 'flirt', cortejar 'flirt', jugar 'play', presumir 'show off', pavonearse 'boast off', fardar 'show off', alcahuetear 'act like a go-between'...

Thus, again we have a tendency that shows a strong correlation between activities that involve a manner and intransitive verbs. The potential explanation of this correlation can be performed along the same lines as the incompatibility between manner and result: if a verb denotes a manner, what is relevant in its lexical meaning is how the event is performed, not whether that event is applied to an internal argument, and therefore the semantic entailments of the verb will already be satisfied by the verb itself and its agent, and will not have to involve an internal argument. That internal argument, when it appears –moreover– is not an entity that suffers a change because what the verb specifies is a manner of acting and not the process of producing something –it is a non scalar change, not a scalar change–, so it will not act as an incremental theme.

From a different perspective, however, note that it is surprising that activities involving manner tend to be intransitives. According to Burzio's (1986) generalisation (remember §3.2.3), verbs that have an agent should also be transitive, and this is not immediately verified in these verbs. Unless one assumes some kind of underlying transitivity –as Hale & Keyser (1993, 2002), who propose that activity verbs like *dance*

are actually underlyingly 'do dance'–, it is clear that a good number of activity verbs are intransitive. Next to most verbs expressing manners of acting (with individual exceptions like *chulear a alguien* 'to fool someone') and manner of movement verbs, note that emission verbs like *babear* 'drool', *espumajear* 'foam', *salivar* 'salivate', *soplar* 'blow', *espirar* 'exhale' are nearly impossible to build with direct objects but count as activities that in principle should have agents that control the event by virtue of their internal properties.

4.2.3. Activities with copulative verbs and adjectives

In §3.2.1 we discussed the distinctions internal to the class of states that had been used to explain cases where one can combine the verb with the progressive periphrasis or not, and we noted that in some accounts individual level and stage level states can both be manifested as copulative structures and as lexical verbs. In the class of activities we find also situations where structures involving copulative verbs can be located. We are thinking of so-called evaluative adjectives (Stowell 1991, Bennis 2000, Landau 2010, among many others): adjectives that denote manners of behaving for specific animate individuals, generally humans (Bosque 1989).

Consider sentences like the following, and note that the class does not just include adjectives, but also valorative nouns:

- (237) a. Juan es cruel.
Juan is cruel
b. Juan es despistado.
Juan is absent-minded
c. Juan es travieso.
Juan is naughty
d. Juan es un pícaro.
Juan is a rascal

There are two distinct readings of these sentences, even though without context the first one is more salient. The first reading is an individual level stage where one predicates the set of properties from the human subject 'Juan'. The second is an activity reading where one says that the properties described by the attribute are visible in the behaviour that Juan displays when performing some action. This second reading can be seen in the following sentences, where the grammatical aspect of the sentence shows that we are not describing properties of the individual (notice the progressive, the perfective, etc.):

- (238) a. Juan está siendo cruel con María.
Juan is being cruel with María
b. Juan fue despistado en esa ocasión.
Juan was absent-minded in that occasion
c. Juan fue travieso al responder a María.
Juan was naughty at the answer to María
'It was naughty of Juan to answer María'
d. Juan está siendo un pícaro en la fiesta.
Juan is being a rascal at the party

Although with the shape of a copulative verb, these sentences involve some kind of action, which, as Stowell (1991) notes, can be overtly expressed in the sentence:

- (239) a. Juan fue amable con María.
 Juan was kind to María
 b. Juan fue amable con María al abrírle la puerta.
 Juan was kind to María at open-her the door

The adjective expresses the behaviour of the subject when performing that action, as can be seen by the gloss, which allows the action to be qualified as 'kind', because it manifests that type of behaviour from Juan.

- (240) Fue amable por parte de Juan abrírle la puerta a María.
 it was kind by part of Juan to.open-her the door to María

The subject, as expected from a predicate that involves a manner, has agent entailments.

- (241) Juan fue voluntariamente antipático con María.
 Juan was willingly rude to María

When we remove the linguistic material that can identify the event, it is clear that we have a dynamic eventuality, atelic and extended in time. Thus we have an activity:

- (242) Juan fue amable durante unas horas.
 Juan was kind for some hours
 (243) *Juan fue amable en una hora.
 Juan was kind in one hour
 (244) Juan está siendo amable.
 Juan is being nice

We have no space or time to discuss the many facets of the analysis of these predicates (see Arche, Marín & Fábregas 2021 for a recent overview), but we will highlight the most controversial aspects here. The case of evaluative adjectives or evaluative nouns are problematic for fundamentally three reasons: first of all, they deny any simple analysis of the copulative verb where one decides to associate copulative verbs to stative structures of whatever type. There must be a way of having copulative verbs at the same time as events. This problem, in fact, connects with the periphrastic passive in Spanish, which is another case of a copulative verb *ser* 'be' that combines with what seems to be a non fully verbal form (a participle) and there is an event being expressed:

- (245) Juan fue atacado.
 Juan was attacked

If the passive has not been considered such a great problem in the past, in contrast with evaluative adjectives, it is only because after all the passive contains a participle that comes from a verb, which might be taken as enough reason to expect that an event is being expressed despite the presence of the copulative verb; remember also that the copulative verb in the passive is traditionally considered an auxiliary verb more than a copula (remember the debate between Lázaro Carreter and Alarcos; Lázaro Carreter

1975), which is a way of putting the problem aside because the verb is not of the same nature as the one found in *Juan es español*.

The second problem is where the event is located within the structure of a sentence involving the activity reading of an evaluative adjective. The options are three:

- a) The evaluative adjective contains some event variable
- b) The copula contains an event variable
- c) The event is the actual subject of predication

In this sense, the first option faces the problem that if the adjective contained an event variable we should expect the adjective to be able to inflect for tense and aspect alone, something that is not the case; the second option leaves unexplained why the event reading does not emerge with the copula unless the attribute is an evaluative adjective or a participle. The third option is the one that has been more successful in the analysis, and is argued for by Stowell (1991), who proposes that these sentences are actually transformations of 'EVENT was ADJECTIVE of NOUN', that is, that 'John was cruel to Mary in doing that' in fact comes from 'To do that to Mary was cruel of John' or 'It was cruel of John to do that to Mary'.

The third problem that evaluative adjectives open for activities is whether other adjective classes, not involving behaviours, should be analysed in a parallel way. This refers to the status that sentences like the following should have:

- (246) El brillo del mar verdea, amarillea y rojea.
the shine of.the sea greens, yellows and reds
'The sea shines green, yellow and red'

Once one allows copulative verbs to define activities, the question is whether other verbs where the meaning is 'to exhibit some property in some event' should also be analysed on a par with them. Note that in the example above we say that the sea has some shining that exhibits different colours at different temporal intervals –say, the sea is reflecting the colours of the sun as it sets–, and this is similar to the claim that the behaviour of a person is exhibited at different events. In fact, in the same way that the person controls the behaviour we can say that the internal properties of the sea water, and its ability to move and reflect different lights, is controlling that event. In the same way that in most activities involving evaluative adjectives the event is implicit, here we could argue that the event is equally implicit.

Note that these verbs that involve exhibiting a property in some temporal succession of events –typically coming from colour adjectives– allow for the progressive:

- (247) El mar está verdeando, amarilleando y rojeando.
the sea is greening, yellowing and redding
'The sea is reflecting green, yellow and red'

This shows that these verbs are not individual level predicates. The options to analyse these verbs are (i) they are stage level states, like 'be sick', (ii) they are activities, like 'is being cruel' and (iii) they are Davidsonian states, like 'shine'. The first option seems wrong once we note that these verbs allow place modifiers while stage level states generally reject them:

- (248) a. *Juan está gordo en su casa.

- Juan is fat at his place
 b. El faro verdea en la orilla.
 the lighthouse greens at the shore

Deciding between the two remaining options involves a good deal of world knowledge: if D-states must meet the strict subinterval condition and we mean to say that the colours do not appear constantly but actually are shown at small intervals, like flashes of colour that are visible once and again, the interpretation should be closer to one of an activity and not a Davidsonian state.

With this, we close the discussion about activities and move to accomplishments.

5. Empirical aspects (3): properties and tests for accomplishments

Accomplishments are a more complex class than that of activities, and this is due to three problems that we will briefly discuss as an introduction to this section. The first one is that there does not seem to be individual verbs that are unequivocally classified as accomplishments. In the following examples, the reader can see that the verb itself is easy to classify as, respectively, a state, an activity and an achievement.

- | | |
|----------------------------------|-------------|
| (249) a. <i>necesitar</i> 'need' | STATE |
| b. <i>rodar</i> 'roll' | ACTIVITY |
| c. <i>huir</i> 'escape' | ACHIEVEMENT |

In the case of activities, we can find activities defined by the verb itself and activity complex predicates (*beber zumo* 'drink juice'). For accomplishments this is not the case: all predicates that can be unequivocally classified as accomplishments are complex, and the verb needs to be accompanied by some participant, which are typically internal arguments denoting bounded individuals or path complements which specify a terminal point. In other words, we cannot say that the verb *escribir* 'write' is an accomplishment, but we can classify as an accomplishment the first one of the following predicates:

- (250) a. *escribir un informe*
 write a report
 b. *escribir teatro*
 write theater

The second problem is how telicity should be defined, an issue that has produced an immense quantity of research (Bennett & Partee 1972, Verkuyl 1972, Mittwoch 1982, Bach 1986, Krifka 1989, 1998, Filip 1999, among many others). There are two main approaches that have been used in the descriptions above: the endpoint approach and the homogeneity approach. The endpoint approach defines telicity as follows: telicity is the property of some situations that require that a culmination is reached. In this sense, for instance Derpraetere (1995) conceives telicity as a property of situations that are presented as terminating, and notes that the endpoint that defines telicity requires the situation that is presented as having an inherent or intended endpoint.

- (251) A clause is telic if the situation is described as having a natural or an intended endpoint which has to be reached for the situation as it is described in the sentence to be complete, and beyond which it cannot continue. [Derpraetere 1995: 2]

The second approach uses a contrast between homogeneous and heterogeneous situations –basically the Subinterval property, down to a minimal subinterval–. This view generally falls in the so-called mereological approach to aspect (see §8.3), where telicity and atelicity are viewed as different types of internal part-whole relations (Bach 1981, Krifka 1989). Predicates that are generally classified as telic –although see below– are quantized predicates, that is, predicates (informally) whose proper subparts never fall under the predicate. The general definition of quantized predicate P is as follows:

$$(252) \text{QUA}(P) \leftrightarrow \forall x,y[P(x) \ \& \ P(y) \rightarrow \neg y \prec_p x]$$

That is, if a predicate is quantised and it applies to two objects x and y, it cannot be the case that y is a proper part of x. For instance, if a predicate like *read a book* is a quantised predicate that describes an event e, and the same predicate describes event e', e' cannot be part of e: one cannot read one book within one subinterval of a bigger event of also reading a book, so to say. Adding the two events would produce a sum that is described as *read two books*.

Put more formally and applied to verbs (Krifka 1998), this is the result:

$$(253) \text{TEL}_E(P) \leftrightarrow \forall e,e' \in E [P(e) \ \& \ P(e') \ \& \ e' \leq_E e \rightarrow \text{INI}_E(e', e) \ \& \ \text{FIN}_E(e', e)]$$

That is, a predicate that applies to an event e is telic if and only if it does not apply to a subpart of e that ends or starts at a different point –or, as the formula says, if for every part e' of an event e that is described a P it is true that the initial and the final part of e' are also initial and final parts of e–.

A less formal definition of quantised predicate is that P is quantised if and only if for some event to fall under P there is no proper subpart e' of e that can also fall under P: any proper subpart of the event described as 'eat an apple' is not an event that can be defined as 'eat an apple'. For an event to be 'eat an apple' it must start at the beginning, when the first bite is taken, and finish at the end, when the apple finished.

Note that the homogeneity approach pays attention both to initial and final points when defining telicity, while the endpoint approach only pays attention to the end. Note also that, strictly speaking and following Krikfa (1998), telicity is a bit broader than quantisation: it will not be the case, as we will see when we talk about different types of accomplishments –§5.2.2– that all telic predicats show a part-whole structure.

In contrast, atelic predicates are called homogeneous or cumulative, where the definition of cumulativity is as follows:

$$(254) \text{CUM}(P) \leftrightarrow \exists x,y[P(x) \ \& \ P(y) \ \& \ \neg x = y] \ \& \ \forall x,y[P(x) \ \& \ P(y) \rightarrow P(x \oplus_p y)]$$

That is, a predicate P is cumulative if for any distinct x and y entities described as P it is always the case that the sum of them can also be described as P. In slightly less formal terms (Filip 2011: 736):

(255) A predicate P is cumulative if and only if when some e and e' fall under P then the mereological sum \oplus of e and e' also fall under P.

That is, an eventuality like running is cumulative –and therefore atelic– if an event of running and another event of running can be added together and we still can describe

them as running. We can have, in fact, an event of running which is a subpart of another (longer) running event, and they are both described as running events, which is in fact the core of the Subinterval condition.

Thus is it not clear whether one should consider telicity a property related to endpoints only or of the whole running time of the event, a problem that will emerge again in the case of achievements.

The third problem is the definition of result and the question of whether accomplishments contain in their lexical specification an explicit result state that emerges after the completion of the event –Parsons' (1990) and Kratzer (2000) target state and Embick's (2004) resultative state, see §3.2.2–. The world knowledge interpretation of many completed events is that there is some result that is valid after the event is completed, but this may correspond to Parsons' (1990) resultant state, which can never be reversible and as it holds forever. Consider in this sense an event like eating an apple, which is telic and durative, and therefore an accomplishment. It does not seem possible to access in this verb a reversible result state that can be measured – it cannot be measured because its only result state is a resultant state that holds forever.

(256) #Juan comió la manzana durante una hora.

Juan ate the apple for one hour

'Juan was eating the apple for one hour', not 'The apple stayed eaten for one hour'

It might be the case that accomplishments never have real result states as part of their lexical specification, perhaps because they need to occupy that position with an incremental element that measures their length. We will get back to this problem in §5.2.3, and then again in the discussion of degree achievements in §7.3. And now let us present the tests.

5.1. Tests for accomplishments

Most diagnostics for accomplishments reproduce, in a specular version, those of activities, but it is useful to go through them to specify how the interpretations might be modified; as before, these tests come from Dowty (1979) and De Miguel (1999), among others.

The first test is the compatibility with in-phrases, that measure the event from its beginning to its end. As accomplishments are telic, we expect that they will be combinable with these expressions without the necessity of changing their interpretation.

(257) a. Juan horneó la tarta en una hora.

Telic

Juan baked the cake in one hour

b. #Juan corrió en una hora.

Atelic

Juan ran in one hour

The second test is that other expressions that measure the length of the completed event are also accepted by accomplishments, but not by activities.

(258) Juan tardó una hora en volar a Oslo.

Telic

Juan lasted one hour in flying to Oslo

In contrast the presence of for-phrases with accomplishments is more difficult, in two concrete senses. In the first sense, the for-phrase strongly implies that the

culmination of the event was not reached, an effect that is also obtained with the progressive form (see the Imperfective Paradox in §5.2 below).

(259) Juan vio una película durante dos horas.

Juan saw a movie for two hours.

In this example it is understood that the movie was longer than two hours and therefore that the event of completing watching a movie was not reached. The same happens with the progressive:

(260) Juan estuvo dos horas viendo una película.

Juan was two hours watching a movie

The second sense in which for-phrases produce different results with accomplishments is the result interpretation. Those accomplishments that specify a result within a change allow the for-phrase not suspending the entailment that the culmination was reached, but in those cases the for-phrase measures how long the result held and not how long it took to arrive to that result.

(261) Juan puso los pasteles en la ventana durante unas horas.

Juan put the cakes in the window for some hours

In this example, there is duration because we are using a plural entity –the cakes can be put one by one in the window– and a culmination –when all the cakes are in the window–. Note immediately that the duration is licensed by this plurality, and that a single count noun in the singular would not have licensed the duration (see §5.2.3). In this interpretation the for-phrase states that the cakes stayed in the window for some hours only, and then Juan placed them somewhere else.

The next test refers to the lack of entailment between the progressive and the perfect form: as the accomplishment is not true until the culmination is finished, and as the progressive turns the accomplishment into an atelic event, it cannot be true that the result expressed by the perfect is verified.

(262) a. Juan está preparando la clase.

Juan is preparing the class

Telic

therefore

b. Juan aún no ha preparado la clase.

Juan yet not has prepared the class

With respect to phase verbs, auxiliaries and verbal expressions such as *terminar* 'finish', *acabar* 'finishes', are accepted by accomplishments without any meaning change:

(263) a. Juan terminó de representar *Hamlet*.

Juan finished of represent Hamlet

'Juan finished the performance of Hamlet'

b. Juan acabó de secar los platos.

Juan finished of dry the dishes

'Juan finished drying the dishes'

In accomplishments, using verbs indicating that the event is ended before reaching its culmination has a different meaning, indicating that the event was never performed:

- (264) a. Juan dejó de estudiar español.
 Juan stopped of study Spanish
 'Juan stopped studying Spanish (without having learnt it)'
 b. Juan paró de correr a casa.
 Juan stopped of run to home
 'Juan stopped running home (without arriving there)'

The interpretation of *casi* 'almost' allows for at least two readings, in contrast with activities: there is one reading where the event is almost started and another reading where the event starts and the culmination is almost reached.

- (265) Juan casi incendió la casa.
 Juan almost burnt the house
 'Juan almost started a fire, but there was no fire'
 'Juan started a fire, and the fire almost burnt the house'

Accomplishments have an internal development, that leads cumulatively to a culmination. For this reason they are compatible with modifiers like *poco a poco* 'little by little', or *gradualmente* 'gradually'.

- (266) a. Juan compuso su sinfonía poco a poco.
 Juan composed his symphony little by little
 b. Juan se acercó a ella gradualmente.
 Juan se approached to her gradually

Accomplishments contain both an internal process that builds up to a culmination and a culmination that defines a definite state. Like that, they are compatible both with modifiers that qualify the manner in which the process happens and with those that define how the culmination is reached. Let us look first as those that modify how the culmination is reached.

- (267) a. Juan compuso un poema de chiripa. Telic
 Juan composed a poem by chance
 b. Juan destrozó la fiesta definitivamente.
 Juan ruined the party definitely

Manner modifiers are also allowed.

- (268) a. Juan compuso cuidadosamente un poema.
 Juan composed carefully a poem
 b. Juan destrozó cruelmente la fiesta.
 Juan ruined cruelly the party

As accomplishments have an internal duration with internal subphases that can be shorter or longer, they also allow for modifiers that measure the speed at which the event is performed:

- (269) a. Juan viajó a París rápidamente.
Juan travelled to Paris quickly
b. Juan recitó la lista lentamente.
Juan repeated the list slowly

5.2. Properties of accomplishments

In this section we will revise three problems that relate to the definition of accomplishment. We will start with the well-known problem of the imperfective paradox (§5.2.1), then we will move to the differences between telicity and quantisation (§5.2.2) and then we will talk about the possible incompatibility between accomplishments and verbs that specify a result component –as Parsons' (1990) target state, not resultant state–.

5.2.1. The imperfective paradox

The Imperfective Paradox (Kenny 1963, Bennett & Partee 1972, Dowty 1977) can be described as a particular meaning puzzle that emerges with accomplishments in the presence of the progressive periphrasis. Consider the following example:

- (270) Juan estaba leyendo el libro.
Juan was reading the book

Intuitively, for this sentence to be right it is enough that at some moment in the past Juan was performing the event of reading and the object that it was reading can be described as a unique book. Importantly, the sentence is still true even in a world where Juan, for whatever reason, never reads the book –say, because he dies–. Thus, the previous sentence in the progressive can be true while the following sentence can be false:

- (271) Juan leyó el libro.
Juan read the book

That is, if Juan never finishes the book in a world where he started reading it, it is false that he read the book but it is true that he was reading it. While the intuition is clear, it is very difficult to formalise that intuition in a semantics for the progressive that is compatible with its grammatical behaviour. If we accept a semantics for the progressive and a semantics of the past tense along the following lines, it should follow that if there is an interval t' at the moment of speech where something is true, there should also be an interval t' preceding the moment of speech where that this is also true.

- (272) $[[\text{Progressive } \phi]] = 1$ at an interval t iff ϕ is true at an interval t' including t
 $[[\text{Past } \phi]] = 1$ at an interval t iff ϕ is true at an interval t' preceding t

The general observation is that what is wrong in the previous theory is the semantics associated to the progressive, so the Imperfective Paradox is only a paradox if one associates the wrong meaning to the progressive. The main accounts of the imperfective paradox involve treating the progressive as a modalised form, which introduces a notion

of possible worlds. Dowty (1979) proposes that the progressive should be a modal form that relativises the truth of the predicate to the set of worlds that he calls 'inertia worlds'. In his proposal, the progressive selects a set of worlds that, up to the evaluation time for the time interval of the progressive, are identical to the real world, and where the situation would be completed if events follow their natural course: an inertia world is a world where nothing unexpected at the time that Juan was reading the book happens – such as Juan dying–, and the event is completed as Juan intended. This is Dowty's (1979) definition of the progressive:

- (273) $[[\text{Prog } \phi]] = 1$ at an interval i in a world w iff for some interval i' that includes i as a nonfinal subinterval and for every inertia world w' relative to $\langle i, w \rangle$, ϕ is true at $\langle i', w' \rangle$

That is: 'Juan is reading the book' uttered at 3.45 in our world is true if there is a period of time that includes 3.45, at that point Juan did not finish reading the book and in every world where things follow their natural course Juan manages to read the whole book at a later interval.

This account of the imperfective paradox relies heavily on the notion of inertia worlds, which introduces a quite flexible notion: in the normal course of events, where normal depends a lot of what one expects. Vlach (1981) and Landmann (1992) noticed that it is enough to include in the sentence a direct reference to something that interrupts the natural course of events so that the Imperfective Paradox reemerges:

- (274) Juan estaba leyendo el libro cuando se murió.
Juan was reading the book when SE died

It is clear now that the inertia worlds are clearly worlds where one does not expect Juan to finish the book because now he is dead: the event of completing the book has now been interrupted by Juan's death, and still the sentence is right provided that Juan died while he was in some non-final point in the progression of reading the book. Landmann (1992) also noticed that inertia worlds, in some cases, should expect that the event is not completed. Consider the following example:

- (275) Juan estaba cruzando el Atlántico a nado.
Juan was crossing the Atlantic ocean by swimming

Assuming Juan's physical capacities are not superhuman and the width of the Atlantic Ocean is not altered, the natural course of events should be that Juan does not manage to swim across the Atlantic ocean, and still that sentence is true provided we see Juan at some point of swimming in the direction of America from Lisbon and in some sense he intends to arrive to America by swimming.

In order to avoid the problem posed by inertia worlds, Landmann (1992) proposes to redefine the 'intended' continuation of the event not through the world semantic properties of those worlds but through the denotation of the event described. This is how continuation events emerge: the progressive is a relation between events and properties of events, such as the progressive is true of an event e in a world w if for some event-world pair $\langle e', w' \rangle$ in the continuation branch of the event denoted by e in w , e' belongs to the set denoted by P in w' .

The continuation branch is the crucial notion in this definition: the continuation branch of an event e in a world w is an event stage. The event stage is simply a more

developed version of the event in question; if the event stops in our world w , we can move to world w' –which is supposed to be a minimally different version of the actual world–, and see if the event continues in a more developed version –perhaps reaching completion– in that world; if it does not, we can move to a third world where the continuation branch shows a more developed version of that event, and so on. The only two conditions are that the worlds that we examine looking for the continuation branches are 'reasonable options' given our current world, and that the continuation branches show an event that can count as a more developed version of the event in the progressive.

Like this, even if Juan dies in the actual world, we can say that 'Juan is reading the book' is true because we can imagine a world w' minimally different from our current world where Juan stays alive long enough to finish the book. The sentence will be true provided that there is at least one reasonable world w' where the event is completed.

Now consider the funny example where Juan is swimming across the Atlantic ocean: there is no inertia world where one expects that event to culminate, but if he indeed manages to swim across the Atlantic, within the real world –no need to look at a continuation branch– the event is satisfied.

Portner (1998) proposes basically the same idea, but formalises it through the standard modal account. In his theory, the progressive is a modal operator which has a modal circumstantial base –the capacities, abilities and other circumstances relevant to the discussed event– and an ordering source that orders the worlds according to how reasonable they are given those circumstances.

(276) Prog (ϕ) is true at a pair of an interval and a world $\langle i, w \rangle$ if and only iff there is an event e in world w that $T(e) = i$ and for all worlds $w' \in \text{Best}(\text{Circ}, \text{no interruptions}, e)$ there is an interval i' which includes i as a non-final subinterval such that ϕ is true at $\langle i', w' \rangle$.

That is: Juan is reading the book is true at an interval i in a world w provided that in every world where the relevant circumstances are like they are now, and where there are no interruptions of that event, Juan reads the book. Note that one has to interpret that predicates such as 'he died' are not part of the set of relevant circumstances for the event of reading.

Crucially, these theories predict that the following sentence is false if Juan dies before crossing the Atlantic, because there is no reasonable world w' where he manages to finish it and he did not finish it in the actual world:

(277) Juan estaba cruzando el Atlántico a nado.
Juan was crossing the Atlantic by swimming

It is not completely clear that this sentence will always be interpreted as false. In some cases, we might accept the sentences as meaning that Juan had the intention of swimming to America, even if we know that it will be impossible. Imagine if we say of a child in the beach something like (278) because he has expressed an intention to arrive to America:

(278) El niño, que está cruzando el Atlántico a nado.
the child, that is crossing the Atlantic by swimming

The parents will probably stop the child before he drowns, and still it seems that this sentence is not a lie in the strict sense, provided that the child intends to cross the Atlantic by swimming. This is a problem for the modal accounts, and it is also problematic –as Zucchi (2011) notes– that the grammatical behaviour of the progressive is not the one expected from a modal operator, which is an intensional operator. Compare the progressive with a modal like *buscar* 'seek'.

Intensional operators resist replacement of a predicate by a coextensional predicate. Even if *Katherine Hepburn* and *the only actress to win four Oscars* refer to the same entity, Juan might be seeking the second thinking that she is alive and not knowing that Katherine Hepburn is already dead. Thus, (279a) is true but (279b) is false:

- (279) a. Juan busca a la única actriz que ha ganado cuatro oscars.
 Juan looks.for the only actress that has won four oscars
 b. Juan busca a Katherine Hepburn.
 Juan is looks.for Katherine Hepburn

This does not apply to the progressive, where the following inference is valid:

- (280) Juan está hablando con la única actriz que ha ganado cuatro oscars.
 Juan is talking with the only actress that has won four oscars

La única actriz que ha ganado cuatro oscars es Katherine Hepburn
 the only actress that has won four oscars is Katherine Hepburn

por tanto, Juan está hablando con Katherine Hepburn.
 therefore, Juan is talking with Katherine Hepburn

The second test is lack of existence entailments of the direct object: if Juan looks for a unicorn, it does not follow that the unicorn exists. With verbs of creating, the progressive has that property –because before the event is completed, there is no existence of the object created–, but with other types of verbs the existence entailment is not altered:

- (281) Juan está pintando la pared.
 Juan is painting the wall

Third, intensional verbs allow for a non specific reading of the object where the object does not mean a particular element within the class, but also can mean any object that corresponds to that description. Like this, if we say that Juan looks for a house it might be that Juan looks not for a particular house, but for any object that can be described as a house –for instance, when he is looking for a place to rent and not when he is looking for the house of a friend that he is going to visit–. The progressive does not license by itself the non specific reading:

- (282) Juan está comiendo un plato de sopa.
 Juan is eating a plate of soup

Additionally, Ramchand (2018) notes that if the progressive was a modal form one should expect children to acquire it at the same time as other modals, but in languages

like English the progressive is among the first structures to be acquired, long before the child starts using modal verbs.

Thus, there is a number of analyses where the emphasis is put on the purely aspectual properties of the construction. Specifically, the common idea is that the progressive is an atelic form where the possible culmination of the event is not part of what is being asserted, and therefore where the truth does not depend on an eventual culmination of that event. Parsons (1990) proposes that the progressive involves a hold predicate whose meaning is that the event is ongoing and does not assert that it culminates:

(283) $\exists e \exists t[\text{reading}(e) \ \& \ \text{Agent}(e, \text{Juan}) \ \& \ \text{Theme}(e, \text{the book}) \ \& \ \text{Hold}(e,t)]$

Along the same lines, but emphasising that the progressive is not only atelic but also stative, we find the accounts of Vlach (1981), Mittwoch (1988), Hallman (2009) and Ramchand (2018), which all agree that the progressive is actually a stativising operator. Vlach (1981) proposes the following formula, where the progressive is a derived stative from a process:

(284) $\text{Prog}(\phi)$ if and only iff $\text{STAT}[\text{PROC}[\phi]$ goes on], where $\text{PROC}[\phi]$ is that process P that leads to the truth of ϕ .

In this sense, the progressive is taking only the procesual part of an event that otherwise would lead to the truth of the predicate, and concentrating on that process builds a state that describes that process, and as such holds at any instant during the running time of the process. Juan is reading the book if and only if there is an interval of time which shows the process of Juan reading the book, irrespective of whether the event culminates or not. In more technical terms, Mittwoch (1988) presents the semantics of the progressive as follows:

(285) $\text{Prog}(A)$ is true in M relative to (w, i) if and only if i is a subinterval of an interval j and A is true in M relative to (w, j) , where A is interpreted as a homogeneous situation.

The problematic aspect of these accounts that has been pointed out repeatedly is that it causes a problem with creation verbs, where the object does not exist unless the event is completed:

(286) Juan está escribiendo un soneto.
Juan is writing a sonet

Assuming that a sonet must always have 14 verses, note that this sentence can be true also if Juan dies before finishing the sonet, and yet the sonet does not exist –only some verses exist–. Parsons (1990) proposes that this is not problematic provided one assumes that there is an ideal sonet that Juan was intending to complete, and one allows that sonet to 'exist' in some form even if it does not have actual existence, but this involves again introducing some kind of intensional semantics in the mix.

Note that in these accounts, a sentence like 'Juan was crossing the Atlantic by swimming' is still false, because there is no process P that leads to him arriving to the Atlantic by swimming, and thus no temporal interval j where the event could ever happen –again, assuming Juan is not superhuman–. We have pointed out above that there are cases where someone might utter that sentence without lying, and that is the

fact that Ramchand (2018) emphasises when she says that the internal properties of the participants and their intentions play a role in the semantics of the progressive.

In her account, the progressive builds the identifying state of an eventuality. The idea is that a situation that holds at a time interval i can be properly described with the progressive of P if and only if that situation is a stative eventuality that manifests enough cognitive or perceptual identifiers of P . That is, we can say that Juan was reading the book if the situation that we apply the description to lets us have enough information that identifies Juan as the agent of an event which he intends to complete; by the same token, if Juan shares with us his intention to swim to America and then jumps into the water and starts swimming we can describe any point in the situation after he jumped into the water as 'Juan is crossing the Atlantic by swimming', even if he will never arrive to the other side just by the power of his arms and legs. Thus, for us to state that progressive truthfully is enough if we apply it to a time interval that allows us to infer that intention, and that identifies that event.

To wrap up this discussion, it seems impossible to give an account of the Imperfective Paradox without at least referring to the intended endpoint of an event, but invoking possible worlds to account for the problem seems to complicate things further because that treats the progressive as a modal form, against its empirical behaviour. The stative nature of progressives suggest that they should be viewed as homogeneous situations that somehow exhibit the properties that we assume for the events they relate to, and the challenge is how to integrate this intuition in a semantics that leaves outside the culmination part of a telic event without affecting the other parts.

Let us now move to the second issue.

5.2.2. Telicity and quantisation

While the distinction between cumulativity and quantisation as proposed in Krifka (1989) is today the most extended definition of the atelic - telic distinction, not even in Krifka (1989) is it intended to substitute the notion of telicity. In fact, in Krifka (1998) he notes that quantisation is a stricter notion than telicity, in a way that every quantised predicate is telic but not every telic predicate is quantised. Krifka (1998) puts it like this:

It is obvious that quantized predicates are telic: If a quantized predicate X applies to some event e , then it does not apply to any proper part of e , hence the only e' such that $X(e')$ and $e' \leq e$ is e itself, which is both an initial and final part of e . But not every telic predicate is quantized; quantization is the stricter notion. For example, assume that X is a predicate that applies to all events that have a run time from 3 p.m. to 4 p.m.; X is telic, but not quantized.

Remember in this sense the definition of quantised, repeated here:

$$(287) \text{QUA}(P) \leftrightarrow \forall x,y[P(x) \ \& \ P(y) \ \rightarrow \ \neg y \prec_p x]$$

If in order to be quantised a predicate must include both the initial and final boundaries of the event, then it is clear that telic predicates involving for instance manner of movement events with an endpoint will not fall in the definition of quantisation: take a predicate like the following.

(288) walk home

Say that the event of walking home starts at three in the evening and goes up to four in the evening. A proper subpart of this event, that includes the culmination point, will be the stretch of walking between three thirty and four, which also finishes in the intended location. The predicate 'walk home' also applies to this event, which can be described with it because the truth conditions apply, but then the predicate is not quantised, but cumulative.

This means, then, that telicity in a broader sense has to do with endpoints more than about quantisation, even if the clearest cases of telicity might also involve quantisation.

Rothstein (2004) notices other problems with the use of quantisation. Specifically, she notes that a predicate of the type that Krifka (1989) considers sensitive to quantisation can be telic even when the object that should measure it is cumulative. Remember the definition of cumulative:

$$(289) \text{ CUM}(P) \langle \text{---} \rangle \exists x,y[P(x) \ \& \ P(y) \ \& \ \neg x = y] \ \& \ \forall x,y[P(x) \ \& \ P(y) \ \text{--} \rightarrow P(x \oplus_P y)]$$

A predicate is cumulative if its proper subparts can also be claimed to fall in the denotation of the predicate, and the sum of two entities described with the predicate can also be described with the same predicate. In this sense, note the following predicate, which is clearly telic:

- (290) Juan construyó algunas casas.
Juan built some houses

As a creation verb, we expect the direct object to delimit the event. However, *some houses* is cumulative, not quantised: two sets described as 'some houses' can be put together and they can still be described as 'some houses', and we could also take a subset of the set described as 'some houses' and it could also be 'some houses'. Another case in point is some numerals modified by *al menos* 'at least'.

- (291) Juan leyó al menos tres libros.
Juan read at least three books

Strictly speaking, if we take the set described as 'at least three books' and add to it three more books, the set can still be described as 'at least three books'. The final case of cumulative object that still telicises the event is noted by Krifka himself, after observations by Barbara Hall Partee, and refer to count nouns whose internal parts can still be described with the same predicate as the ones in the following list:

- (292) secuencia 'sequence', serie 'series', lista 'list', cadena 'chain'

Take the following sentence, also telic, and also involving a creation verb:

- (293) Juan escribió una serie de nombres.
Juan wrote a series of names

If we take a portion of a series of names, at least one that is long enough, we still have a list of names, which means that on the strict definition that direct object is described with a cumulative predicate.

This type of counterexamples in the class of verbs that one expects to be most sensitive to the quantised vs. cumulative contrast is interpreted by Rothstein (2004) as

meaning that quantisation is not a good starting point to define the grammatically relevant notion of telicity, because telicity does not have much to do with quantisation even when the verb is expected to be delimited or not through the part-whole divisions of the object. Rothstein's (2004: 157) position is that telicity has to do with atomicity and the nature of countability. A verbal predicate counts as telic if it denotes a set (possibly a singleton) of countable events; the event is countable only if its description gives criteria to determine what counts as an atomic event, to individuate one atomic event from the other. Otherwise, the event is atelic.

The idea is not difficult to understand; let us go back to one of the standard contrasts between telic and atelic events.

- (294) a. Juan corrió un kilómetro.
 Juan ran a kilometer
 b. Juan corrió.
 Juan ran

The event of running is in itself atelic because the predicate does not provide enough information to let us know what would count as an atomic, individuated single event of running –in other words, how long is a stretch of time showing someone moving that would count as a natural atom of running–. In contrast, when the predicate includes 'a kilometer', that predicate can be used as a criterion to individuate the event of running in a natural way: 'running one kilometer' is defined as an atomic event because it contains information about how we can individuate it and count it, namely the stretch in space that has to be covered for the event to be true.

Note that the criterion is not whether a predicate is homogeneous or not, because of examples involving nouns like *secuencia* 'sequence', which are homogeneous. What is crucial for this noun so that it makes a telic predicate is that it is a count noun, even if it is homogeneous. In other words, the problem is linguistic and does not have anything to do with the real world knowledge: count nouns like *secuencia* 'sequence', *valla* 'fence' or *montón* 'pile' are homogeneous but they can telicise an event.

Thus, telicity is a very complex notion to define, a point that we will see again in §6.2, §7.2 and §8.2, when we discuss classes of events with beginning boundaries but not end boundaries, achievements and telicity without quantisation. The different positions emerge because in the domain of accomplishments one finds a real empirical generalisation: the properties of internal arguments, in terms of their part-whole structure or their atomicity, are crucial in defining some verb classes, like creation verbs, as telic. The challenge, then, is to find a way of putting the information of some internal arguments and the one of the verb together, and that involves determining which dimensions of meaning play a role and what mechanism allows the verb to read those dimensions of meaning, which is a general problem which we will pay attention to in §8. Now let us move to the final issue that we will discuss about accomplishments.

5.2.3. Results with accomplishments?

In this section we want to address the question of whether accomplishments can codify in their lexical meaning a result state –what Parsons (1990) called 'target state', which is a reversible state–. If the question is answered negatively, the consequence will be that the only telic predicates that can codify a result state in their lexical meaning are achievements. Spoiler: we will show that, even though most accomplishments lack a result state, there is at least one verb class of accomplishments that has a result state codified in their lexical meaning.

Let us start by reminding the reader, briefly, of what we are looking for (§3.2.2 for details). The type of result state that we have in mind is one that is codified within the meaning of the verb, and therefore can be accessed without the verb undergoing a grammatical aspect change such as building a participle. This type of result state is reversible and therefore can be measured with a for-phrase. Consider this sentence:

- (295) Juan entró en su casa durante unas horas.
Juan entered in his house for some hours

The for-phrase does not measure how long the entering process took –it is not interpreted as Juan entering different parts of his body, little by little, in the course of some hours–, but tells us that Juan stayed home for some hours, that is, it measures how long Juan stayed in a result state that follows his entering. Note, crucially, that this result state is accessible for modification without the verb adopting any marked grammatical aspect: the infinitive allows for the same reading.

- (296) entrar en casa durante unas horas

Thus, the verb codifies itself the result state. Obviously, *entrar* 'enter' is an achievement verb –see §6.1 for tests if you are uncertain–, and the question is whether accomplishment verbs can have the same result state, which can only be determined through the empirical tests.

It is of course impossible to test all candidate verbs for accomplishment, so we will concentrate on the main classes that belong to this aspectual group and see how the for-phrase is interpreted.

Consider the reading of creation verbs: in principle, we could imagine that an object is created and as a result we obtain that object, which perhaps can exist only for some time (and then disappear). However, this is not the reading that we obtain with a for-phrase, as the for-phrase in these predicates can only be interpreted (if possible at all) as measuring the duration of the creation event.

- (297) a. Juan hizo una pompa de jabón durante un minuto.
Juan made a bubble of soap for one minute
Not: 'The bubble existed for one minute'
b. El mago creó una silla durante un minuto.
the magician created a chair for one minute
Not: 'The whole chair existed for one minute'
c. Juan construyó una casa durante un mes.
Juan built a house for one month
Not: 'The house stayed built for one month and then it was destroyed'

The same happens with verbs of destruction where the object measures through its mereological parts the destruction: we cannot interpret that the object ceased to exist for some time and then reappeared even when that is possible in the real world.

- (298) a. Juan destruyó el castillo de arena durante unas horas.
Juan destroyed the castle of sand for some hours.
Not: 'The castle of sand disappeared for some hours and then was rebuilt'
b. Juan consumió su sueldo durante una semana.
Juan consumed his salary for one week

Not: 'Juan ran out of money for one week and then got his next salary'

The same goes for verbs of incremental change:

- (299) a. Juan pintó la pared de rojo durante una semana.
Juan painted the wall in red for one week
Not: 'The wall was red for one week and then was painted in some other colour'
- b. Juan humedeció la ropa durante una hora.
Juan wetted the clothes for one hour
Not: 'The clothes stayed wet for one hour and then dried'

The same, again, happens with movement verbs with a termination point:

- (300) a. Juan corrió a su casa durante una hora.
Juan ran to his house for one hour
Not: 'Juan stayed home for one hour'
- b. Juan viajó a Madrid durante un mes.
Juan travelled to Madrid for one month
Not: 'Juan stayed in Madrid for one month'
- c. Juan arrastró la cama a la ventana durante un día.
Juan dragged the bed to the window for one day
Not: 'The bed stayed next to the window for one day'

Achievement verbs of these classes do have a result state:

- (301) a. El fantasma apareció durante una hora.
the ghost appeared for one hour
- b. La tele se rompió durante una semana.
the TV broke for one week
- c. Juan se puso enfermo durante una semana.
Juan SE got sick for one week
- d. Juan subió a casa durante una hora.
Juan arrived to home for one hour

Another test is that verbs that denote a result allow the result reading of a stative complement. Note that with achievements, that denote a result, it is possible to take an in-complement and interpret it as the result location or the result of change:

- (302) a. Juan entró en la casa.
Juan entered in the house
- b. Juan rompió el jarrón en mil pedazos.
Juan broke the vase in thousand pieces

Activity verbs interpret these complements as a location for the process, not as a result:

- (303) a. Juan corrió en la casa.
Juan run in the house
'Juan ran within the house'
- b. Juan rodó en la casa.

Juan rolled in the house
'Juan rolled within the house'

Accomplishment verbs of the classes mentioned do not license these result readings:

- (304) a. Juan escribió la carta en la mesa.
Juan wrote the letter on the table
Not: 'The letter ended up on the table'
b. Juan quemó la carta en la chimenea.
Juan burnt the letter on the chimney
Not: 'As a result of burning, the letter ended up in the chimney'
c. Juan pintó la pared en la casa.
Juan painted the wall in the house
Not: 'As a result of painting, the wall ended up in the house'

Note that in some cases that might be analysed as accomplishments and have a result state, what we have underlyingly is an achievement that somehow gets repeated in time, giving an idea of iteration that provides the event with temporal extension. However, this duration is not codified in the semantics of the verb, but emerges as a result of viewpoint aspect that codifies a sequence of events forming a macroevent. Consider for instance verbs of putting:

(305) colocar 'place', poner 'put', asentar 'sit', instalar 'locate', mudarse 'move', situar 'locate', disponer 'dispose', alinear 'align', colgar 'hang'...

These verbs are achievements (see the tests in §6.1), as for instance their incompatibility with *completamente* 'completely' shows, because even though they are telic they denote situations that happen instantaneously and therefore there is no chance that the event remains half done.

- (306) a. Juan colocó (*completamente) el libro en la estantería.
Juan placed (completely) the book on the shelf
b. Juan colgó (*completamente) el cuadro en la pared.
Juan hanged (completely) the painting on the wall

These events are true only when the object is finally located in the intended place. They do have result states that can be measured:

- (307) a. Juan dejó el libro en la mesa durante una hora.
Juan left the book on the table for one hour
b. Juan colgó el cuadro en la pared durante una hora.
Juan hanged the painting on the wall for one hour

If the object is plural, we can obtain an iterative reading provided that each object is placed at a different time, and that gives the impression of accomplishment, but the verb itself is not an accomplishment but an achievement.

- (308) Juan colocó los libros en la estantería durante una hora.
Juan placed the books on the shelf for one hour

The same –they are achievements, but with the right plural object they are iterable events that can take some time to complete– happens with verbs of transfer, such as the following:

(309) vender 'sell', comprar 'buy', dar 'give', donar 'donate', ceder 'pass', pasar 'pass', heredar 'inherit'...

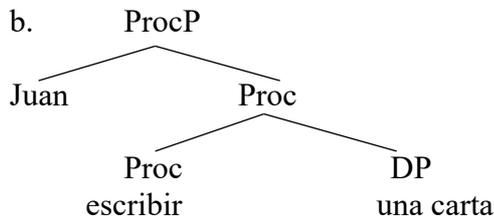
They are achievements because they express events that are only true when the intended object has passed to the new owner or the new location (cf. the ungrammaticality of **dio el libro completamente a Juan*, 'gave the book completely to Juan'). Again, in order to get a duration component we need iteration.

(310) Juan vendió sus posesiones a Juan durante un año.
 Juan sold his possessions to Juan for one year

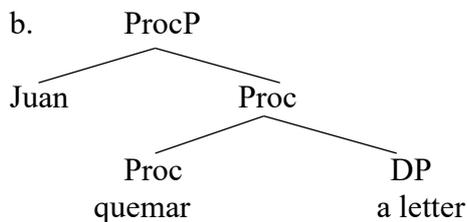
Here we can conceive of an accomplishment interpretation by interpreting that each possession was sold at a different time for a whole year. Note that here, as in other cases, the Imperfective Paradox does not emerge because the for-phrase is acting over an iteration of telic events without duration.

Ramchand (2008) tries to explain this incompatibility between result states and accomplishments as follows. Accomplishment verbs, following a strong quantisation theory, require that the complement of the event-defining head (Process) is an entity with mereological parts, and bounded. Created objects, destroyed objects, objects subject to incremental change and paths of movement are all located in this position:

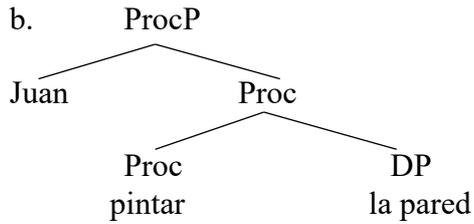
(311) a. Juan escribe una carta.
 Juan writes a letter



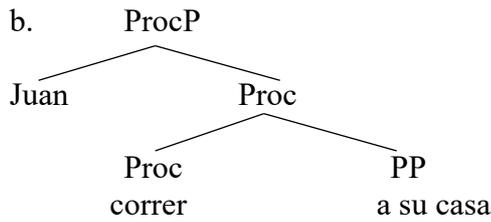
(312) a. Juan quema una carta.
 Juan burns a letter



(313) a. Juan pinta la pared.
 Juan paints the wall

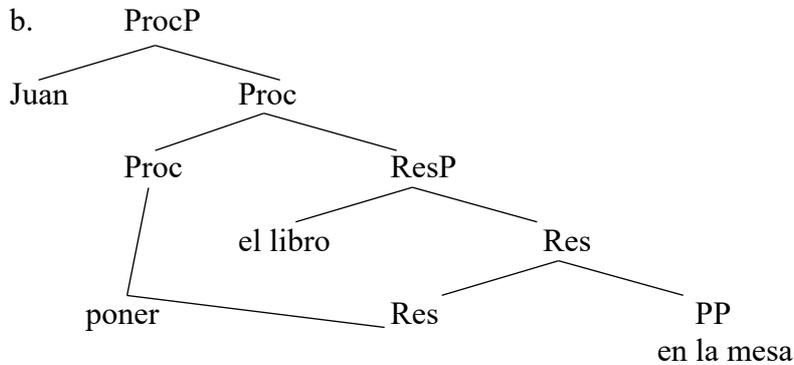


- (314) a. Juan corre a su casa.
Juan runs to his house

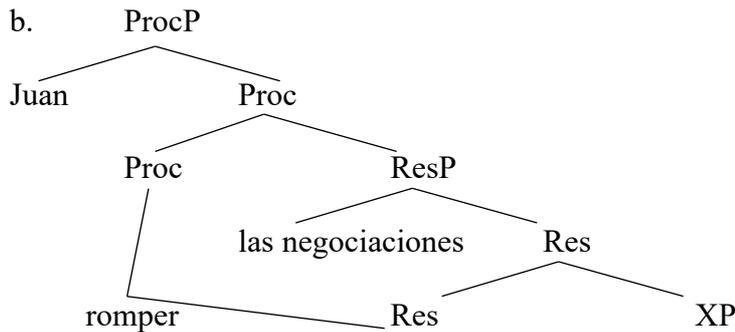


The same position, object of ProcP, is the one that a state head has to occupy in order to be interpreted as the result obtained after the event is performed. Consequently, either one or the other appears. The stative head (Result) takes the entity that ends up in the relevant state as specifier.

- (315) a. Juan puso el libro en la mesa.
Juan put the book on the table



- (316) a. Juan rompió las negociaciones.
Juan broke the negotiations



This result head is the one that allows for-modifiers with the relevant interpretation; as it is not present in accomplishments, accomplishments do not denote result states by themselves.

Note, further, that in the case of verbs with a result state the verb itself identifies both process and result. For Ramchand (2008) this has an immediate consequence that defines them as achievements: if a verb, that will be later inflected for tense, identifies simultaneously process and result the semantic interpretation that is imposed is that process and result must happen at the same time, that is, the process must be instantaneous. This, immediately, forces the achievement interpretation.

Therefore, in this theory, accomplishments cannot have a result state because for the result state to be present the process must be interpreted simultaneously to the result and the verb would be defined as an achievement. Conversely, all achievements will have to contain a result state, because otherwise they would not be interpreted as instantaneous processes.

However, there are accomplishments with a result state, as we will try to argue now. There is at least one class that I managed to identify where we have processes that take time and where there is a result state. This class is the one formed by verbs that denote dismantling entities.

(317) *desarmar* 'dismantle', *desmontar* 'put apart', *desmantelar* 'dismantle' (contrast them with achievement verbs like *separar* 'separate', *descomponer* 'decompose')

Consider the following example:

(318) Juan desarmó la bicicleta.
Juan dismantled the bike

This verb is telic and has a temporal duration, as can be shown by the compatibility with *parcialmente* 'partially' and *completamente* 'completely'. The reason is that it is in principle possible to start dismantling an object at some point and leave the event half done.

(319) a. Juan desarmó la bicicleta en una hora.
Juan dismantled the bike in one hour
b. Juan desarmó parcialmente la bicicleta.
Juan dismantled partially the bike
c. Juan desarmó completamente la bicicleta.
Juan dismantled completely the bike

The progressive produces, unlike the cases of an iterated event, the Imperfective Paradox:

(320) Juan está desarmando la bicicleta.
Juan is dismantling the bike

Note now that there is a result state given our two tests:

- (321) a. Juan desarmó la bicicleta durante una hora.
Juan dismantled the bike for one hour
'Juan was dismantling the bike, piece by piece, for one hour'
or
'The bike was dismantled for one hour, and then he put it back together'
- b. Juan desarmó la bicicleta en sus partes componentes.
Juan dismantled the bike in his parts components

This means that Ramchand's (2008) prediction, that a predicate can be telic by two distinct and incompatible ways –a bounded incremental theme or a result state– is not true, as some verbs can contain both. This presents a serious syntactic problem for her theory, given that both results and bound incremental themes should appear at the same location. It should then be possible to somehow have both at the same time; one option would be to accept that Proc can come in two flavours, with and without result state, so that there verbs can have the more complex version and their complement is the incremental theme. Another option is to allow incremental themes to appear as second complements.

As a side note, note that it is not true either that all achievement verbs have a result codified. I know at least of one example where the empirical tests do not support this claim: *llegar* 'arrive'. Note first that in contrast with other directional motion verbs, the for-phrase is impossible.

- (322) a. Juan bajó al sótano durante una hora.
Juan went.down to the basement for one hour
'Juan stayed in the basement for one hour'
- b. *Juan llegó a casa durante una hora.
Juan arrived to house for one hour
Intended: 'Juan stayed home for one hour'

Note also that this verb does not allow a place complement with *en* 'in' to get interpreted as a result location, and requires a preposition like *a* 'to'.

- (323) a. Juan subió en el coche.
Juan went.up in the car
'Juan entered the car'
- b. *Juan llegó en su casa.
Juan arrived in his house
Intended: 'Juan arrived home'

Another similar case is *descubrir una vacuna* (Rafael Marín p.c.), 'to discover a vaccine'. Thus, the second side of the story –that achievements are defined when a verb identifies both a result and a process– does not seem to cover all empirical cases either.

Here we wrap up our discussion of accomplishments and move now to achievements.

6. Empirical aspects (4): properties and tests for achievements

Achievements are also a complex class of predicates. The way in which they are differentiated from all the other classes is their punctuality: while all other kinds of events require some extension of time to be verified, and while states can be predicated without iteration from a subject, achievements are defined as situations that happen

instantly. This, as we will see, opens up for a number of problems, which we can summarise in the following list, that will be discussed in §6.2.

a) How does one formalise the intuition that a situation described with a verb like *explotar* 'explode' is instantaneous, in a language that also allows expressing the intuition that other events, like *escribir* 'write' are not instantaneous?

b) Does the fact that they involve instants make them, in some way, not be full events?

c) Once we determine that they are instantaneous, are those instants preceded or followed by extended events?

But before we address these questions, we need to get a clearer understanding of why they are considered to be instants, and for that we should look at the tests that have been proposed to identify them.

6.1. Tests for achievements

Tests for achievements generally tend to aim at identifying the absence of a proper temporal extension for the predicate, as they are defined specifically by being punctual. Many of these tests have been proposed in Piñón (1997), but see also Dowty (1979), De Miguel (1999). The first test is that achievements, being telic, allow for the combination of in-phrases, but their reading is different from the one obtained with accomplishments. If in accomplishments the in-phrase is interpreted as measuring the running time of the event from its beginning to its end, in achievements the in-phrase measures how much did it take for the event to start (and finish, at immediately adjacent temporal points).

- | | | |
|----------|--|----------|
| (324) a. | Juan apareció en una hora. | Punctual |
| | Juan appeared in one hour | |
| | b. Juan escribió la carta en una hora. | Durative |
| | Juan wrote a letter in one hour | |

For this reason, in-phrases are synonymous with after-phrases with achievements, but not with accomplishments:

- | | | |
|----------|--|----------|
| (325) a. | Juan apareció después de una hora. | Punctual |
| | Juan appeared after of one hour | |
| | b. Juan escribió la carta después de una hora. | Durative |
| | Juan wrote the letter after of one hour | |

The second test refers to the interpretation of the progressive form, which contra Vendler (1957) is compatible with achievements but (as he perhaps meant) does not have a continuous interpretation. With durative predicates, the progressive picks any point in the internal temporal duration of the event, provided that the starting and the finish point are excluded. In the case of achievements, the progressive periphrasis has a prospective flavour: the period of time that is picked by the progressive, given that the event itself does not have an internal duration, is the time preceding the event itself. Sometimes this period is known as the preparatory stage for the event because it is assumed that, in a natural course of events, the situation picked will lead to the event.

- | | | |
|----------|------------------------|----------|
| (326) a. | Juan se está muriendo. | Punctual |
|----------|------------------------|----------|

- Juan SE is dying
 b. Juan se está comiendo un bocadillo. Durative
 Juan SE is eating a sandwich

Thus, in the first sentence we pick one temporal point of a situation that precedes the dying and that, unless something unexpected happens, will lead to Juan's death. In the second case, on the other hand, we are picking a point within the internal progression of Juan's eating, which has already started but has not finished yet. For this reason, the first sentence but not the second is synonymous with the use of an imminence periphrasis like *estar a punto de* 'to be about to'.

- (327) a. Juan está a punto de morir. Punctual
 Juan is to point of die.
 'Juan is about to die'.
 b. Juan está a punto de comerse un bocadillo. Durative
 Juan is to point of eat a sandwich
 'Juan is about to eat a sandwich'

The third test is that, given that achievements lack temporal extension, they cannot be compatible with *for*-phrases (unless they, as in some accomplishment, measure the duration of the result obtained):

- (328) a. *Juan llegó durante dos horas. Punctual
 Juan arrived for two hours
 b. Juan leyó el libro durante dos horas. Durative
 Juan read the book for two hours

The same applies to any auxiliary that measures the duration of an event:

- (329) a. *Llevo dos horas llegando. Punctual
 carry two hours arriving
 'I have been arriving for two hours'
 b. Llevo dos horas haciendo la cena. Durative
 carry two hours preparing dinner
 'I have been preparing dinner for two hours'

In the following example, the *for*-phrase is compatible with the achievement, but it does not measure the time where the person was disappearing bit by bit, but the result of that event: how long he was disappeared.

- (330) Juan desapareció durante dos meses. Punctual
 Juan disappeared for two months

The fourth test shows that achievements, for the exact same reason, reject predicates that measure how long it took for an event to reach its culmination: in achievements that length is trivially an instant, so to the extent that the predicates are interpretable they measure the preparatory stage, or for how long the event was delayed from an expected completion time.

- (331) a. #Tardó dos horas en llegar. Punctual
 lasted two hours in arrive
 b. Tardó dos horas en operar al paciente. Durative
 lasted two hours in operate the patient

In a sense, achievements express events that start and finish at the same point in time, so for them it is not informative to single out the starting point –which coincides with the point where the event happens– or the finish point –because the same point is the starting point–. This makes auxiliaries that pick the starting point or the endpoint of an event not compatible with these verbs, unless some modal interpretation is added to them.

- (332) a. *Juan empezó a llegar. Punctual
 Juan started to arrive
 b. Juan empezó a viajar a su casa. Durative
 Juan started to travel to his house
 (333) a. *Juan acabó de aparecer. Punctual
 Juan finished of appearing
 b. Juan acabó de vestirse. Durative
 Juan finished of dressing

An example of a modal reading with *terminar* 'finish' is shown below, where one interprets that the death was now a real death, while Juan's status before that was similar to being dead but not strictly so.

- (334) Juan terminó de morir aquella noche. Punctual
 Juan finished of die that night

The next test is the interpretation with *casi* 'almost': it is impossible to interpret with achievements that the event almost finished but was started, unlike the case of accomplishments.

- (335) a. Juan casi entró. Punctual
 Juan almost entered
 'Juan almost initiated the entering'
 but not #'Juan initiated the entering and almost entered completely'
 b. Juan casi viajó a Roma. Durative
 Juan almost travelled to Rome
 'Juan almost initiated a trip to Rome'
 'Juan initiated a trip, and almost arrived to Rome'

The seventh test (Rodríguez Ramalle 2001) refers to the incompatibility with manner modifiers. As manners in which an action is performed are visible in how the process underlying to them is performed, achievement verbs that lack an internal progression are not semantically compatible with these elements. Thus, adjectives expressing manner of developing a process, such as *cuidadosamente* 'carefully', *ansiosamente* 'anxiously', *con tranquilidad* 'with calm', are out; in contrast, modifiers that determine whether something happened in an unexpected way or not or whether something that happened persists in time or not are allowed by achievements.

- (336) a. *Juan encontró el reloj cuidadosamente. Punctual
Juan found the watch carefully
b. Juan montó el reloj cuidadosamente. Durative
Juan armed the watch carefully
- (337) a. Juan alcanzó su meta casualmente. Punctual
Juan reached his goal casually
b. Juan encontró el reloj accidentalmente.
Juan found the watch accidentally

The eighth test refers to the incompatibility with modifiers like *completamente* 'completely' or *parcialmente* 'partially'. The reason is that, as achievements denote events that happen in instants, they get completed as soon as they start, and therefore they don't give the chance of being half-performed. A modifier like 'partially' is then contradictory with their meaning and one like 'completely' is redundant.

- (338) a. *Juan nació parcialmente.
Juan was born partially
b. *La bomba explotó completamente.
the bomb exploded completely

However, remember §2.4: it is possible to some extent to accommodate these adverbs when they do not modify the completion of the event, but take some scalar notion accessible in one of the event participants or in the event itself. Two relevant examples are verbs of disappearing or appearing, when one can turn that event into a gradable property, or verbs of location where the modifier determines whether the whole body or only a part of it moved to the intended location:

- (339) a. El fantasma apareció parcialmente.
the ghost appeared partially
'The ghost started forming but did not appear completely'
b. La aguja entró completamente en el cuerpo.
the needle entered completely into the body
'The whole needle, and not only the tip, entered the body'

Let us now move to the problems posed by achievements.

6.2. Properties of achievements

With some particular exceptions noted in §5.2.3 above, achievement verbs codify a result state, so they are –in contrast to manner verbs, remember §4.2.1– result verbs. This makes it possible that, with verbs expressing change, achievements can suppress the external argument that brings about the change and appear in an intransitive version, the one that is known as the anticausative or inchoative construal (see Fábregas 2021 for a detailed overview of this construction). The following pairs of sentences involve achievements both in their causative - transitive and in their anticausative - intransitive version.

- (340) a. Juan secó el calcetín.
Juan dried the sock
b. El calcetín se secó.
the sock SE dried

- (341) a. Juan vació la piscina.
 Juan emptied the swimming-pool
 b. La piscina se vació.
 the swimming-pool SE emptied
- (342) a. Juan rompió el cristal.
 Juan broke the glass
 b. El cristal se rompió.
 the glass SE broke

The reason in theories that differentiate between manner and result roots (see §4.2.1) is that verbs that codify a result do not codify a manner; external arguments are required to codify manners, because the causers, agents or initiators are those that control the manner given their internal properties. If the verb expresses a result, the result requires a patient, theme or undergoer, but does not require necessarily an external causer, so it can be suppressed resulting in an anticausative construal.

This does not mean, however, that all achievement verbs express results (contra Ramchand 2008), and consequently it does not mean that all achievement verbs can have an inchoative or anticausative construal. There is a whole class of achievements, which denote the act of finding something, that are transitive, do not express a result and do not allow an anticausative pair.

(343) encontrar 'find', hallar 'find', acertar 'find out the right one', descubrir 'discover', detectar 'detect', localizar 'locate', revelar 'reveal'...

- (344) a. Juan encontró oro.
 Juan found gold
 b. Juan encontró oro durante una hora.
 Juan found gold for one hour
 Not: 'The gold was found and disappeared after one hour'
 c. #El oro se encontró.
 the gold was found
 Not: 'The gold appeared'

Another group of achievements that lack an anticausative pair being transitive and do not have a result are verbs of violent contact: in contrast with *tocar* 'touch', that allows a result component, the following verbs reject that result state –and note that even 'touch' rejects an anticausative version–:

- (345) a. Juan tocó la mano de María durante un rato.
 Juan touched the hand of María for a while
 'Juan touched the hand repeatedly'
 or
 'Juan was in contact with Maria's hand for a while'
 b. #La mano se tocó.
 the hand se touched

(346) chocar 'crash', colisionar 'collide', apuñalar 'stab', abordar 'board', embestir 'charge', cornear 'hit with the horns', estrellar 'hit', asaltar 'assault', empitonar 'to stab with the horns', pinchar 'prick', picar 'stab'...

- (347) a. #Juan chocó las manos durante una hora.
Juan hit the hands for one hour
'Juan repeatedly clapped his hands for one hour', not 'The hands were in constant contact for one hour'.
b. #La nariz se picó.
the nose SE stabbed

Thus, the correlation between achievements and result states is as imperfect as the one between manners and activities. Let us now move to the problems that we have chosen for these verbs.

6.2.1. How to codify punctuality

Starting with the problem of punctuality, the main issue is how one can codify in a semantic language the intuition that achievements are instantaneous, in the strict sense. They denote changes that happen in one single instant, and not in a very short time interval; theories such as Dowty (1979), Smith (1991), Parsons (1990) or Verkuyl (1993) treat achievements as transitions that happen in a very short span. For instance, Verkuyl (1993: 48-50) explicitly proposes that achievements should be interpreted as very short accomplishments, and that accomplishments and achievements form only one class with respect to grammatical criteria; the distinction might be relevant for philosophical or ontological purposes (logical relations), but it is not valid when one thinks as aspectual composition. See also §8.2, in the context of Dowty's (1979) aspect calculus through abstract predicates.

Other theories explicitly treat achievements as predicates of instants, treating them as culmination points (Mourelatos 1978, Moens & Steedman 1988, Binnick 1991, Kamp & Reyle 1993). Piñón (1997) puts the problem as follows: if achievements denote changes, they cannot be instantaneous in the strict sense, because for a change to be verified one needs at least to consider two instants, one that shows a situation A and one that shows a situation B. Without A, B might be a state not showing any internal change, and without B, A can continue indefinitely not showing any type of internal change.

Thus, achievements would be events occupying very short intervals (consisting of one single transition) if they denoted changes. But that would mean that they are not punctual because they do not involve single instants. The evidence, however, shows that they are instantaneous. In the set of tests that we presented in §6.1 there are two tests that are very difficult to understand unless one accepts that achievements are indeed instantaneous: the progressive and the in-phrase interpretation.

If achievements occupied very short intervals, we should be able to have an ongoing reading ('slow motion' reading) in the progressive, because that short interval has an infinite number of instants. However, that is not possible: remember that the progressive gets interpreted as a preparatory stage which makes it semantically similar to 'to be about'.

- (348) Juan está llegando.
Juan is arriving
(349) Juan está a punto de llegar.
Juan is at point of arrive
'Juan is about to arrive'

Second, if achievements were small intervals, we should expect that some in-phrases like 'in one instant' should be able to measure it, but again these in-phrases are interpreted as the time that the event is delayed counted from an implicit time point, and are equivalent to after-phrases.

(350) Juan llegó en un instante.

Juan arrived in one instant

(351) Juan llegó tras un instante.

Juan arrived after one instant

Piñón (1997) notes that a semantic language in terms of intervals is unable to codify achievements because it is hardwired to conceive of events as time-occupying objects: in contrast, an achievement is a predicate located in time but that takes no time at all to be fulfilled.

His proposal to codify the instantaneous nature of achievements is that they should be considered the initial or final boundaries of interval-occupying events. As a boundary is a pure instant that (even when iterated) does not produce an interval, this approach allows us to codify achievements as purely instantaneous objects. In his words, the logic of achievements is the logic of initial and final points of events.

For illustration, consider the following predicate:

(352) Juan alcanzó la cima.

Juan reached the summit

What the predicate codifies is the end boundary of a longer change, the one that involves Juan moving through some path that goes upwards in the direction of the summit. The change itself, which is Juan's displacement, is not codified directly by the predicate, which only mentions the endpoint –that predicate presupposes a previous event of change, but does not describe it–.

In order to formalise this distinction, Piñón (1997) proposes that event structure contains two types of objects, boundaries and happenings. Happenings are eventualities, both processes and states, that is 'thick objects' that are mapped to a temporal extension or intervals. Boundaries are the starting or ending point of those happenings, and as such they are thin objects, pure points that are mapped to instants. Let us represent boundaries visually as [and], and bodies as lines:

(353) [-----]

A basic eventuality is defined as a happening h or (inclusive) a boundary b of a happening:

(354) $\lambda x[h(x) \vee b_h(x)]$

Simplifying things a bit, the boundary of a happening is defined as a thin object (Thn) that is part of a thick object (Thk):

(355) $\lambda x[\text{Thn}(x) \ \& \ \exists z[\text{Thk}(z) \ \& \ x \subseteq z]]$

The boundary can be the initial or final part of a happening. The definition of initial boundary is the boundary part of a happening that is not preceded by any instant

contained in that boundary, and of course the final boundary is the boundary that is not followed by any instant of that same happening.

(356) Left boundary (beginning)

$$\text{Beg} := \lambda x \lambda y \lambda X (\text{b}_h(X) \wedge \text{Ev}(y) \wedge \text{Lf-Bd}(x, y) \wedge X(y) \wedge \neg \exists z (z \ll y \wedge X(z \oplus y)))$$

That is, a boundary x begins an eventuality y of type X if there is no eventuality z temporally preceding y whose sum with y produces an eventuality of type X . A small modification of this formula gives us the ending boundary of an eventuality.

(357) Right boundary (end)

$$\text{End} := \lambda x \lambda y \lambda X (\text{b}_h(X) \wedge \text{Ev}(y) \wedge \text{Rg-Bd}(x, y) \wedge X(y) \wedge \neg \exists z (y \ll z \wedge X(z \oplus y)))$$

Importantly, the achievement codifies the boundary of a happening, but the happening has to be presupposed in the semantics of the achievement, even if it is not codified directly in the predicate. See also Smith's (1991) treatment of achievements as opposed to semelfactives in §7.1, where she also makes the claim that achievements can be associated to previous states or result states. This means that boundaries do not have existence of their own as autonomous objects, and can only appear as parts of happenings.

One important consequence of this definition of achievement as a punctual object is that it allows to derive achievements from interval-occupying verbs. All that is required is to take an interval occupying event and add to it an operator that only selects the initial or final point. This is precisely what some aspectual verbs such as *empezar* 'begin' and *terminar* 'finish' do:

- (358) a. Juan empezó a leer el libro.
 Juan started to read the book
 b. Juan terminó de leer el libro.
 Juan finished of read the book

Note that these complex constructions with a phase verb behave as achievements with respect to the standard tests: the progressive is interpreted as taking the moments that immediately precede the start or finish and the in-modifier is interpreted as a delayed event.

- (359) a. Juan estaba empezando a leer el libro.
 Juan was starting to read the book
 b. Juan estaba terminando de leer el libro.
 Juan was finishing of read the book

In the first situation, we imagine Juan sitting down, opening the book, perhaps taking a look to the index, but he has not started yet the reading; in the second, we imagine Juan close to the end, but he has not arrived there yet. The same goes for in-modifiers, which are equivalent to after-modifiers:

- (360) a. Juan empezó a leer el libro en un minuto.
 Juan started to read the book in one minute
 b. Juan terminó de leer el libro en un minuto.
 Juan finished of read the book in one minute

presuppose a previous happening, like *morir* 'die', which presupposes a previous state of being alive, but this is not the case with all of them:

- (365) a. Juan no llegó a casa.
Juan not arrived to home
b. ¿Llegó Juan a casa?
arrived Juan to home?
c. Si Juan llega a casa, encontrará a María.
if Juan arrives to home, will.find A María

The speaker that says these sentences does not necessarily assume that Juan started moving home at some point. These sentences are perfectly compatible with a speaker that entertains the possibility that Juan has forgotten that he had to go home that evening and is still in the office or some other location. Thus, it is not clear that achievements always presuppose their associated events, which might mean that a boundary should be able to be defined as an independent object and appear in a lexical entry without its happening. See §7.2 for some of these potential cases.

6.2.2. Achievements and dynamicity

There is one potential consequence of the definition of achievements as instantaneous events that is relevant in the context of the relations between the lexical aspectual classes: if achievements do not express a change because changes need to consider at least two instants and achievements are only one instant, are achievements dynamic? If our definition of dynamicity is based on the notion of change, it logically follows that a verb that does not express a change is non dynamic. Moreover, note that the Strict Subinterval condition is trivially satisfied by achievements if they are instants, because the only instant that they cover –and which is atomic, indivisible– satisfies the definition of the predicate.

To put things in a more linguistic perspective, consider the tests that we applied to states and which identify non dynamicity, and see how they work with achievements.

The progressive, as we saw, obtains a marked reading with achievements; this is not different from what happens with statives, as many stative verbs allow the progressive provided that a marked reading is obtained. For-modifiers and in-modifiers also produce marked readings with achievements –in one case, they measure a result or trigger an iterative reading and in the other they trigger a delayed event reading– and the *hacerlo* 'do it' test is generally out too:

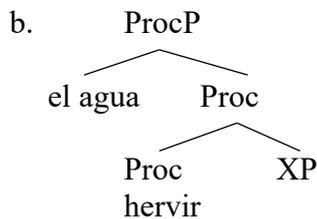
- (366) a. Lo que Juan hizo fue {viajar / ??llegar a casa}.
that which Juan did was travel / arrive to home
b. Lo que Juan hizo fue {escribir / ??morirse}.
that which Juan did was write die
c. Lo que el niño hizo fue {jugar / ??nacer}.
that which the child did was play be.born

One could say that achievements are out not because they do not express events, but because normally these events do not define initiators –the subject is a patient, in a loose sense–, and *hacer* requires initiators. There are two problems with this answer: first, if we reject *hacer* for this reason, which test will replace it? Note that an expression like *pasar* 'happen' is not good enough because it also allows states:

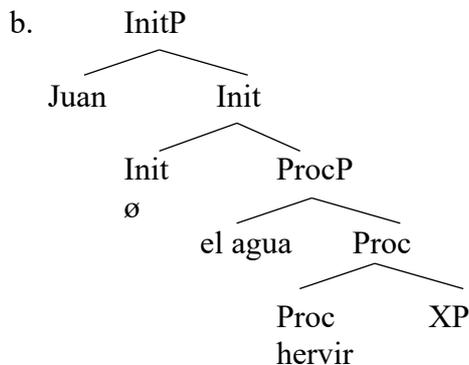
- (367) a. Lo que pasaba es que Juan estaba enfermo.
 that which happened is that Juan was sick
 b. Lo que pasó es que Juan murió.
 that which happened is that Juan died

The second problem is that according to some theories, like Ramchand (2008), achievements do have initiators that start the situation by their internal properties. This is the way in which Ramchand (2008) explains that achievements, contra other predicates, cannot be causativised. In his approach, a verb like *hervir* 'boil' has two interpretations because its basic version is not causative, and it can combine with a causative head –in her theory, Init(iation)–:

- (368) a. El agua hierve.
 the water boils

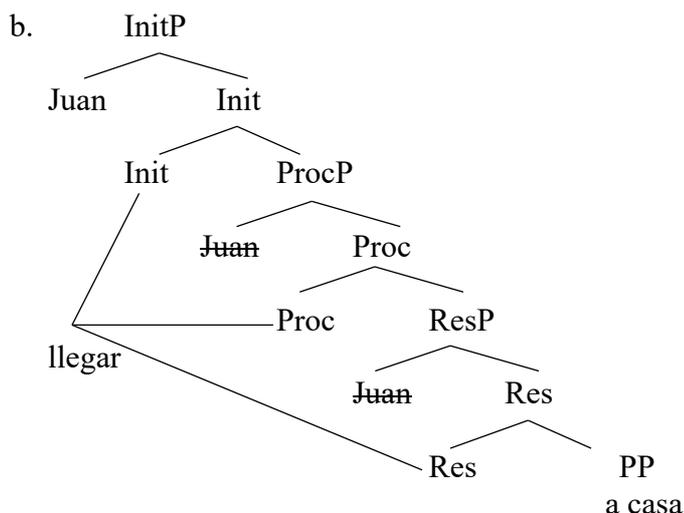


- (369) a. Juan hierve el agua.
 Juan boils the water



Achievements do not allow this causative construal, Ramchand argues, because they are already intransitive causative, where the same argument that acts as the subject is both initiator and undergoer (and also resultee of Result Phrase). Thus, they cannot combine with a second Init to get a transitive construal.

- (370) a. Juan llega a casa.
 Juan arrives to home



The tests valid for states that are not valid for achievements are basically two: states cannot be counted or iterated and states cannot be located in space. Achievements allow both.

- (371) a. *Juan sabe inglés tres veces.
 Juan knows English three times
 b. Juan llegó a casa tres veces.
 Juan arrived to home three times
- (372) a. *Juan sabe inglés en su casa.
 Juan knows English in his home
 b. Juan murió en su casa.
 Juan died in his house

However, these could derive from other principles that have nothing to do with dynamicity. In accordance to Carlson (1977) and Kratzer (1995), the combination with place modifiers might only indicate that there is a temporoaspectual variable in the predicate and therefore that achievements are non dynamic stage level predicates. The countability might reflect the simple fact that achievements denote instants and instants are atoms that can be counted while states denote intervals with arbitrary limits and therefore where counting cannot be applied in a natural way.

The problem, again, is that the discussion might end up becoming metaphysical because the linguistic tests for dynamicity have some limits: determining that a verb is non dynamic is performed by applying a battery of negative tests of the shape 'this verb is non dynamic because it cannot do this'. There are no positive tests for non-dynamicity of the shape 'this verb is non-dynamic because it can do this'. This is problematic, as we saw in §3 when we discussed states. If two objects pass the same positive test –they can do the same thing– there is a high chance that they belong to at least the same macroclass, because the ability to do something should be explained by them having some property and they both have the same property because they can do the same thing. Not being able to do something, as in negative tests, however, simply means that they lack some property and there is no guarantee that they do share some other property. If one speaks English we know something about that person, but if someone does not speak English this might be because he lacks the knowledge, is mute, broke his jaw, etc. The fact that states and achievements pattern together in some dynamicity tests does not guarantee, then, that they have a common property –as Vendler (1957)

proposed, as he put them together in the same macroclass–, but might merely be due to them failing the tests for different reasons –which is how, I believe, this has been interpreted in the vast majority of works–.

It is of course intriguing, however, that they pattern together in so many tests when at the same time we know that a strict definition of instant should be incompatible with a notion of change that is our core way of interpreting dynamicity. All things considered, the answer to whether achievements are non dynamic or not, I believe, is still unclear.

6.2.3. Initial and final boundaries

In order to wrap up the discussion of achievements, let us discuss one option that is opened by Piñón's (1997) approach where achievements are boundaries of happenings. The theory opens up for the possibility that achievements might be classified as those that denote a starting point and those that denote an endpoint, at the same time that in its strict sense –where boundaries are relational elements– each achievement must fall in one of those classes.

In principle, the following achievements seem good candidates to be final boundaries, as they express culminations that end some previous event or state:

(373) morir 'die', llegar 'arrive', entrar 'enter', salir 'exit', subir 'go up', bajar 'go down', desaparecer 'disappear', terminar 'finish', acabar 'finish', concluir 'finish', despachar 'solve', solucionar 'solve', caducar 'to become rotten'

In principle also, these verbs indicate starting some situation or event, with a class of discovering verbs:

(374) nacer 'be born', comenzar 'begin', empezar 'start', arrancar 'to start', inaugurar 'inaugurate', descubrir 'discover', conquistar 'conquer', averiguar 'discover', darse cuenta 'realize', recordar 'remember', aprender 'learn', tocar 'touch', perder 'lose'

In the verbs of the first group normally one interprets that there is a state or event that has to precede them –for instance, in order to expire some product must have previously been in a state where it could be consumed– while this previous situation is not part of what we need to interpret the verbs of the second group –one can learn something without studying, just by getting to know its existence–. The question is whether these verbs differ with respect to their grammatical behaviour in the relevant way. They do not seem to do so. Both classes contain verbs that can have result states and verbs that do not have them:

(375) a. Juan perdió las llaves durante un rato.

Juan lost the keys for a while

b. Juan entró durante un rato.

Juan entered for a while

(376) a. *Juan nació durante un rato.

Juan was born for a while

b. *Juan llegó durante un rato.

Juan arrived for a while

The two groups of verbs reject *desde* 'since' complements, even when the verb is supposed to indicate the starting point of a situation.

- (377) a. *Juan nació desde las tres.
Juan was.born since the three
b. *Juan desapareció desde las tres.
Juan disappeared since the three

The two groups of verbs allow for a preparatory stage reading of the progressive and in-modifiers:

- (378) a. Juan está dándose cuenta de algo.
Juan is realising something
'Juan is about to realise something'
b. Juan está terminando la carta.
Juan is finishing the letter
'Juan is about to finish the letter'

It is particularly relevant that verbs that can be associated to the starting boundary of a situation do not always have a result state, because that might question the linguistic relevance of this distinction.

Moreover, there are verbs that seem to indicate only a boundary without any presupposition that there is a starting or a following situation that can be identified in their grammatical behaviour. Take for instance this sentence:

- (379) Juan ganó un premio.
Juan won a prize

In principle, Juan does not need to do anything to win that prize –maybe he didn't even have to enter his name in a list; the government might have picked out random names among the citizens of a city–. In principle, too, there is no necessary result state that can be modified:

- (380) ??Juan ganó un premio durante unas horas.
Juan won a prize for some hours

One can interpret the sentence as meaning that Juan was believed to be the winner of a competition for some time, but once he is determined to be the winner he stays so forever, so the state that emerges looks more like a resultant state that cannot be reversed than as a target state. This verb, at least, is a candidate to denote a single boundary without an associated happening.

Moreover, the final sense in which the distinction is problematic is that some verbs seem to be both the initial boundary of a situation and the final boundary of another situation, producing in principle a structure like (381):

- (381) -----][-----

Such verbs are directional motion verbs with a result state:

- (382) Juan entró en casa durante un rato.
Juan entered in home for a while

If we assume that the conditions that culminate in him entering the door are relevant, this verb must be preceded by one happening; if we assume that the result state indicates that there is a second happening following, then the verb denotes at the same time a starting and an ending boundary, and presupposes two happenings. The question is why there are then no verbs that have the following shape, with two events associated (Truswell 2007):

(383) -----][-----

That is, why are there no single verbs that mean something like 'sitting down and start eating' or 'fish something and cook it'? Truswell (2007) proposes that this is a conceptual issue: humans only codify through verbs combinations of situations that can form naturally a single event (for instance, a process and a result are fine, but two processes of distinct nature will not be put together as part of a bigger subevent). This constraint strongly suggests that an achievement verb cannot be associated to happenings just by virtue of what it seems to presuppose for the (part of) change that it expresses.

In combination with the absence of presupposition tests that was pointed out in §6.2.1, perhaps this means that boundaries should not be interpreted linguistically as necessarily associated to happenings and a verb might just codify a boundary without indicating whether it is the initial or ending point of a larger eventuality. See §7.2 and §7.4 for some candidates to this type of verb, and also §8.2 for the claim that achievements may be complex provided they are headed by a BECOME predicate that does not entail a previous event.

With this we finish our discussion of achievements, and move to the other lexical aspect classes in the next section.

7. Empirical aspects (5): tests and properties of other possible classes

Even though the four classes that have been revised in the previous sections are the most extended ones, and the ones that are more solidly established, the literature has proposed a number of other classes. In their cases, these classes are defined as mixtures of two or more of the four traditional classes. In this section we will review them.

Simplifying things a bit, we will concentrate on three classes: semelfactives, which seem to combine properties of activities and achievements (§7.1); atelic changes of state, which seem to combine properties of states and achievements (§7.2) and degree achievements, which combine properties of activities, accomplishments and achievements (§7.3). In section §7.4 we discuss the possibility that some verbs are purely endpoints and other verbs codify a middle part of an event, as well as other possibilities opened by the distinction between boundaries and extended events.

7.1. Semelfactives

The first additional class of predicates by their lexical aspect properties that we will revise here is the category called 'semelfactives' (Comrie 1976, Smith 1991, Levin 1999, Rothstein 2004). This class of verbs is illustrated by predicates such as the following:

(384) toser 'cough', estornudar 'sneeze', saltar 'jump', parpadear 'blink', disparar 'shoot', dar una patada 'kick', llamar a la puerta 'knock at the door', guiñar 'wink', aletear 'flap the wing', besar 'kiss', chispear 'sparkle'...

Semelfactives generally fall into one of these semantic classes: verbs denoting initiating contact between two entities, in a violent way (*golpear* 'hit') or not (*rozar* 'brush against'), verbs denoting emission of sound or light when the element produced is bounded, and verbs denoting internal bodily movements that are bounded by the same body structure, such as when one flaps a body part that can only move as much as the articulation allows it.

Comrie (1976: 42) considers this class of verbs, initially, by their distinct pattern of grammaticalisation in Slavic languages, and defines them as verbs that show a mixed behaviour between achievements and activities. In perfective forms without any measurer of the internal development of the event, these verbs favour a telic reading where there is only one occurrence of the event that they denote.

- (385) Juan saltó.
 Juan jumped-pfv
 'Juan jumped once'

Up to this point, the behaviour seems similar to achievements. The distinction becomes apparent because, unlike achievements, these verbs can be combined with imperfective forms and for-modifiers without triggering a preparatory stage or a result reading: instead, an iterative interpretation where there is a sequence of the type of event denoted in the perfective, emerges.

- | | | |
|----------|--|--------------|
| (386) a. | Juan saltaba.
Juan jumped-impf
'Juan jumped once and again' | Semelfactive |
| b. | Juan llegaba.
Juan arrived-impf
'Juan was about to arrive' | Achievement |
| (387) a. | Juan tosió durante un rato.
Juan coughed-pfv for a while
'Juan coughed and coughed for a while' | Semelfactive |
| b. | Juan entró durante un rato
Juan came-in for a while
'Juan came in and stayed in for a while' (result)
Not #'Juan came in and out for a while' | Achievement |

The same applies to the progressive form: a progressive form in a semelfactive verb produces a repetition reading while in an achievement, when allowed, a preparatory stage reading emerges.

- | | | |
|----------|---|--------------|
| (388) a. | Juan está disparando.
Juan is shooting
'Juan shoots and shoots' | Semelfactive |
| b. | Juan está muriendo.
Juan is dying
'Juan is about to die'
Not #'Juan dies and dies' | Achievement |

Like achievements, on the other hand, these verbs reject in-modifiers that measure the extension of the event between the initial and the final point, because they are purely

punctual: they either reject them, allow an interpretation meaning how long it took to start the event from a reference point, or the in-phrase simply identifies a time frame within which the event happened.

- (389) a. #Juan guiñó un ojo en cinco minutos.
 Juan blinked one eye in five minutes
 'Juan blinked after five minutes'
 b. #Juan guiñó un ojo en esos cinco minutos.
 Juan blinked one eye in those five minutes
 'Juan blinked once in those five minutes'

In the strict sense, the semelfactive reading is the one that is obtained in the perfective form, where the verb refers to a small duration action that happens only once, but the term is generally used to refer to the verbs that have this reading and an iterative one in the imperfective.

Note additionally that the repetition reading is not a habitual one. Semelfactive verbs can have, in addition to the iterative reading, a habitual reading, like achievements:

- (390) a. María disparaba cada mañana. Semelfactive
 María shot-impf each morning
 b. María llegaba tarde cada mañana. Achievement
 María arrived late each morning

In the first member of the pair, one can imagine that María had the habit of shooting once every morning, or of shooting several times each morning. Thus the repetition reading cannot be reduced to a form of habituality, as Bertinetto & Lenci (2011) note.

There are also ambiguities with repetitive modifiers when one compares semelfactives with other classes. Note the following example, taken from Rothstein (2004: 186).

- (391) a. Juan llamó a la puerta dos veces. Semelfactive
 Juan knocked at the door two times
 b. Juan vino dos veces. Achievement
 Juan arrived two times

In the semelfactive verb, the repetition meant by 'twice' can be interpreted in two ways: there was one single event of knocking at the door where the person rings the bell twice, and there were two single events of knocking at the door (say, the person passes by, knocks, nobody answers, goes to the shop and comes back later to knock again). In the achievement, only the double event reading is available, and the same happens with activities and accomplishments.

Another distinction can be seen through punctual time modifiers, which for semelfactives behave differently than for durative predicates:

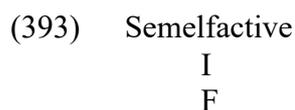
- (392) a. Juan llamó a la puerta a las doce. Semelfactive
 Juan knocked at the door at the twelve
 b. Juan corrió a las doce. Activity
 Juan ran at the twelve

In the first member of the pair, the knocking must happen entirely at twelve o'clock, while in the second member it is clear that the running does not happen entirely at twelve o'clock; in fact, the natural interpretation is that the running started then and lasted for an indeterminate amount of time.

The mixed behaviour of these verbs allows for different interpretations. One first possibility –not the favoured one, but seemingly the one that may be in Comrie's (1976) descriptive overview– is to treat semelfactives as a fifth class of lexical aspect. This position has the obvious shortcoming that it fails to say anything about the fact that the properties of these verbs are already known from other independent lexical aspect classes, and that the only thing special about them is that they seem to mix them, acting as achievements in one type of construal and as activities in another type of construal.

Thus the favoured analyses have tried to reduce these verbs to one of the other classes; the two logically possible options is that these verbs are some type of punctual achievement that allows for some internal repetition and that they are some type of activity, durative, but of an extremely short duration that explains why they are interpreted as achievements when there is only one instantiation of the event.

Smith (1991: 56) treats semelfactives as basically achievements, and propose that their internal structure consists only of a punctual event that lacks both preparatory and result states associated to them:



The diagram above tries to represent that in semelfactives their only internal phase consists of a simultaneous I(nitial) point of the event and F(inal) point of the event, with the consequence that they are the simplest type of event. This is a way of saying that semelfactives, unlike more complex event types like achievements, are actually events that do not result in any change of state. One could interpret this as meaning that lacking a result for a change of state implies that they are atelic, and Smith (1991) takes this view: semelfactives express events that do not produce any change in the properties of the object, and as such they should be considered atelic.

In this view, what happens when we combine these predicates with a for-phrase or an imperfective is a pragmatic reinterpretation of the single event verb as involving a constellation of events of the same type, that keep repeating for some period of time until they fill the temporal space defined by the durative modifier.

(394) a. Juan tosió durante dos horas.
Juan coughed for two hours

b. cough + cough + cough + cough...

Smith assumes, then, that preliminary or preparatory stages should be codified in the internal semantic representation of the predicates. If a verb does not specify as part of its denotation an associated preparatory stage, it is impossible to access that interpretation with the progressive. In consequence, semelfactives lack this reading because, in her analysis, they only express a single event without any additional phases. This explains that the only way of interpreting them in durative contexts will be one where repetitions of the event must fill the temporal space.

Achievements, as opposed to semelfactives, have a more complex structure in Smith (1991: 58), where they can codify a second phase, the result of the change of state (R):

- (395) Achievements
 ... I (R)...
 F

Note the dots in the diagram above: these codify the preparatory and the resultant stage that are associated to achievements in this analysis; these dots are what can satisfy the conditions for the preparatory-stage reading of the progressive and other imperfective elements. As there is a possible result, this means that achievement verbs are telic because they result in some change in the properties of one of its arguments. Thus, in a sense, semelfactives can be viewed as atelic achievements.

The absence of a preparatory stage in semelfactives also explains, for Smith (1991: 57) the incompatibility with in-phrases, which is another difference with achievements, that in many cases combine with these provided that the period measured corresponds to the preparatory stage:

- | | |
|---|--------------|
| (396) a. #Juan tosió en cinco minutos. | Semelfactive |
| Juan coughed in five minutes | |
| Not 'It took Juan five minutes to start coughing' | |
| b. Juan llegó en cinco minutos. | Achievement |
| Juan arrived in five minutes | |
| 'It took five minutes to arrive for Juan' | |

There are, however, three problems with this approach. First of all, Smith's (1991) system to differentiate the aspectual classes starts from three binary features, which should result in eight classes of predicates –unless, as we discussed in §2.1, one adopts a feature geometry–: [static], [telic] and [durative]. Only 5 out of these 8 options are actually attested, in principle.

Second, claiming that semelfactive verbs are atelic can only be done if one assumes that telicity depends on the change of an internal argument. It is clear that when one kicks the door one must move the leg up to the terminal point where it meets the door, and this seems to be the base for conceptualising the event as telic.

Third, it is quite unclear why verbs should also leave room for codifying a preparatory stage. Even verbs which should not codify a preparatory stage allow that the time before the event happens is accessible to temporal quantification: remember an example like the one below, where the in-phrase can be interpreted as measuring how long the event was delayed from an unspecified reference point.

- (397) a. Juan recibió la orden de dar una patada a la puerta.
 Juan received the order of give a kick to the door
 b. Juan dio la patada en cinco minutos.
 Juan gave a kick in five minutes
 'Juan gave a kick after five minutes, measured from the time he received the order'

The second position is exemplified by Rothstein (2004: 29; see also Levin 1999), who treats semelfactives as a particular subtype of atelic activities that happen to denote events of very short duration –although contra Smith (1991) these events do have a duration, that is, the initial and final point are not simultaneously defined in one instant–

. Rothstein (2004) gives a number of preliminary tests to associate semelfactives to activities.

First, the absence of the in-modifiers in the standard reading that is obtained with accomplishments is automatically explained if these verbs are activities, and therefore atelic. The ungrammaticality of these verbs with in-modifiers is of the same nature as in the case of activities, and is saved when possible with the same two readings.

(398) a. #Juan dio una patada en un minuto. Semelfactive

Juan gave one kick in one minute

'After one minute, Juan kicked once'

b. #Juan dio una patada en ese rato.

Juan gave one kick in that period

'During that while, Juan kicked once'

(399) a. #Juan corrió en un minuto. Activities

Juan ran in one minute

'After one minute, Juan ran'

b. #Juan corrió (una vez) en ese periodo.

Juan ran (one time) in that period

'During that period, Juan ran once'

The compatibility with for-phrases without having to measure the result or the preparatory stage is also naturally interpreted in this theory if the semelfactive is a type of activity: like activities, the event is atelic and can be extended in time to fill the period identified by the modifier. The only difference would be conceptual, meaning that the event described by semelfactives is (by world knowledge) very brief and might have to be interpreted as happening several times to fill that space.

(400) a. El pájaro aleteó durante unos minutos. Semelfactive

the bird flapped for some minutes

'The bird flapped its wings once and again for some minutes'

b. El pájaro voló durante unos minutos. Activity

the bird flew for some minutes

'The bird was flying for some minutes'

One reason internal to Rothstein's (2004) system to reduce semelfactives to activities is that her analysis contains only two binary features: [telic] and [stages]. In this system, a state is a [-telic, -stages] predicate because it lacks internal different phases and does not get defined by a culmination. Activities are [-telic, +stages] because, lacking a culmination, they can be analysed as an unbounded succession of changes –think of Vendler's (1957) processes, or the conceptual semantic fact that an event like running describes a rhythmical succession of body movements–. Accomplishments are like activities, but with telicity [+telic, +stages] and achievements are stage-less telic events, [+telic, -stages]. Rothstein (2004) notes that any system using features –and not using feature geometries, one might add– would not be able to generate exactly 5 classes, because introducing a third binary feature would produce 8 classes.

Rothstein (2004: 185) claims that semelfactives cannot be punctual events because the situations that they describe have internal structure: in order to kick, one needs the leg to follow some non trivial trajectory, and when one knocks at a door the hand also needs to move from point A to point B.

The idea, more formally stated, is that semelfactives are activity verbs which differ from 'standard' activities in that there is a natural minimal set of atomic parts that compose the extended running time of the event. If one picks the running time of an event of swimming, there is swimming in all the minimal relevant intervals that one takes out of that total running time, but the size of the minimal intervals is arbitrary, pragmatically conditioned, and so on. Remember in this sense Bennett & Partee's (1972) Subinterval condition: for activities, it is true not of each single subinterval, no matter how small, but only of minimal intervals of the appropriate size, where 'appropriate' has to be pragmatically defined. These subintervals, moreover, can overlap with each other, because they are not atomic.

In contrast, during the extended running time of jumping or any other semelfactive predicate, the size of the minimal intervals is lexically indicated: it is the minimal portion of time that it takes to complete a full jump. These intervals are atomic in the sense that each minimal interval constitutes a separate jump, without overlapping with the following one. Thus, semelfactives are simply activities which have a natural atomic function that defines the minimal intervals that satisfy the Subinterval condition in a non-arbitrary way.

This minimal subinterval is the one that licenses the reading where there is only one short event: that reading is just one instance of the same predicate that emerges when the running time of the event occupies such a short portion that it can be filled with one single instantiation of the minimal unit.

There are also problems with Rothstein's (2004) approach. First of all, it does not necessarily follow that even if the 'real' world situation involves some internal development grammar will codify that situation as durative or extended. In the real world we conceive of kicking as involving some movement of the leg through a non-trivial path, but this does not mean that we must codify this movement also as part of the linguistic object that represents it. In fact, Rothstein (2004: 185) accepts that an event of touching the table is an achievement –thus, punctual– even though touching the table involves reaching a terminal point through a possible path where the body part moves.

Rothstein might answer that what is codified in a verb like 'touch' is only the final point of the movement, while a semelfactive codifies also the movement that precedes the contact. However, identifying this movement is difficult in verbs like 'sneeze'. Moreover, the combination of semelfactives and achievements with modifiers like rápidamente 'quickly' do not seem to produce different results. Assuming one single event, both sentences below get the same reading, that what was short is the time between an underspecified moment of time when the person gets the order of acting and the moment in which contact is satisfied:

- | | | |
|----------|--|--------------|
| (401) a. | Juan tocó la mesa rápidamente. | Achievement |
| | Juan touched the table quickly | |
| b. | Juan dio una patada a la mesa rápidamente. | Semelfactive |
| | Juan gave a kick to the table quickly | |

Thus, it is clear that the empirical behaviour of some verbs is different from achievements and activities and that these verbs somehow are hybrid between the two classes, but it is unclear how they should be integrated between the two of them.

7.2. Inchoative change verbs

In §6.2.1 and §6.2.3 we discussed Piñón's (1997) theory about achievements as predicates that denote the initial or final boundary of an event and noted that this theory opened for different possibilities in defining what a change constitutes –because changes cannot literally be mapped to one single instant–. These possibilities are exploited in Marín & McNally (2011). Crucially, these authors do not follow Piñón (1997) in the proposal that a boundary must always be associated to a longer interval, and as we will see they allow boundaries to stand alone.

In particular, they propose the existence of verbs that denote only the starting point of a change but do not denote the end of that change; a state can be associated to them or not. In this sense, they are verbs that denote only the first part of a change and behave as atelic verbs. The class of verbs that they associate with this particular lexical aspect structure where there is no endpoint of the change are transitive psychological verbs in their non-causative version, like these (see also Belletti & Rizzi 1988, Tenny 1994, Filip 1996, Arad 1998, Pylkkänen 2000):

(402) enfadarse 'get angry', asustarse 'get scared', aburrirse 'get bored', preocuparse 'get worried', molestarse 'get annoyed', animarse 'get active'

They show that these verbs are atelic and non dynamic in the relevant sense. The two properties follow from them expressing an initial boundary [but not the end boundary] of that change (remember §6.2.3, where we argued that if a verb denotes a boundary it cannot express change and as such it may be considered non-dynamic).

With respect to telicity, these verbs do not allow the standard reading of in-modifiers; some of them fully reject them and others allow a delayed event reading, but all of them reject them when the modifier contains a quantifier like *todo* 'all' that blocks this delayed reading:

- (403) a. *Se aburrió en toda la tarde.
 se bored in all the evening
 b. *Se enfadó en toda la tarde.
 se got.angry in all the evening

They reject phase verbs picking the endpoint of the event:

- (404) a. *Ha acabado de aburrirse.
 has finished of bore
 b. *Ha acabado de asustarse.
 has finished of get.scared

They do not allow absolute participle structures (remember §2.3):

- (405) a. *Una vez aburrido, se fue.
 one time bored, he left
 b. *Una vez molestado, se fue.
 one time boresd, he left

With respect to dynamicity, they also fail the tests that diagnose it. First of all, they cannot be combined with *lentamente* 'slowly' or *rápidamente* 'quickly', unless they measure the time that it takes to get the event started.

- (406) a. *Juan se aburrió lentamente.
 Juan se bored slowly
 b. #Juan se preocupó rápidamente.
 Juan se worried quickly
 'It took a little way for Juan to start being worried', not 'Juan got worried in a quick manner'.

Verbs like *parar* 'stop', that require dynamic change, are also rejected –unless one takes an iterative reading of the event–.

- (407) *Paró de {aburrirse / enfadarse}.
 stopped of get.bored / get.angry

However, the class of verbs is not homogeneous. There are two subgroups that Marín & McNally (2011) differentiate here:

- (408) Non-punctual verbs
 aburrirse 'to get bored', agobiarse 'to get stressed', angustiarse 'to get distressed', avergonzarse 'to get embarrassed', confundirse 'to get confused', distraerse 'to get distracted or to get entertained', entretenerse 'to get entertained', interesarse 'to get interested', molestar 'to get bothered', obsesionarse 'to get obsessed', preocuparse 'to get worried'

- (409) Punctual verbs
 asombrarse 'to get amazed', asustarse 'to get scared', cabrearse 'to get angry', enfadarse 'to get angry', enfurecerse 'to get furious', excitarse 'to get excited', indignarse 'to become indignant', mosquearse 'to get irritated', ofenderse 'to get offended', sorprenderse 'to get surprised'

The two classes define the initial point of a change and lack reference to the final point, so they are atelic. The difference is that non-punctual verbs codify in addition to the initial boundary a stative happening that follows it –in practice, that would could as some kind of target state that is not preceded by an endpoint–:

- (410) [-----

The second group purely denotes the initial boundary without any reference to a happening:

- (411) [

The distinction between the two classes is visible in that the first shows in the present tense and in the progressive that there is an extended interval of time where the state holds and that can be picked by these aspectual forms. Consider how the present tense is interpreted for a verb like *aburrirse* 'to get bored', which belongs to the class that contains a stative happening:

- (412) Juan se aburre.
Juan SE gets-bored
'Juan is bored'

This sentence can be interpreted as an immediate present where we claim that Juan is now bored. The same access to a situation where the subject holds the state can be found in the progressive with this class of verbs:

- (413) Juan se está aburriendo.
Juan SE is getting.bored
'Juan is bored now'

This is of course possible because the verb codifies an extended eventuality that occupies an interval. This is not the interpretation that emerges with verbs of the second class, *enfadarse* 'to get angry', because they only denote the initial boundary of an event. In order to be compatible with the present tense, which denotes an imperfective aspect, the interpretation must be iterative or habitual –Juan frequently or typically gets angry– because the verb only denotes a punctual situation.

- (414) Juan se enfada (fácilmente).
Juan se gets.angry (easily)
'Juan frequently gets angry'

The same goes for the progressive, which gets the preparatory stage reading typical of pure achievements.

- (415) Juan se está enfadando.
Juan SE is getting.angry
'Juan is about to get angry'

We want to highlight the fact that the distinction between these two verbs supports a view of boundaries as in principle able to appear with independence of happenings: if every boundary presupposed a happening in the same way, there could not be two classes of verbs that contain a happening or not. If presupposing them makes them not part of what is being denoted, only punctual verbs denoting a boundary should be present; if presupposing them makes them somehow accessible to grammatical operations, only non-punctual verbs denoting an initial boundary followed by a happening should be possible (assuming those happenings do not necessarily have a final boundary). Thus, the existence of these two verb classes supports the conclusion reached in §6.2.3 above.

Note, to conclude this section, that this distinction is in some sense intuitively close to the one made in De Miguel (1999: 3022-3030) when she talks of ingressive events. For De Miguel (1999), ingressive verbs are those that only focalise the initial part of the event, such as the following:

- (416) alborear 'dawn', amanecer 'dawn', brotar 'sprout', caer 'fall', florecer 'bloom', marearse 'get dizzy', sentarse 'to sit', levantarse 'to stand up', tumbarse 'to lie down', surgir 'to emerge'

In fact, De Miguel (1999) notes that these verbs are also atelic and reject in-modifiers, but uses a distinction that Marín & McNally (2011) does not use: the initial boundary can be followed by a dynamic event and not just by a state, as in the following verbs that according to De Miguel's (1999) proposal also denote the initial point of the process.

(417) hervir 'boil', salir 'exit', caer 'fall'

Like this, 'boil' determines the specific initial stage of a process that affects liquids and that can last for some time. A punctual modifier identifies that initial point, as in the following example:

- (418) El agua hirvió a los 85 grados por la altitud.
 the water boiled at the 85 degrees due.to the altitude
 'The water started boiling at 85 degrees due to the altitude'
 (419) Juan salió hacia el aeropuerto a las 15.00.
 Juan exited towards the airport at the 15.00
 'Juan started his route to the airport at 15.00'

De Miguel (1999) proposes that in *caer* 'fall' the relevant point denoted is the moment in which an entity leaves the upper position, without needing to arrive to a final low location (that is obtained with *caerse* 'to fall down').

- (420) El satélite cayó de su órbita a las 15.00
 the satellite fell from its orbit at the 15.00
 'The satellite left its orbit at 15.00'

At the same time, De Miguel (1999) proposes that some verbs only denote the final point of a situation without describing or denoting the previous parts –the distinction is not identical to the one discussed in §6.2.1 about achievements because De Miguel (1999) does not assume that boundaries always must be accompanied by happenings–. See, about these and other options opened by the distinction between boundaries and extended events, also §7.4 below. Let us now move to the class of degree achievements

7.3. Degree achievements

Consider a predicate like the following one:

- (421) Juan engordar
 Juan get.fat

There are at least three ways in which this predicate can be interpreted. In one of them, it seems to act as an activity where we interpret that Juan gets fatter and fatter without necessarily reaching a point where we can predicate as a result that he is now fat.

- (422) Juan engordó durante dos meses.
 Juan got.fat for two months
 'Juan was getting fatter and fatter for two months'

In the second interpretation, he gains some weight and arrives to a telic culmination where now he is fat, after increasing his weight for some time. This is an accomplishment reading, where we can say that he is now fat.

- (423) Juan engordó durante dos meses.
Juan got.fat for two months
'Juan gained weight, and was fat for two months'

In the third interpretation, the achievement one, Juan raises one degree of fatness only, perhaps not gaining enough weight to say that he is fat, and there is a result that can be measured.

- (424) Juan engordó en unos días.
Juan got.fat in some days
'After some days, he got fatter'.

These verbs are called 'degree achievements'. As their name suggests, they involve changes in dimensions that allow for degree modification, which means that they are built over predicates that denote scales with a set of ordered values –most adjectives– or lexically encode scales with these properties, such as *crecer* 'to grow', *diluir* 'dilute' or *reducir* 'reduce'.

- (425) *alargar* 'lengthen', *ensanchar* 'widen', *aclarar* 'clear', *enrojecer* 'redden', *ablandar* 'soften', *endurecer* 'harden', *acortar* 'shorten', *simplificar* 'simplify', *espesar* 'thicken', *endulzar* 'sweeten', *adelgazar* 'get thin', *rebajar* 'lower', *mejorar* 'get better', *empeorar* 'worsen', *adensar* 'thicken'...

Since Dowty (1979), the discussion has concentrated mostly on how the same predicate can obtain a telic and atelic reading without the typical mechanisms that generally differentiate activities from accomplishments. Note that in the three readings above we did not introduce different internal arguments for the verb, in contrast to other cases of accomplishments - activities verbs where the count - mass distinction or the introduction of paths of movement with a specified end produce the relevant interpretation. Rather, for these verbs it seems that the crucial difference is whether the adjectival base is interpreted as a positive degree adjective or as a comparative degree adjective.

- (426) a. BECOME A
b. BECOME A-er

The question is what allows these interpretations. The main suspect is the fact that the change expressed by these verbs happens in a dimension where there is a gradable concept. The idea is that in some way the fact that 'fatness' or 'thickness' denote some notion that allows different values is what makes these verbs vague between telic and atelic reading. That dimension allows for some changes that are unbounded, because they express moving along those values without reaching a reference point, or bounded, something that emerges as soon as a reference point is introduced. The question is which notion is better to express this distinction, and there are two main options in the literature:

a) The scalar properties of the base, specifically which type of scale underlies these changes, is the relevant part (cf. Hay, Kennedy & Levin 1999). In this theory, one differentiates between open scales –scales that do not have a natural minimal or maximal value– and closed scales –scales that have a minimal value, a maximal value or both– (see Fábregas 2020 for an overview). Open scales, like the one in the next example, produce naturally atelic readings:

- (427) gordo
 *completamente gordo
 completely fat
 (428) engordar
 get.fat

Closed scales naturally produce telic readings:

- (429) lleno
 completamente lleno
 completely full
 (430) llenar
 get.full

In this option, the other readings are derived by conceptual semantics.

b) The second option ignores the distinction between types of scale and concentrates on degree. It comes in two shapes: one in which comparative degree adjectives produce atelic readings and positive degree adjectives produce telic readings (Abusch 1986) and one where both comparative degree adjectives and positive degree adjectives produce telic readings that differ in terms of their duration (Kearns 2007). In this second option, changes of state are always telic, and the atelic reading is coerced by the for-complement.

Table 5. Types of theories for degree achievements

	<i>Telic</i>		<i>Atelic</i>
Scalar theory	closed-scale adjectives open-scale adjectives where a contextual reference point is introduced		open-scale adjectives closed-scale adjectives where the endpoint is suspended
Degree theory (traditional, Abusch 1986)	Base adjective interpreted as a positive degree adjective BECOME A		Base adjective interpreted as a comparative degree BECOME A-er
Degree theory (Kearns 2007)	Base adjective interpreted as a positive degree adjective results in an accomplishment with duration and has a result state X is now A. BECOME A	Base adjective interpreted as a comparative degree results in a punctual, achievement telic event without the entailment that X is now A BECOME A-er	The atelic reading is derived from the achievement reading by unbounded repetition of the change of BECOME A-er

In the first option, which is mainly due to Hay, Kennedy & Levin (1999) –see also Kennedy & Levin (2008)– the telic reading coincides with the entailment that a sufficient degree of the property has been acquired, while the atelic reading does not have this entailment, which as we will see is the wrong answer to the problem. Hay, Kennedy & Levin (1999) make the proposal that the basic reading of a change of state verb built from a closed scale adjective, specifically one whose scale is closed in the upper end of the scale, is telic.

(431) John straightened his hair.

Their proposal is that adjectives with closed scales contribute a completeness implication to the resulting verb: in their theory, the presence of a defined endpoint in the scale implies that, by default, that maximal point is identified as the standard value of the adjective. In consequence, when used as a base to define a change of state, the change of state verb is interpreted as reaching that maximal value in the scale, even if that involves completely traversing the scale associated to the adjective up to its maximal point. As there is an upper bound to that scale, the change of state is interpreted as bounded, which results in telicity. This means that the resulting verb is natural in combination with telic modifiers and the adverb *completely*.

(432) a. John straightened his hair in three minutes.
b. John straightened his hair completely.

At the same time, because telicity is obtained when the change of state reaches the upper boundary, which is the standard value that determines whether the entity possesses a sufficient value of the property, the telic reading should entail that the internal argument is A.

(433) John straightened his hair completely --> John's hair is now straight.

In contrast, open-scale adjectives, lacking both a lower and an upper boundary in the scale, lack any default interpretation of completeness: the process that moves across the scale cannot reach a boundary because the scale itself does not provide them with such elements, resulting in a default atelic interpretation that, again for these authors, makes them compatible with *for*-adverbials that measure the length of the process.

- (434) a. The gap widened.
 b. The gap widened for some minutes.
 c. #The gap widened in some minutes.

Open scale adjectives do not have a default value taken as the standard, and this means that the change of state is interpreted as an increase in the property that does not entail that the entity has, at the end of the process, a sufficient value of the property. The interpretation is, then, comparative.

- (435) a. The gap widened for some minutes, but it is not wide yet.
 b. The gap is wider now than before.

However, this does not mean in Hay, Kennedy & Levin's theory that closed-scale adjective verbs always have a telic reading, or that open-scale adjectives must always be atelic. In both cases there are additional devices that can produce the other reading.

For them, the completeness meaning related to telic readings is an implicature that is introduced by the scalar properties of the adjective. As an implicature, it can be cancelled, and it is indeed cancelled when for instance a *for*-adverbial is introduced, coercing the predicate into atelic. (436), then, would be atelic, in the relevant reading where we measure the length of the process (process reading) and not how long the hair stayed straight (result reading).

(436) John straightened his hair for some minutes.

Similarly, Hay, Kennedy & Levin (1999) propose that there are ways to make change of state verbs telic even when they are built over open scale adjectives. In open scale adjectives the scale itself does not provide with any standard value that can be taken as a boundary, but there are other ways of obtaining that standard value, which once present produces a telic reading. That boundary can be obtained contextually through the assertion that there is a standard value that counts as sufficient in the context (437a), or by letting the subject or object determine, as a comparison class, the value that counts as standard for its kind of entity –as in (437b), where there is particular value of width that standardly applies to roads, and one interprets that the change of state reached that value–.

- (437) a. The gap widened enough (for us to pass through it) in ten minutes.
b. The workers widened the road in two days.

Thus, ultimately Hay, Kennedy & Levin's theory does not directly associate the scalar properties with the telicity of the resulting verb. There is a notion of 'default interpretation' that relates scalar boundedness with event boundedness at a first stage, but then there are different operations, contextual influences and reinterpretations that ultimately can make virtually any deadjectival change of state verb both telic or atelic.

The alternative is the degree-based approach where the scale underlying the adjective is not sufficient to explain the two readings. Following Dowty (1979), Abusch (1986) is her first proponent. Abusch (1986) associated the atelic reading to the comparative degree 'become A-er', and the telic reading to the positive degree 'become A'.

- (438) a. Juan engordó (en un mes).
Juan en-fat-ed in one month
'Juan got fat in one month'
b. Juan engordó (durante un mes).
Juan en-fat-ed for one month
'Juan got fatter for one month'

According to Abusch (1986), (438a) is assigned a positive degree gloss 'Juan got fat', while (438b) is assigned a comparative degree gloss 'Juan got fatter'. This view of the correlation where comparative produces atelic readings and positive produces telic readings is also adopted in its main aspects in other works about degree achievements, such as Levin & Rappaport-Hovav (1991) and Jackendoff (1996).

However, Kearns (2007), while accepting the degree-based approach, substantially modifies the analysis.

Kearns' critique of such approaches is based on a prediction made by any analysis where the telic reading is glossed as 'become A'. This gloss establishes that there should be a result state, and that result state should correspond to the positive degree adjective, from where it should follow that after the event is completed we can say truthfully 'X is A'. This is not true: the verb does not entail in its telic reading that the subject is now A because that result can be cancelled.

- (439) Juan adelgazó en un mes, pero no estaba delgado todavía.
Juan got.thin in one month, but not was thin yet

This means that the telic reading cannot be interpreted as involving exclusively a positive degree adjective whose scalar properties define a bounded change through a standard value. Kearns' (2007) proposes that the sentence above means that Juan indeed changed in the thinness scale, but that this change is in fact an achievement where it is enough that Juan only moves from one value of thinness to the next higher value, thus resulting in an achievement reading because the event is completed as soon as the value changes –not needing to go through a whole set of values–.

Indeed, the reading of that example shows that the in-phrase can be substituted with an after-phrase:

- (440) En un mes, Juan adelgazó pero seguía sin estar delgado.
In one month, Juan got.thinner but stayed without being thin

'After one month, Juan got thinner but still was not thin'

This is the reading that emerges from the comparative degree base, and it is still telic –not atelic–, because it is verified as soon as one value is substituted by another as a result of that change. Substituting one value for another does not require traversing an extended set of values, so that change is instantaneous.

The atelic reading is derived from this achievement reading by introducing a for-phrase that forces a repetition reading: the activity is built from a repetition of instantaneous changes that together produce an atelic event.

(441) Juan adelgazó durante varios meses.

Juan got.thiner for some months

Crucially, the activity meaning is not basic in these verbs, but derived from an achievement. The verb is vague between achievement and accomplishment, in such a way that the accomplishment reading involves the positive degree adjective:

(442) Finalmente, Juan consiguió adelgazar y ya era delgado.

Finally, Juan managed to get.thin and already was thin

In this reading, the claim is that the change involves moving through the extended scale of thinness from whichever value Juan had before the process started up to the value that counts in context as the reference value that makes Juan thin enough to count as thin. In this interpretation, the in-phrase has a reading that measures how long it took Juan to lose enough weight to be thin:

(443) Juan adelgazó en dos meses.

Juan got.thin in two months

For Kearns (2007) adjectives that allow the atelic reading involving repetition of the single change from one value to the next one should be adjectives that are flexible enough in their interpretation to not have a fixed single value that cannot be changed in context. This is because if the adjective is not flexible, the iteration from one value to the next cannot be interpreted felicitously. At the same time, these adjectives without a salient degree are more difficult to use in the positive degree reading, out of context, within the verbal structure. For this reason they will be difficult in an accomplishment reading, and they will be favoured in a comparative achievement reading.

The way in which she differentiates flexible and non flexible adjectives is with *casi* 'almost': adjectives that allow this modifier do it because they have a salient value, so that the modifier can mean 'close to that value'. Most adjectives that Hay, Kennedy & Levin (1999) consider close-scaled are non flexible, and that is why they tend to reject the atelic reading in this degree theory, because they do not allow the iteration of change from one value to the other:

(444) El vaso está casi vacío.

the glass is almost empty

(445) ??Vacío el vaso durante una hora.

emptied the glass for one hour

Intended: 'The glass was emptier and emptier for one hour'

However, open scale adjectives can fall in the two classes. Those that reject *casi* easily produce an atelic reading, and those that accept it tend to be telic:

- (446) ??El camino es casi ancho.
the road is almost wide
- (447) La burbuja se ensanchó durante un rato.
the bubble got.wider for a while
'The bubble got wider and wider for a while'
- (448) La casa es casi barata.
the house is almost cheap
- (449) La casa se abarató durante un mes.
the house SE got-cheaper for one month
Not: 'The house got cheaper and cheaper for one month'

In order to compare the two theories, the one based on scales and the one based on degree, let us examine different adjectival classes: we will see that the degree based theory is superior, not only because the scalar theory allows all types of adjectives – adequately inserted in context– to produce both readings but also because it makes more fine grained predictions about how they should behave.

Open scale adjectives that are flexible allow both readings, telic and atelic; this is predicted both by the scale theory (there is no minimal or maximal value) and the degree theory (the adjectives allow the iteration of the achievement comparative change).

- (450) a. El cielo se aclaró en un minuto, pero seguía estando nublado.
the sky SE a-clear-ed in one minute, but stayed being cloudy
'The sky cleared after one minute, but it was still cloudy'
- b. El cielo se aclaró durante un rato.
the sky SE a-clear-ed for a while
'The sky got clearer and stayed clearer for a while' or 'The sky got clearer and clearer for some time'
- c. El cielo se aclaró poco a poco en una hora, #pero seguía estando nublado.
the sky SE a-clear little by little in one hour, but stayed being cloudy
'The sky become clear little by little in one hour'
- (451) a. El río se enturbió en un minuto, pero seguía estando claro.
the river SE en-muddy-ed in one minute, but stayed being clean
'The river got muddier after one minute, but it was still clean'
- b. El río se enturbió durante un rato.
the river SE en-muddy-ed for a while
'The river got muddier and stayed muddier for a while' or 'The river got muddier and muddier for some time'
- c. El río se enturbió poco a poco en una hora, #pero seguía estando claro.
the river SE en-muddy-ed little by little in one hour, but stayed being clear
'The river become muddy little by little in one hour'
- (452) a. La habitación se refrescó en un minuto, pero seguía estando cargada.
the room SE re-fresh-ed in one minute, but stayed being stuffy
'The room got fresher after one minute, but it was still stuffy'
- b. La habitación se refrescó durante un rato.
the room SE re-fresh-ed for a while
'The room got fresher and stayed fresher for a while' or 'The room got fresher and fresher for some time'

c. La habitación se refrescó poco a poco en una hora, #pero seguía estando cargada.

the room SE re-fresh-ed little by little in one hour, but stayed being stuffy

'The room become fresh little by little in one hour'

But note that open scale adjectives without a fixed value are more difficult in a positive degree reading, without context. This is what Kearns (2007) expects, and produces degree achievements that cannot act as accomplishments.

(453) *casi {próximo / bajo}

almost close / low

(454) a. #Juan se aproximó en un minuto.

Juan se a-close-ed in one minute

'Juan got closer after one minute'

b. #Juan rebajó los precios en un minuto.

Juan re-low-ed the prizes in one minute

'Juan lowered the prizes in one minute'

In contrast, closed scale adjectives are expected to allow the accomplishment or the achievement reading, because they have a salient value, but the iteration will be more difficult –although still possible to obtain, in the proper context–. For this reason, *encorvar* 'to bend' (from *curvo*), *aplanar* 'to flatten' (from *plano*) and other verbs derived from non flexible closed scale adjectives typically allow the for-phrase to be interpreted as modifying a result state, and are strictly telic.

(455) a. Juan se encorvó {durante un mes / en un mes}.

Juan SE bent for a month / in a month

'Juan was bent down for a month' / 'Juan got bent in a month'

b. El árbol se enderezó {durante un mes / en un mes}.

the tree SE straightened for a month / in a month

'The tree stayed straight for a month' / 'The tree got straight in a month'

c. Juan aplanó la tierra en una hora.

Juan levelled the ground in one hour

'Juan levelled the ground in one hour'

d. Juan renovó su carnet {durante un mes / en un día}.

Juan renewed his card for a month / in a month

'Juan got a new card for a month' / 'Juan renewed his card in one day'

e. Juan aseguró el cuadro {durante un mes / en una hora}.

Juan secured the painting for a month / in an hour

'Juan made the painting safe for a month' / 'Juan made the painting safe in an hour'

f. Juan se emborrachó {durante una hora / en una hora}.

Juan SE got.drunk for an hour / in an hour

'Juan stayed drunk for an hour' / 'It took Juan one hour to get drunk'

Thus, the result seems to be that the degree based theory is empirically superior in describing degree achievements. However, that theory is modified with respect to its traditional understanding, and does not equate the comparative with an atelic change. This contrasts with the situation that we saw in §7.2, which claims that not all change of state verbs are telic, as it makes the claim that any change of state involves telicity, and the difference depends on whether the change of state process occupies an extended

period of time or is instantaneous. Atelicity is derived by coercion, and never defined by the verb in its basic form.

7.4. Other possible lexical aspect classes

Thus, it is quite established in the literature that there are stative extended eventualities –with different subtypes, like individual and stage level–, extended atelic eventualities, extended telic eventualities, punctual eventualities and eventualities defined by an initial point with or without a following extended eventuality. The question is how many other classes can be differentiated. If we use, as a guideline, the graphic representation of eventualities in Piñón (1997) and introduce the condition that no eventuality can consist of happenings, as Truswell (2007) proposed –there are no verbs meaning 'fishing and cooking'–, we obtain the following initial options accepting a natural logic of boundaries.

- (456) a. [-----] (stative event without a final point but a defined starting point)
 b.]-----] (state as a result of a change)
 c. [-----] (state with a delimited starting and endpoint)
 d. [-----] (process without a final point)
 e.]-----] (process following a previous change)
 f. -----] (telic process without initial change)
 g. -----] (atelic process without initial change)
 h. [-----] (process delimited by initial and final changes)
 i. [(initial part of change)
 j.] (final part of change)
 k. -----] (state without initial or final point)

Some of these verb classes are well-established: (a) may correspond to inchoative atelic verbs like *aburrirse* 'get bored' in §7.2; (b) might be any achievement with an accessible result state like *entrar* 'enter' or might correspond to some stage level predicates interpreted as results, like *estar maduro* 'to be ripe'. It is less clear whether there are stative predicates like (c), without using the help of a modifier, but the current understanding of predicates like *tener diez años* 'to be ten years old' might be that particular type, as the predicate is true for a full year starting at a particular time and ending at another particular time (see Arche 2006 for temporal persistence). The case in (d) is clearly an activity, and the case in (e) may correspond to verbs that De Miguel (1999) calls ingressive verbs followed by a process, like *hervir* 'boil'. (f) is an accomplishment and (g) and (h) are supposed to be two options for achievements according to Piñón (1997; but remember §6.2.3). The case (i) may be a purely individual level state like *ser español* 'to be Spanish' which applies to the individual during the whole lifetime, but what would be (j)? Do we have activities that do not denote the initial point where the process starts?

De Miguel (1999) answers in the affirmative: some verbs denote only the internal part of a process without emphasising its starting or endpoint. These would be activities that somehow presuppose a previous starting point –much in the same way as an achievement is a boundary that presupposes a previous or subsequent eventuality–, but do not denote it. Beyond cases where that intermediate point is obtained through the progressive periphrasis, the following verbs at least in one of their uses have this reading:

- (457) a. Juan continuó la presentación.

- Juan continued the presentation
 'Juan went on with the presentation'
- b. Juan seguía a Pedro.
 Juan followed A Pedro
 - c. Juan proseguía con su paseo.
 Juan continued with his walk
 - d. Juan persistió en su intento.
 Juan continued in his attempt
 - e. La película duraba mucho.
 the movie took.time much

Note that with these verbs a punctual time modifier does not identify when they start or when they finish: *Juan seguía a Pedro a las tres* 'Juan followed Pedro at the three' means that at that time the event was ongoing, and we cannot infer that they started then.

Note that the logic of boundaries blocks the possibility that there are lexical verbs that denote one single point within the process that is not the initial or final one. The punctual modifier with *seguir* 'follow' does not identify a unique point where the description of the event is true, as in order to be true that event must mean that Juan went in the same direction as Pedro for some time already, and otherwise he is not following him –and in principle he can continue going in the same direction for another while–. This contrasts both with verbs that denote a unique starting point (*Juan se enfadó a las tres* 'Juan started being angry at three', see §7.2 above) and verbs that denote the unique endpoint such as the terminative verbs that De Miguel (1999) lists:

- (458) a. Juan terminó el libro a las tres.
 Juan finished the book at the three
- b. Juan llegó a las tres.
 Juan arrived at the three

Remember, however, what we noted in §6.2.3: the distinction between initial and final points is relevant for conceptual semantics and the way in which we conceptualise situations, but there are no clear tests that allow us to discriminate the two groups through their grammatical behaviour.

If one drops the assumption that only one happening is allowed per eventuality, one can conceive of having also complex classes, the most significant one being a telic event that specifies a result. Remember in §5.2.3 that we have argued that there can be some accomplishments that have a result state, contra Ramchand (2008):

(459) [-----]-----

Once this class is attested and we see that one can combine at least one process and one result, one obtains an explosion of the possible classes unless one sets independent restrictions –for instance, any process without an endpoint followed by a result is presumably impossible unless the initial boundary of the result is set because otherwise the relation 'followed by' is meaningless–:

- (460) Process + state classes
- a. -----]----- process without a starting point followed by a result
- b. -----[----- process without an endpoint followed by a result

- c. [-----] [-----] process with a starting point followed by a result
- d. [-----][-----] process without endpoint followed by result with endpoint
- e. [-----]-[-----] process with an endpoint followed by a result with endpoint

This of course does not exhaust the logical combinatorial alternatives. In fact, De Miguel & Lagunilla (2000), using the primitives of Pustejovsky (1991) –state, process and transition– propose the existence of at least the following classes –note that in this theory there is no way of talking about the starting of a change without a culmination, as a transition contains both the initial and the starting point, so the classes are in principle fewer than one would obtain when initial and final boundaries are treated as separate entities–:

- (461) a. Pure state
- b. Pure (atelic) process
- c. Transition with a change of state
- d. Pure achievement
- e. Achievement followed by a result state
- f. Achievement followed by a process
- g. Complex transition involving an achievement followed by a process and a second culminating achievement followed by a state
- h. Complex processes that may result in a gradual change (degree achievements)

The question is of course empirical, as which ones of these combinations are actually attested –with distinctions reflected in their grammatical behaviour– must be determined by examining carefully distinctions between verbs and verb classes. The idea, in any instance, is that the more primitives one postulates in the system, more potential classes should emerge from the combination of these primitives. At the beginning of this article we mentioned that one problem of any theory is to find the right language to derive all the attested classes, without overgenerating in predicting that some classes that are never attested should exist. We have just seen that a distinction between boundaries and extended eventualities has a lot of power to generate many classes, including both types that are clearly attested and more problematic types. However, the question that arises now –and remember that the logic we have followed now is merely a logic based on a graphic representation– is how these classes relate to each other and which language should be adopted to account for them, beyond a mere 'drawing' of what they look like.

This will be part of the topic of the next section, which discusses the theories about the nature of lexical aspect.

8. The formalisation of lexical aspect: semantic issues

As we have seen in §2, the traditional classification of lexical aspect types is based on the assumption that lexical aspect is a temporal notion that, specifically, defines different internal time-occupying phases within the eventuality described by the predicate. This position has some initial plausibility because verbs, at least in the languages that we are most familiar with (see Wiltschko 2014), are the only grammatical categories that can be inflected for tense. If tense is what defines verbs as opposed to the other grammatical categories, it is natural to expect that the

grammatically relevant properties of verbs that allow to make distinctions among them are also time-occupying entities.

This approach, however, has three particular problems. The first one, as we saw in §2.2, is that lexical aspect is defined compositionally within the predicate –specially in the distinction between activities and accomplishments, as we saw in §4 and §5– by constituents that are not verbal, and by the same reasoning should lack a temporal dimension. The question is how one can put together a purely temporal object and a time-less object in a way that the non-temporal properties of the latter influence the former in a crucial way. We have seen that at least the boundedness of individuals, the properties of spatial paths and the properties of degree and scales can influence the telicity of the predicate.

- (462) a. Juan comió arroz. Atelic - mass noun
 Juan ate rice
- b. Juan comió un kilo de arroz Telic - count noun
 Juan ate one kilo of rice
- (463) a. Juan corrió hacia la puerta. Atelic - unbounded path
 Juan ran towards the door
- b. Juan corrió hasta la puerta Telic - bounded path
 Juan ran to the door
- (464) a. Juan engordó poco a poco. Atelic - unbounded scale
 Juan got.fat little by little
- b. Juan engordó un kilo. Telic - bounded scale
 Juan got.fat one kilo

This is the first problem: how do we integrate a temporal object with a non temporal object in a way that, despite being in two different dimensions, they manage to interact in such a close way?

The second problem is that there seem to be correlations between the argument structure of a predicate and the lexical aspect. We have already seen evidence for this; as Dowty (1979) notes, one argument that supports Vendler's (1957) claim that states and achievements belong to the same macroclass is that, in contrast to activities and accomplishment, they tend to form predicates that are non agentive –with some exceptions, as we have already seen in §3–. To remember the point, both states and achievements tend to disallow final clauses and agent-oriented modifiers:

- (465) a. A Juan le gusta la música (*para conquistar a María).
 to Juan him likes the music (to seduce A María)
 'Juan likes music (*in order to seduce María)'.
 b. Juan se cayó (*para examinar el suelo).
 Juan SE fell (to examine the floor)
 'Juan fell (*in order to examine the floor)'.
 (466) a. A Juan le gusta (*queriendo) la música.
 to Juan him likes (willingly) the music
 b. Juan se cayó (*queriendo).
 Juan se fell (willingly)

If lexical aspect is purely temporal, it should not have anything to say about the entailments that the verb adds to the participants that compose the situation that it denotes. It is generally assumed that participants do not directly combine with temporal

properties, and that theta roles such as agent or patient do not interact in any grammatical way with the definition of temporal relations. This is another instance of the puzzle of how one can conceive that temporal properties combine with non temporal properties, influencing each other: in this case, a temporal property related to aspect seems to define a non temporal property relating to the interpretation of the arguments.

The third problem is that very frequently the objects that influence lexical aspect also have some role in defining properties that have to do with the intensity or lack of intensity of an event. We saw this also in §2.2, where we noted that some prepositional complements and some interfixes have the role, in addition to defining some event as atelic, of adding the idea that the event was performed in a less intense and regular way.

(467) comer ~ com-isc-ar
eat eat-inf-vbl 'nibble'

This is also surprising if lexical aspect is a purely temporal construction, to the extent that we do not expect necessarily that events that lack a termination point or culmination should be viewed as performed in a more irregular or less intense way.

These facts have been among those that have triggered a reassessment of the nature of lexical aspect in semantic terms –and also partially in syntactic terms, as we will see in §10, as a way to explain why theta roles and lexical aspect may interact–. The reevaluation of the notion of lexical aspect has followed what could be interpreted as three different routes:

a) The formalisation of the traditional four classes in Vendler (1957) was performed in the early 70s in a way that, still considering it a purely temporal property, aspectual properties are not properties of verbal heads but of complex constituents (Verkuyl 1972).

b) Alternative, non temporal approaches, where developed starting in the late 70s, particularly through Dowty's (1979) aspectual calculus, which recasts the lexical aspectual classes in terms of the logical entailments that different verbal operators have.

c) Finally, and starting also from the late 70s, lexical aspect was reduced to other, more basic non-temporal notions, that by hypothesis underlie both the temporal phases of the verb and the mereological properties of objects that can influence the lexical aspect of a predicate –for instance, through scales–.

Let us then discuss these approaches in this section.

8.1. Aspect as a property of VPs

The first proponent, within formal linguistics, of a theory of lexical aspect where the relevant distinctions are not done within verbal heads but within whole verbal predicates –verbal phrases, VPs– is Verkuyl (1972), who cites Poutsma (1926) as an antecedent for the intuition underlying to this. Verkuyl's (1972) reasoning goes as follows (sentences translated to Spanish from the original):

- (468) a. Greta caminó durante horas.
Greta walked for hours
b. #Greta caminó desde el Mint hasta el Dam durante horas.
Greta walked from the Mint to the Dam for hours

The first predicate allows a single-event reading of the for-modifier, while the second rejects this single event reading and is only compatible with an iterated event reading (walked back and forth between the two locations for hours). As we already know, this is a distinction that is based on telicity, which in Verkuyl's (1972) system is called durativity: durative predicates correspond, roughly, to atelic predicates because they can be prolonged indefinitely, while nondurative roughly corresponds to telic predicates.

What Verkuyl (1972) notices is that, assuming that a for-modifier has a feature 'duration', one would have to take this contrast to mean that there should be one durative verb 'walk' and one non-durative verb 'walk'. In other words, one is forced to claim that there are in practice two walk verbs that are different and combine with different entities. This conclusion, as he explains, is unmotivated and would lead to an explosion on the quantity of lexical entries that one has to consider for the verbal domain.

The alternative would be to accept that some complements –such as 'from X to Y'– have the power to neutralise the durativity of the verb. This is also problematic, in his view, because that amounts to saying that the aspect of the verb is in fact a reflection of the aspect of nonverbal categories, thus losing a generalisation and making the paradoxical claim that a property of constituents headed by verbs is actually a property of the non verbal members of that constituent. Moreover, one would need an independent operation with enough power to cancel a positive property of a verb.

Note that there is a third option that Verkuyl (1972) does not discuss, which is to claim that the verb does not contain a durative or nondurative feature. The (perhaps obvious) reason why this option is untenable is that in a predicate without modifiers this verb, an activity, behaves clearly as durative (atelic):

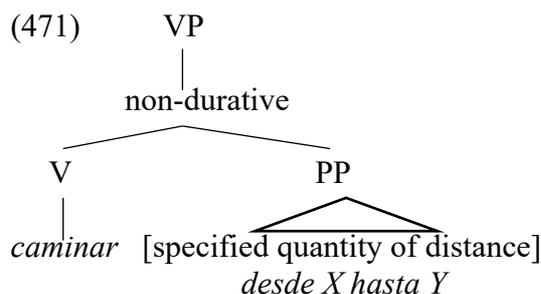
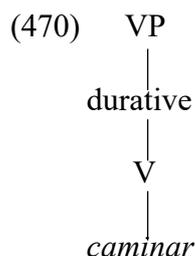
(469) Juan caminó.
 Juan walked

Instead of these failed options, he proposes, durativity should be assigned not to lexical heads, but to the compound categories that contain a verb and form the verbal phrase.

His system, which is closely attached to the theoretical assumptions of Chomsky (1965), contains three components:

- a) A tree structure, which in this theory is a primitive (that is, tree structures are generated by rules and not by the freer merge operation that derives them step by step, as it is the case in most current approaches)
- b) A set of features that characterise the nodes in that tree
- c) Statements that determine the compatibility or incompatibility between features that are in adjacent nodes.

With these components, this is the explanation of the previous contrast. The feature [durative] or [nondurative] is assigned to the VP node –specifically, it is a property of nodes where V is a subcategory, which in practice means that it is assigned to constituents headed by a verb–. The for-modifier contains a feature corresponding to [duration]. [Duration] and [durative] are compatible, but [duration] and [nondurative] are incompatible. The following trees (simplified from Verkuyl 1972: 44) represent the proposal.

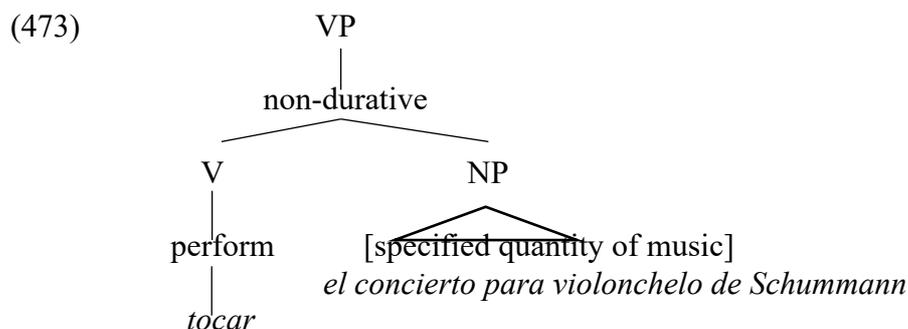


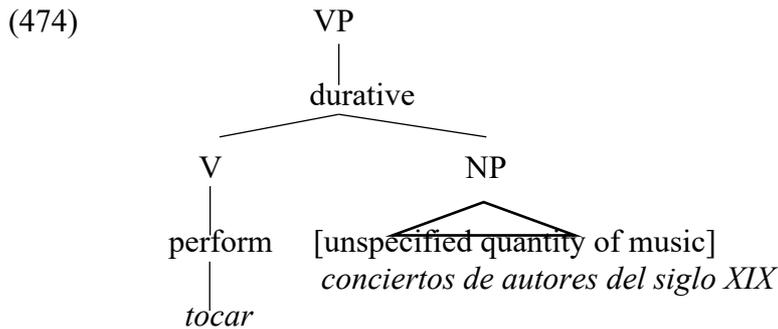
Note that in this approach the features contained in nodes are not a projection of the features of their daughters. The idea is that properties such as telicity as assigned not to verbs, but to a tree node that dominates the verb. Of course, in our current understanding of syntax this is not a theoretically valid option any longer, but it was fully compatible with the theoretical tenets of generative grammar at the time that Verkuyl (1972) was written.

The grammaticality of a for-modifier with the first diagram but not with the second follows from the incompatibility between the specifications [non-durative] and [duration] in the same VP: for-modifiers are marked as [duration], so they can be introduced in a VP headed by 'walk', but they cannot be introduced in a VP that contains the non-durative feature.

Of course, the same set of assumptions can easily explain the telic / atelic distinction with direct objects. For this, Verkuyl (1972) proposes that a direct object that contains the feature [specified quantity of X] would have to be introduced only in VPs marked as nondurative, while direct objects with the feature [unspecified quantity of X] correlate with VPs marked as [durative].

- (472) a. De Machula tocó el concierto para violonchelo de Schumann.
 De Machula played the concert for cello by Schumann
 b. De Machula tocó conciertos de compositores del siglo XIX.
 De Machula played concerts by composers of the century 19





Of course, this does not mean that the information connected to the verb is completely irrelevant for the construction of aspect: after all, VP is a constituent headed by V and Verkuyl states the condition that [durative] and [nondurative] can only mark nodes which contain a verb. Verkuyl (1972: 106) notes that the cases where the verb is sensitive to the notion of 'specified quantity of X' can be semantically identified. The verbs that are sensitive to the 'specified' and 'unspecified' quantity present in the VP must fall into the classes that he calls 'movement', 'perform' (where one reproduces something, without creating it), 'take' (which roughly corresponds to verbs of consumption), 'change' and 'add to'. This last notion is crucial in the theory, as it is assumed to be a type of feature contained in verbs that can be interpreted as an early codification of the intuition that some verbs involve incremental changes that can occur piece by piece; this idea is integrated and reinterpreted in mereological approaches to aspect.

The reasons why Verkuyl's (1972) approach is not adopted in current times within Generative theory is independent of Verkuyl's intuitions: the theoretical universe does not allow us any longer to define nodes in a tree by features that are not already contained in the elements that compose it. In fact, in later work (Verkuyl 1993) he generalises the feature [add to], and proposes that verbs falling in the previous semantic classes (take, movement, etc.) that are sensitive to the boundedness of an internal argument all contain this feature, which is ultimately the crucial element in explaining the alternation between telic and atelic readings of the same verb. The idea in those approaches now is that the durativity or nondurativity (termination) of a predicate does not need to be specified as a feature introduced at a VP level. Rather, the definition stays at a VP level but follows from the feature information contained in the members of VP: the verb must contain an [add to] feature, and that makes it sensitive to whether the internal argument has or does not have a specified quantity of X, which is now codified as a feature [SQA], 'specified quantity of A'. Like this, the system becomes more parsimonious and elegant.

A predicate specified as [-add to] will not be sensitive to the termination that the boundary of an [+SQA] argument could in principle introduce, producing therefore stative verbs:

- (475) a. Juan está enfermo.
 Juan is sick
 b. Juan quiere comerse un bocadillo.
 Juan wants to.eat a sandwich

A verb specified as [+add to] in combination with a [-SQA] argument will produce an activity verb. That unspecified quantity feature may be contained in the theme argument, the source or the goal:

- (476) a. Juan dio tarjetas a un asistente.
Juan gave badges to a congress-goer
b. Nadie dio una tarjeta a un asistente.
nobody gave a badge to a congress-goer
c. Juan dio una tarjeta a los asistentes.
Juan gave a badge to the congress-goers

Finally, a [+add to] verb with an argument denoting [+SQA] produces telicity.

- (477) a. El paciente murió.
the patient died
b. Juan le dio una flor a María.
Juan her gave a flower to María
c. Juan comió tres bocadillos.
Juan ate three sandwiches

However, we should note that current theories like Construction Grammar (Goldberg 1995) do allow, in a sense, this result: in this theory, all grammatically relevant properties of items are contained in more or less abstract templates ('constructions'), so that the possible properties that individual items have outside that construction are irrelevant (to the point that nothing that is not a construction has relevant properties). See, for instance, Jackendoff (1997), where he studies combinations like the following:

- (478) a. Bill slept the afternoon away.
b. We're twistin' the night away.

He notes that these structures –crucially: independently of whatever the main verb means– have properties that relate them to resultative structures, and concludes that one needs to accept the existence of a 'template' that roughly corresponds to V + NP + away which codifies this complex semantics.

Let us now move to the second family of proposals.

8.2. *Aspectual calculus*

The second option to explain why lexical aspect is affected by members within the VP is to associate lexical aspect not to temporal properties, but to argumental or logical entailment properties. If these logical entailments affect the participants in the event, then it follows that they should interact with lexical aspect in a significant way.

This is the core intuition of aspectual calculus, first proposed by Dowty (1979). His proposal is based on the idea that stative verbs are the basic category within lexical aspectual classes and that all other relevant aspectual classes are derived from stative predicates by adding to them three abstract predicates: DO, BECOME and CAUSE. Therefore, as Filip (2011: 733) notes, the idea is that from a stative formula like (479a) we can derive a single change of state or a complex change of state:

- (479) a. La habitación está vacía.
the room is empty
empty'(room)
b. La habitación se quedó vacía.
the room se got empty

- BECOME empty'(room)
 c. Juan vació la habitación.
 Juan emptied the room
 [Juan did something] CAUSE [BECOME empty'(room)]

Note that the idea is that CAUSE is a predicate that relates two situations (in Dowty 1979, it connects two sentences), where the second is usually a BECOME situation.

The important point, beyond stative verbs being the basic form, in this theory is that it explicitly ignores temporal extension criteria and therefore produces a new type of aspectual classification where Dowty (1979) claims that the natural classes are better accounted for.

The replacement of temporal notions by other types of notions happens in two different senses. Like other theories, there is a sense in which telicity or boundedness is codified, but this sense is through the different verbal abstract predicates that combine with the stative basic form. The idea is that BECOME expresses a definite change – roughly, it must have a termination, although Dowty (1979) is not explicit about this claim–, while DO involves a process that does not need to have a termination. Further distinctions can emerge when one considers the possibility that a change can be simple or complex: in the second case, two or more abstract predicates combine with each other.

The second and most crucial way in which temporal notions are replaced by predicate entailments in Dowty's (1979) theory is that his proposal explicitly rejects the validity of the punctual ~ nonpunctual distinction that in principle could differentiate achievements from accomplishments. This, obviously, leads to a reconfiguration of how this distinction applies, if at all, in the verbal domain.

Dowty's (1979: 180-185) arguments to reject a temporally based distinction along these lines are as follows. First of all, and contra Vendler (1957), achievements can appear like accomplishments in the progressive form –as we noted in §6.1, although with different readings–, as in cases like *John is dying*.

Second, Dowty argues, the distinction between transitions that happen at a minimal interval consisting of two points –remember the discussion about whether achievements are short accomplishments or literally instantaneous, §6.2.1– is not always clearcut. Dowty (1979: 181) notes that in a sentence like *It took John an hour to fall asleep* it is not specified if the transition from being awake to being asleep happens gradually over the hour, over some final interval of the hour or at the very last moment. For this reason he considers the distinction to be linguistically irrelevant, as it can be codified through the same sentence. Dowty also rejects the criterion that goes back to Ryle (1949) and treats achievements as non agentive predicates, as –he argues– events generally considered like achievements such as reach the finish line or arrive in Boston can be performed agentively (see §6.2.3 for the claim that achievements can be in fact agentive).

In Dowty (1979) what remains of the achievement / accomplishment distinction is a notion assimilable to his difference between simple and complex change. Accomplishments are definite changes where the semantics of the predicate entails that there is a subsidiary event or activity that brings about the change, as in for instance the following sentences:

- (480) a. Juan construyó la casa.
 Juan built the house
 b. Juan caminó un kilómetro.

Juan walked one kilometer

Thus, the first sentence is treated as a complex change because John's building the house causes the house to exist –to become a real object–. In contrast the following predicates are treated as achievements because they do not entail any previous subsidiary event that causes that change:

- (481) a. Juan mató a Pedro.
 Juan killed to Pedro
 b. Juan indicó el camino.
 Juan pointed-out the road

Note that the claim being made here is the natural opposite to what Smith (1991) and Piñón (1997) claim, which is that achievements presuppose previous or subsequent processes, states or events. In Dowty (1979) the achievement is specifically differentiated from the accomplishment because the former lacks a subsidiary activity or process that brings about the change; in practice, for him that accomplishment is defined as involving a CAUSE event that relates one situation (the one that sets the change in motion and leads to the change) to another (the change itself).

Note, furthermore, that this system allows accomplishments and achievements to be of different types. The predicates DO, CAUSE and BECOME can combine in different ways in them. The following diagram represents a state, the basic element:

(482) $\pi_n(a_1, \dots, a_n)$

An activity is in principle a combination of the state with the predicate DO, which is a predicate that requires the subject to be an agent:

(483) $DO(a_1, [\pi_n(a_1, \dots, a_n)])$

Achievements must be headed by BECOME because it is crucial that they are not preceded by another event, but that predicate can contain for instance a DO situation, producing an inchoative event:

(484) $BECOME[\pi_n(a_1, \dots, a_n)]$

(485) $BECOME[DO(a_1, [\pi_n(a_1, \dots, a_n)])]$

Accomplishments can be quite complex, and they always are headed by CAUSE, which relates two situations.

(486) $[[BECOME \phi] CAUSE [BECOME \psi]]$

(487) $[[DO(a_1, [\pi_n(a_1, \dots, a_n)])] CAUSE [BECOME \psi]]$

(488) $[[DO(a_1, [\pi_n(a_1, \dots, a_n)])] CAUSE [DO(b_1, [\pi_m(b_1, \dots, b_n)])]]$

It is, from this perspective, perhaps an unfair criticism the one raised in Filip (2011: 734) where she notes that many verbs classified as accomplishments by the usual temporal tests cannot be considered causative by their internal behaviour. Some such examples are *John ate the soup* and *John drove a car from Boston to Detroit*, where they lack the properties of causative verbs (to put it simply, they do not require a causal

chain and should be characterised as agentive verbs that introduce agents; Van Valin & LaPolla 1997). The absence of a causal chain can be noted in the impossibility of them taking instrumental subjects, in contrast with verbs like *cortar* 'cut' which are causative because Juan's moving the knife causes the bread to get cut.

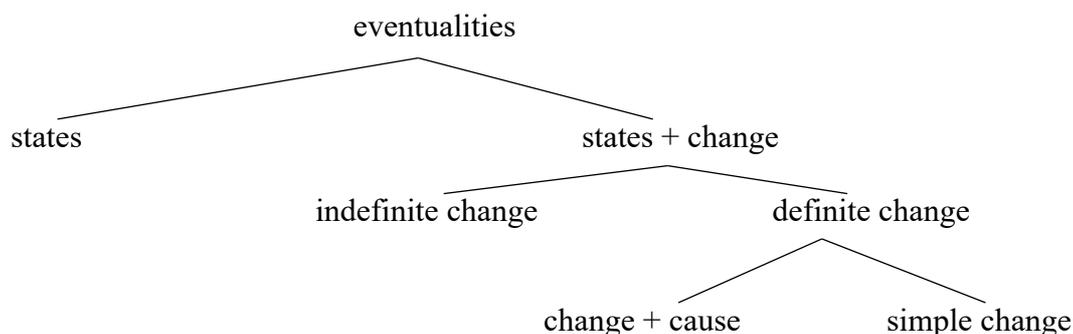
- (489) a. Juan cortó el pan con un cuchillo.
 Juan cut the bread with a knife
 b. El cuchillo cortó el pan.
 the knife cut the bread
- (490) a. Juan comió la sopa con una cuchara.
 Juan ate the soup with a spoon
 b. *La cuchara comió la sopa.
 the spoon ate the soup

The idea is that 'eat' is not caused by Juan's moving the spoon to his mouth.

The point, however, is that for Dowty (1979) the temporal properties of a predicate are irrelevant to categorise a verb, and specifically he rejects an ontological distinction between achievements and accomplishments; the idea then is that in principle he could argue that if these verbs lack a cause component they should not be viewed as accomplishments in their basic form, but as activities (characterised as DO) which somehow can be delimited.

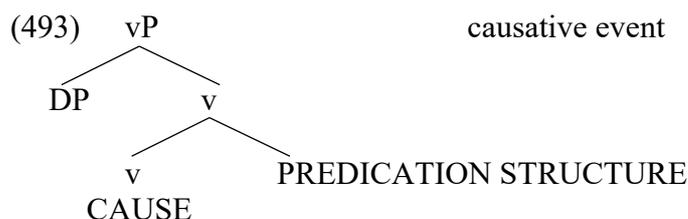
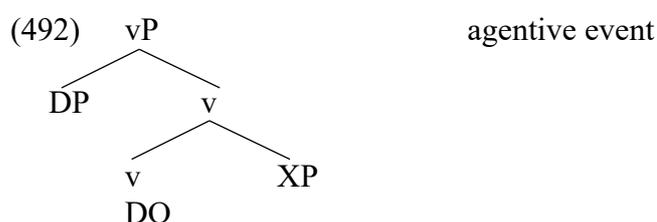
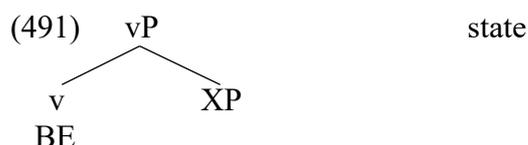
The merits of this theory, then, have to be analysed internal to its own claims, and specifically should be based on the two main tenets of the theory: a) all verbs start from a stative template, so state is the basic form and b) the other distinctions that are relevant for grammar is whether change is definite or not and whether change is complex or not. This, as we noted in §2.1, makes a specific hypothesis about how the predicates should relate to each other in terms of macroclasses, which is roughly as follows:

Diagram 6. Macroclasses in Dowty (1979)



The current theoretical universe favours mereological theories over aspect calculus, accepting that one cannot establish a strong correlation between causative verbs in terms of their other properties—that is, causative verbs do not always behave in the same way with respect to grammatical tests, which casts doubt on the claim that causativity alone can characterise a class of verbs—. Also, it has been pointed out (Verkuyl 1993) that Dowty's system does not explicitly address the notion of definite or indefinite change, in particular in attempting to explain why DO has some 'change' but that change does not reach an endpoint. However, remnants of predicate calculus are extensively used in some current theories about aspect.

In particular, Harley (1995; see also Folli & Harley 2005, 2008) develops a theory of verb classes where the primitives BE –which stands for the stative basic class–, DO, CAUSE and BECOME are interpreted as different flavours of the same head, a verbaliser *v*. 'Flavours' means that the four predicates are manifestation of the same syntactic category, although with different features or properties. For instance, the selectional requisites of CAUSE impose that it selects predicative relations –a way to codify in modern systems Dowty's claim that causative verbs are always relations between two situations–.



Note, however, that in this system statives are not basic templates used to derive other classes, but independent predicates.

Let us now move to mereological approaches to aspect.

8.3. Mereological approaches

The common intuition in mereological approaches is that lexical aspect is temporal, but it is only a temporal manifestation of a notion related to parts and wholes of entities. While the temporal manifestation is virtually exclusive of the verbal domain, the part-whole logical relations that underlie it are common to temporal and not temporal objects. This is what explains that verbs can interact with their internal arguments to codefine aspect: both are formulated in a part whole structure.

Beyond the compositionality of lexical aspect, the second factor that strongly supported a mereological view is the observations done in Mourelatos (1978) and Bach (1981) about the plausibility of talking of 'count' and 'mass' events, extending to that domain a distinction that was initially formulated for the nominal domain.

Mourelatos (1978: 424) puts it like this: in the same way that there are nouns that are naturally classified, given their entailments, as denoting count entities with specific

boundaries, there are verbs that are understood as introducing bounded situations in time –telic, then–:

- (495) squirrel, boy, house
 (496) erupt, jump, leave

In the same way that the first can be counted, the second can –either with an adverb that quantifies its repetitions or through a derived nominal–:

- (497) three squirrels
 (498) a. Vesubius erupted three times.
 b. There were three eruptions of Vesubius.

The parallelism can also be established for mass nouns and other situations:

- (499) snow, hunger, wine
 (500) push, is painting

Here, mass nouns reject numerals, but accept to appear as bare nouns in singular:

- (501) a. There is snow.
 b. *three snows
 (502) a. *John is painting three times.
 b. There was painting by John.

This shows that there should be some basic notion common to nouns and verbs, which is responsible for the parallelisms as well as for the fact that the two can communicate with each other in order to compose lexical aspect. The basic tenet of a mereological approach is that this basic notion is the logical entailments underlying the part-whole relations for these predicates (Bach 1981, 1986, Hinrichs 1985, Tenny 1987, Krifka 1989, 1992, 1998, Piñón 1997, Rothstein & Winter 2004, among many others).

We have already seen this type of theory in our discussion of telicity (§5): the two main relations are part-of '≤' and sum '⊕'. When two predicates P can be added and one obtains still a predicate describable as P, one has a cumulative or homogeneous predicate –which maps as an atelic predicate in the verbal domain–. When the sum fails and a proper part of the predicate P cannot be described as P, one obtains a quantised predicate that is heterogeneous –roughly mapping into a telic event, although remember that there are telic non quantised predicates, §5.2.2–.

- (503) $CUM(P) \leftrightarrow \exists x,y[P(x) \& P(y) \& \neg x = y] \& \forall x,y[P(x) \& P(y) \rightarrow P(x \oplus y)]$
 (504) $QUA(P) \leftrightarrow \forall x,y[P(x) \& P(y) \rightarrow \neg y <_p x]$

These properties can be used to describe both predicates of events –time-occupying entities– and properties of individuals that occupy space. In the same way that a part of an apple is not an apple, a part of an eruption (if it can at all have parts) is not an eruption, and in the same way that a part of wine is wine, a part of running (that is not too small) is running. Rothstein's (2004) theory about internal atoms of an event can also be considered another manifestation of a mereological approach.

In addition to the discussion whether quantisation is a good way of accounting for telicity or atomic elements should be the way to codify the aspectual notions (remember

§5.2.2), the other main point of conflict within mereological approaches is how the mereological properties of an argument are specifically mapped to the verb. Remember that not all arguments, but only those internal arguments that can be described as incremental objects, rheme paths or simply paths (§2.2) have the power to influence lexical aspect.

The debate, in part, has to do with how much information about this mapping is conditioned by syntax and how much depends on pure semantics, world knowledge or even pragmatic principles (Jackendoff 1996). We will revise some of these approaches in the context of the issue of how much of lexical aspect is codified in syntax in §10.

Given that the mereological approach and its versions has already been extensively discussed in §5, §6 and §7 we will not devote a lot of time to it here. We want to mention, however, that there are two specific manifestations of this approach that have become relevant in the last years. The origin of the two manifestations is a common one, the observation that there are three dimensions of change that are amenable to a part-whole analysis and interact with lexical aspect in a significant way (Ramchand 1997):

- | | |
|---|-----------------|
| (505) Part-whole relations of individuals | |
| a. Juan comió una manzana. | Telic |
| Juan ate one apple | |
| b. Juan comió sopa. | Atelic |
| Juan ate soup | |
| (506) Spatial trajectories | |
| a. Juan voló a Madrid. | Telic |
| Juan flew to Madrid | |
| b. Juan voló hacia Madrid. | Atelic |
| Juan flew towards Madrid | |
| (507) Scales of values related to degree | |
| a. Juan engordó dos kilos. | Telic |
| Juan got fat two kilos | |
| b. Juan engordó. | Possibly atelic |
| Juan got fat | |

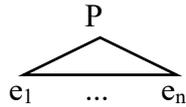
The observation is that in some sense the possible boundaries in space of an incremental object, the possibly bounded trajectory of movement and the possibly bounded set of values related to a scale can all be reduced to the same type of object. The question is what type of object, with internal part-whole relations that can be homogeneous or heterogeneous, is the relevant one.

One first option is to treat these mereological relations as coming from a basic spatial dimension, which is taken as the model in order to conceptualise other more abstract mereological relations. With the antecedent of Gruber (1965), this type of approach that builds a spatial semantics for verbal predicates has Jackendoff (1983, 1990), Langacker (1987), Talmy (1988) and Pustejovsky (1991) as its main proponents. For instance, in Pustejovsky (1991) three different ontological types of events are defined by their internal structure, with the possibility of further decomposing the third type in a structured combination of the first two:

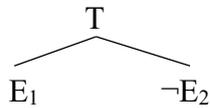
(508) states S, defined as single events



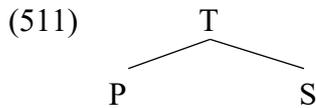
(509) processes P, as a sequence of single events that identify the same semantic expression (activities)



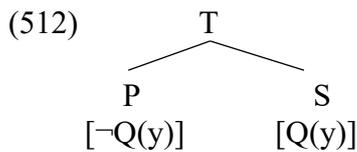
(510) transitions T, as an event that identifies a semantic expression that is evaluated relative to its opposition



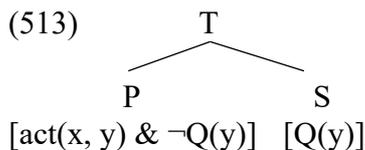
Pustejovsky (1991) himself presents his theory as a spatial reinterpretation of Dowty's (1979) predicates. Importantly, the transition is itself analysable as a combination of a process followed by a state.



Accomplishments and achievements are differentiated much in the terms of Dowry (1979): achievements only make reference in their information to the predicate opposite, as in what follows:



Accomplishment make reference, in addition to the predicate opposite, to the activity that is performed during the time that the predicate opposite holds:

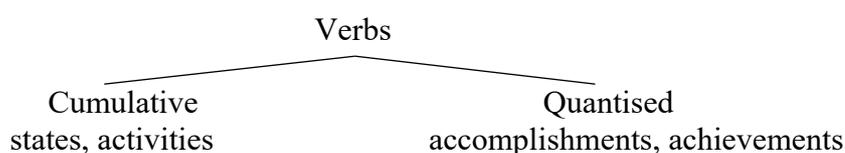


The other version of mereological theory that we want to highlight is the one that takes scales to be the underlying notion common to the three domains (Hay, Kennedy & Levin 1999, Caudal & Nicolas 2005, Gawron 2005, Kennedy & McNally 2005, Kennedy & Levin 2008, and to some extent Ramchand 2008). See §7.3 for some basic

notions about this theory, as it has been mostly applied in the domain of degree achievements. The intuition is that scales in adjectives are sets of ordered values that can be taken to delimit or not an event of change either directly (Hay, Kennedy & Levin 1999) or indirectly, mediated by degree (Kearns 2007). From this perspective, one can extend the notion of 'set of ordered values' to the spatial domain and obtain a path –a set of ordered points in space–, in a way that trajectories can also be amenable to a scalar analysis (see Zwarts & Winter 1997, Zwarts 2000). Extending the notion of set of ordered values to the part-whole relations of individuals is not as simple, however, as there is no intuitive sense in which the internal parts of an apple are somehow ordered. However, Ramchand (2008) uses the term 'path' to conflate scales, trajectories and incremental objects, suggesting that they belong to the same class of entities. One could in fact speculate that the mereological parts of an apple are ordered enough for the purposes of an event that takes it as incremental theme, as one part would necessarily be the part that the event is first applied to –'eating an apple' starts with one bite– and another part will be the final one –the last part consumed–. Perhaps it is enough with a partial ordering that simply defines an initial and a final part, and allows all intermediate parts to be ordered arbitrarily. However, the scalar approach has not been explicitly extended to these cases yet, to the best of my knowledge.

Note, to conclude this section, that the mereological approach based on boundaries / quantisation predicts that the relevant macroclasses for grammar will be the two cumulative ones vs. the two quantised ones, as follows.

Diagram 7. Macroclasses predicted in a mereological approach



In contrast, a mereological approach defined as atoms, such as Rothstein (2004) does not make exactly this prediction. Remember (§5.2.2) that in her approach there are two relevant features, [stages] and [telic]. Telicity involves endpoints, and therefore whether the verb denotes some naturally 'atomic' situation or its partitions would be arbitrary, while the presence or absence of stages involves whether the event can be subdivided in parts of different nature.

These two features allow for two classes of relations. From the perspective of telicity (although defined differently), Rothstein (2004) expects the same macroclasses as the other mereological approaches, but from the perspective of [stages] she puts together states with achievements, and accomplishments with activities. Note that in none of the mereological theories are states privileged as basic entities, unlike in Dowty (1979).

The question, at this point, is which one of these approaches functions better. As we have said already long time ago in §2.1, the only way of exploring this question is empirical, and specifically through the macroclasses that they predict. These macroclasses should be visible in the possible alternations that verbs allow when they can be ambiguous between two or more classes. This is the topic of the next section.

9. Macroclasses: aspect-shifts

This section deals with the well-known fact that single lexical verbs sometimes can alternate between two or more lexical aspectual classes. This empirical issue is relevant in principle for two questions: determining which classes are closer to each other, and

therefore having some empirical ground to decide between different theories about macroclasses, and the problem of how much information should be codified in one single verb and how much underspecification is necessary in order to account for these alternations. After pointing out some general facts (§9.1) we will discuss each one of the classes in the same order that we have presented them above: we will discuss the different ways in which verbs can adopt readings corresponding to each one of the classes, starting with states (§9.2) and ending with achievements (§9.5).

9.1. General about the alternations

In what follows we will present the alternations, but we will adopt two methodological principles in order to avoid an explosion of the alternations that might end up being confusing and blurring the generalisations instead of highlighting them. First of all, we will not consider alternations that are expressed by the use of auxiliary or phase verbs, such as the contrast in the following pair:

- (514) a. Juan corrió.
 Juan ran
 b. Juan empezó a correr.
 Juan started to run

Even though the first predicate is interpreted as an activity and the second is an achievement, we will leave this type of cases outside because they do not affect the aspect of the verb at the lexical level –in both cases, it is interpreted as an activity, and the phase verb *empezar* simply focuses the initial point, turning the whole into an achievement–. Here we are getting into the domain of grammatical or viewpoint aspect, instead of lexical aspect.

For the same reason, we will avoid discussing cases such as the habitual reading of verbs, that can produce an atelic interpretation of telic verbs through a plural participant; we assume with Ramchand (2008) that these readings are producing an atelic construal at the level of grammatical aspect –an unbounded sequence of events–, and that the predicate is still telic.

- (515) a. Los bebés nacieron en ese hospital durante varios años.
 the babies were born in that hospital for several years
 b. Juan escribió cartas durante una semana.
 Juan wrote letters for one week

Secondly, we will avoid discussing specific verbs and will concentrate on general verb classes and general operations that relate two or more aspectual classes. This is a choice aimed at avoiding an idiosyncratic discussion of individual verbs that would produce a fragmented view of all the possibilities; our goal is to concentrate on general operations that apply to a group of verbs in order to exclude as much as possible the potential flexibility of individual conceptual meanings. For instance, there is a significant literature devoted to the aspectual information associated to verbs of perception containing an experiencer, and particularly of the verb *ver* 'see' (Fernández Lagunilla 2000). This verb allows stative readings, activity readings, accomplishment readings and achievement readings.

- | | | |
|----------|---|----------------|
| (516) a. | Un ciego no ve.
a blind not sees
'A blind person cannot see' | State |
| b. | Juan veía el paisaje por la ventana.
Juan saw the landscape through the window | Activity |
| b. | Juan veía la película.
Juan watched the movie | Accomplishment |
| c. | En ese momento, Juan vio a Pedro.
in that moment, Juan saw A Pedro | Achievement |

Instead of concentrating on this particular verb, which seems to be very flexible, we will discuss the operations that underlie this alternation: the stative reading involves a capacity interpretation of the predicate –the ability to see– (§9.2), the activity and the accomplishment reading involve properties of the object, which can be something that is contemplated for an unbounded time or something with an internal running time (§9.3, §9.4) and the achievement reading involves crucially the possibility of setting an internal starting point where perception is obtained (§9.5).

9.2. How to turn things into states

In this section we will discuss the systematic ways, not using grammatical aspect, that can turn a predicate belonging to other classes into a state. There are four main ways to do this:

- a) Through an ability reading of the event involved in the verb
- b) Through a dispositional property reading of the situation
- c) Through an instrument reading of the subject
- d) Through the mapping to space of the change involved

The ability reading is obtained when the event description is used not to express a situation that is anchored to a specific time or space, but in order to describe the situations that in principle are compatible with the internal capacities of the subject. In this sense, the reading that is obtained in this cases is an individual level stative predicate.

- | | | |
|----------|--|-------|
| (517) a. | Juan habla inglés.
Juan speaks English
'Juan can speak English' | State |
| b. | Juan escribe en letras góticas.
Juan writes in letters gothic | State |
| c. | Juan interpreta jeroglíficos egipcios.
Juan interprets hieroglyphics egyptian | State |
| d. | Juan conduce todo tipo de vehículos.
Juan drives all kind of vehicles | State |

The individual nature of the ability reading is visible by the fact that the progressive periphrasis blocks this interpretation:

- (518) #Juan está hablando inglés.
Juan is speaking English

It is typical that this ability reading targets activity verbs, either because there is a tendency that objects appear in a generic plural reading or because the object is implicit and interpreted as generic. This, however, does not mean that accomplishments are excluded:

- (519) a. Juan se come un bocadillo en un minuto. State
 Juan SE eats a sandwich in one minute
 'Juan is able to eat a sandwich in one minute'
 b. Juan escribe un artículo en una tarde. State
 Juan writes an article in one afternoon
 'Juan is able to write an article in one afternoon'

It is more difficult to obtain the ability reading with achievements, but this might be for independent reasons: if the typical subject of an achievement is an affected entity that is not controlling an event, it makes sense that the situation cannot be presented as an ability of that subject. However, some examples can be offered where the internal argument is generic:

- (520) a. Juan fuerza cualquier cerradura. State
 Juan picks any lock
 'Juan is able to pick any lock'
 b. Juan identifica el error más pequeño en un texto. State
 Juan spots the mistake most small in a text
 'Juan is able to spot the smallest mistake in a text'

The second typical way of turning an eventive predicate into a stative predicate is interpreting the predicate as the internal property of being disposed to participating in that situation. This dispositional reading (Rothmayr 2009) relates to the constructions that have been considered 'middle':

(521) This book reads well.

The condition that one sets on these dispositional readings is that the subject is not interpreted as an external causer; in the previous sentence one interprets that 'read well' is a property that characterises a particular book, and that it is disposed to participating in that type of situation due to its internal properties. This reading can be easily obtained with many non causative verbs, most of which are achievements, and is facilitated by generic readings of the subject:

- (522) a. La puerta cierra mal.
 the door closes badly
 b. Estas historias acaban mal.
 these stories end badly
 'This type of stories tend to end badly'
 c. Las pecas aparecen con facilidad en la cara.
 the spots appear with ease on the face
 d. Esta aguja entra sin dolor en el cuerpo.
 this nail enters without pain in the body

This does not mean that dispositional statements are restricted to achievements. Activities with generic subjects, without objects or with generic objects, can also participate of this reading:

- (523) a. Este somnífero ayuda a dormir.
this narcotic helps to sleep
'This type of narcotic helps sleep'
b. Los intérpretes actúan nerviosos en este escenario.
the actors act nervous in this scene
'Actors act nervously in this type of scene'
c. Los perros ladran de noche.
the dogs bark by night
d. Juan bebe demasiado.
Juan drinks too.much
'Juan tends to drink too much'

It is possible to build similar dispositional sentences with accomplishments, again with a generically interpreted object or subject.

- (524) a. Juan se fuma un cigarro sin problemas.
Juan SE smokes a cigarette without problems
'Juan tends to smoke a cigarette'
b. Juan escribe un artículo con calma.
Juan writes an article with tranquility

Note that the stative nature of these interpretations, again, makes the reading disappear in the progressive form.

- (525) a. #Este somnífero está ayudando a dormir.
this narcotic is helping to sleep
b. #Los perros están ladrando.
the dogs are barking
c. #Juan está escribiendo un artículo con calma.
Juan is writing an article with tranquility

This ascription of properties using a verbal predicate is, as we have noted, closely related to genericity, in a way that its status might differ depending on the assumption one does about what genericity involves. In analyses where genericity is treated as an operator that associates to a sentence (see Chierchia 1995 for an overview), this type of structure would involve grammatical aspect or mood, therefore not being a pure case of alternation at the level of lexical aspect. Note that this problem does not emerge in the ability reading, which does not involve genericity of the arguments involved, and it will not emerge either with the next case, which involves the interpretation of the thematic relation of the subject.

The third way of making a verb stative is by using an external argument that is interpreted as an instrument or means; the reading obtained frequently overlaps with the ability reading, ascribing to the instrument the capacity to participate in some type of event. This is particularly frequent with verbs of change of state, accomplishments or achievements. In the following pairs, the second sentence has a stative meaning while the first is interpreted as eventive (unless one assigns a habitual interpretation to it).

- (526) a. Juan corta el pan.
 Juan cuts the bread
 b. Este cuchillo corta el pan.
 this knife cuts the bread
- (527) a. Juan abre la puerta principal.
 Juan opens the door main
 b. Esta llave abre la puerta principal.
 this key opens the door main
- (528) a. Juan rompe el hielo del lago.
 Juan breaks the ice of.the lake
 b. Este martillo rompe el hielo.
 this hammer breaks the ice
- (529) a. Juan llena el vaso.
 Juan fills the glass
 b. El agua llena el vaso.
 the water fills the glass
- (530) a. Pedro adorna el árbol de Navidad.
 Pedro decorates the tree of Christmas
 b. Las luces adornan el árbol de Navidad.
 the lights decorate the tree of Christmas

Note that even though the instrumental reading sometimes overlaps with the ability reading, they can both be differentiated; if the lights decorate a Christmas tree, we are not saying that the lights have the capacity to decorate a Christmas tree, and there is no genericity involved here –one can talk about a specific Christmas tree and a specific set of lights–.

One particular manifestation of this alternation is noted by Rothmayr (2009) (see also Pesetsky 1995, Arad 1998, Fernández Ordóñez 1999) with respect to object experiencer verbs; if the subject is interpreted as a causer of the state, an event reading emerges, while when the subject is interpreted as a target of the psychological state –the entity that the feeling is directed to– a stative construal is found:

- | | | |
|----------|---|----------|
| (531) a. | Juan asustó (voluntariamente) a María.
Juan frightened (willingly) A María | Eventive |
| b. | Juan está asustando a María.
Juan is frightening A María | |
| (532) a. | La música asustaba a María.
the music frightened A María | Stative |
| b. | #La música estaba asustando a María.
the music was frightening A María | |

It is unusual to find this alternation with activities, but again this might follow from independent causes: as we saw in §4.2.1, many activities are defined by manners, and manner require subjects that can control them, a property that instruments lack. Moreover, they normally lack causal chains that allow the instrument used by an agent to occupy the subject position. For this reason, the second member of the following pairs is rather interpreted as an ability statement:

- (533) a. Juan escanea el terreno con una máquina.
Juan scans the terrain with a machine
b. Esta máquina escanea el terreno.
this machine scans the terrain
- (534) a. Pedro busca al preso con el localizador.
Pedro looks for the prisoner with the localiser
b. El localizador busca al preso.
the localiser looks for-the prisoner

The fourth systematic way in which verbs can be turned into states is through a mapping of their properties to the spatial domain. This option, that is discussed in detail in Gawron (2005, 2007) involves taking a change of state verb and mapping the transition not to time but to space, in a way that the contrasting situations covered by change correspond to different stretches of space with different properties or to a whole physical extension that reproduces the values associated to change. Consider the following pairs:

- (535) a. La piedra bloqueó el camino. Eventive
the rock blocked the road
b. Una piedra bloquea el camino. Stative
a rock blocks the road
- (536) a. Un accidente atascó la circulación a las cuatro. Eventive
an accident stopped the circulation at the four
b. Un accidente bloquea la circulación en el km 4. Stative
an accident blocks the circulation at km. 4

In the first member of each pair the change of state is validated in a time dimension: from one moment to the other, there is a blocking or stopping of a situation. In the second member, in contrast, the change does not happen in time, but in space: one can follow the road up to some point, where one finds a rock that closes it, and the circulation is found in the road for some stretch of space until one arrives to km. 4, where it stops. The same goes for the following case, where one compares the dimensional properties of width of two spatial parts, not at two different moments in time:

- (537) a. La carretera se ensancha en el km. 4.
the road SE widens at the km. 4
b. El bosque se abre al llegar al camino.
the forest SE opens at arrive to.the road
'The forest opens by the road'
c. Los pantalones se estrechan en los tobillos.
the trousers SE narrow at the ankles

The road does not get wider as time passes, and each stretch in space is as wide as it was at the previous moment, but the physical extension of the road shows that some stretch is wider than other stretches. The same goes with stretches of forest, as one compares them across space.

In other cases, the whole scale underlying change seems to be involved in the stative reading:

- (538) a. La grieta se extiende del techo al suelo.
 the crack SE widens from.the ceiling to.the roof
 b. Los rascacielos se alzan majestuosos en la ciudad.
 the skyscrapers SE rise majestic in the city

In these cases, there is no change in the extension of the crack or the height of the buildings when one considers each spatial stretch, but the scale of wideness or height is fully mapped to a spatial dimension to indicate the whole extension of the subjects.

Note that these readings are obtained irrespective of the theta role of the subject, and they emerge naturally with animate subjects too:

- (539) Juan se erguía ante el auditorio.
 Juan SE stood.up before the audience
 'Juan was standing in front of the audience'

It is interesting to note, before we move to operations to turn verbs into activities, that there are many different ways of reinterpreting as stative verbs belonging to the other three classes. In contrast, as we will see, once one excludes operations clearly related to grammatical aspect –such as habituality and plurality–, turning other classes into activities and accomplishments is much more limited. The ease with which one derives states might be taken as an argument in favour of theories such as Dowty (1979) where every aspectual class has a stative source: if an activity, an achievement or an accomplishment are states with an additional predicate, interpreting them as states might be just a matter of neutralising the role of the additional predicate –or even just not adding it to the formula–. However, let us move to the next class.

9.3. *How to turn things into activities*

Most ways of interpreting an accomplishment or an achievement as an activity involve one of the two following operations: cancelling the endpoint related to their event or adding enough temporal extension to the situation described by the verb. With achievements, this forces to interpret one of the participants in the event as an unbounded plurality, be it either through plurals or through the use of some habitual operator. In both cases, this involves using grammatical aspect to create an unbounded macroevent composed of an indefinite number of repetitions of the punctual change:

- (540) a. Juan llegó a casa.
 Juan arrived to home
 b. Llegaron niños a casa, uno por uno, durante toda la tarde.
 arrived children to home, one by one, for all the afternoon
 c. Juan llegó tarde a casa el resto de su vida.
 Juan arrived late to home the rest of his life

The same goes for the activity reading of degree achievements, discussed in §7.3, which crucially involves coercion by a for-modifier into a repetition reading.

The only alternative to produce an activity from an achievement without using grammatical aspect is to be found in some marked cases where the change applied to the subject can be interpreted as an extended event, and where additionally no mention is done of the endpoint, which might be interpreted as suspended. Two subcases of this come to mind. The first one is a degree reading of some changes, such as with verbs of disappearing where it is possible to interpret a slow bit by bit disappearance:

- (541) El fantasma desaparecía poco a poco.
the ghost disappeared little by little

However, even in these cases one tends to interpret that the disappearance culminates at some point, and moreover the sentence is more natural with a progressive periphrasis:

- (542) El fantasma iba desapareciendo poco a poco.
the ghost went disappearing little by little

The second case is with verbs of directed motion in combination with subjects of enough physical extension:

- (543) El tren entraba en la estación poco a poco.
the train entered in the station little by little

Here, one possible reading is that the train was slowly moving inside the station, one coach at a time. Of course, as in the previous case it is very difficult not to interpret this as an accomplishment with a definite endpoint, because trains have limits. Modifying the subject to one where there is no necessary end in its physical extension might get us close enough to the intended reading, but again one assumes an endpoint here –when the house is fully filled with water–, and it is tempting to interpret that here we talk about the repetition of arbitrarily large parts of water entering one after the other into the house:

- (544) El agua entraba en la casa poco a poco.
the water entered in the house little by little

The same situation emerges with transfer verbs. An unbounded quantity of a transferred object or a goal can turn the achievement into an activity through plurals:

- (545) a. Juan daba bocadillos a los asistentes.
Juan gave sandwiches to the attendants
b. Juan daba caramelos a los niños.
Juan gave candies to the children

The repetition can be licensed as an unbound set only to the extent that each attendant or each child might get sandwiches or candies several times. In this same reading, the activity unbound reading can be obtained in a singular construal with a mass noun, but again here one has the reading where each transfer is telic, and the activity interpretation only emerges through the notion of repetition:

- (546) Juan daba agua al enfermo.
Juan gave water to the ill person

Remember that mass nouns do not atelicise the predicate with transfer verbs, because one always needs to interpret that the unspecified quantity arrives to the destination, which acts as an endpoint, and masses only allow unbounded readings to the extent that they can be divided in arbitrarily small quantities. I am only aware of one noun that in combination with *dar* 'give' produces a genuinely activity reading, *dar clase* 'hold a

lesson'. In this case, the verb acts as a light predicate and the idea of transfer disappears: as we all know, one can hold a lesson without the content arriving to the intended receptor.

(547) Juan dio clase durante unas horas.

Juan gave class for some hours

'Juan held a lesson for some hours'

It is difficult, then, to move from achievement to activity, as all theories predict, as in no theory do these two classes form one single macroclass to the exclusion of both states and accomplishments.

Moving now to accomplishments, there is an underlying problem here: no verb is an accomplishment by default according to standard theories. The reason is that all theories treat telicity as marked in opposition to atelicity, which emerges in the absence of other marks. The absolute use of a verb like *escribir* 'write' acts as an activity and not as an accomplishment because changes of state that are extended in time will be atelic unless they are overtly delimited.

The question, then, is whether the alternations between activities and accomplishments through unbounded vs. bounded objects or unbounded vs. bounded movement reflect verbs that are ambiguous between activity and accomplishments, or verbs of activity that with the right type of argument get a telic interpretation. The option that these contrasts show that accomplishment verbs can become activities is excluded automatically by the observation that no verb, alone, is an accomplishment.

- | | | |
|----------|---|----------------|
| (548) a. | Juan fuma marihuana.
Juan smokes marihuana | Activity |
| b. | Juan fuma un porro.
Juan smokes a joint | Accomplishment |
| (549) a. | Juan cojeó.
Juan limped | Activity |
| b. | Juan cojeó hasta su casa.
Juan limped to his house | Accomplishment |

By the same reasoning, the absolute uses of an otherwise intransitive verb –that is, with an implicit object– are activities, and it is difficult to maintain that the verbs themselves are accomplishments because these same verbs will be also activities with the right mass object:

- | | |
|----------|---|
| (550) a. | María traduce en este momento.
María translates in this moment |
| b. | María traduce poesía.
María translates poetry |
| (551) a. | La soprano interpreta en este momento.
the soprano interprets in this moment |
| b. | La soprano solo interpreta zarzuela.
the soprano only interprets zarzuela |
| (552) a. | Juan come en este momento.
Juan eats in this moment |
| b. | Juan bebe en este momento.
Juan drinks in this moment |

- c. Juan fuma en este momento.
Juan smokes in this moment

The same point –that accomplishments are always derived and activities can be defined as such by the lexical verb– can be made in their interaction with verbal interfixes (§2.3.3). As we saw, there are interfixes that trigger atelic activity readings of verbs otherwise interpreted as telic:

- (553) a. tirar
shoot
b. tir-ot-ear
shoot-inf-vbl
'to shoot at'

However, there are no telicising interfixes in Spanish, that is, interfixes that turn an atelic verb into a telic one. This makes sense if at the level of lexical aspect an accomplishment cannot be defined purely by the lexical verb, and requires combination with other elements that define a bounded notion, such as an adjectival scale, a path of movement or a count noun.

With respect to states that are turned into activities, again the situation is controversial. Verbs expressing mental situations related to thinking can be considered members of the state class because they satisfy the Strict Subinterval Condition (§3), but they are easily combinable with the progressive:

- (554) a. Juan olvida esto.
Juan forgets this
b. Juan está olvidando esto.
Juan is forgetting this
(555) a. Juan piensa esto.
Juan thinks this
b. Juan está pensando esto.
Juan is thinking this
(556) a. Juan recuerda eso.
Juan remembers that
b. Juan está recordando eso.
Juan is remembering this
(557) a. Juan cree eso.
Juan believes that
b. Juan está creyendo eso.
Juan is believing that
(558) a. Juan sospecha eso.
Juan suspects this
b. Juan está sospechando eso.
Juan is suspecting this
(559) a. Juan opina eso.
Juan means that
b. Juan está opinando eso.
Juan is meaning that

These verbs have then two uses: one as a statement about the current mental state of the subject, and one which describes a mental process ongoing in the mind of the subject. Propositional objects tend to favour the first reading:

- (560) a. Juan piensa que María está enferma.
 Juan thinks that María is sick
 b. Juan recuerda que María está enferma.
 Juan remembers that María is sick

To this group one may add verbs that express processes of thinking, but that meet the strict subinterval condition.

- (561) a. Juan reflexiona sobre esto.
 Juan reflects over this
 b. Juan está reflexionando sobre esto.
 Juan is reflecting over this
 (562) a. Juan discurre.
 Juan reasons
 b. Juan está discurrendo.
 Juan is reasoning
 (563) a. Juan medita sobre esto.
 Juan meditates over this
 b. Juan está meditando sobre esto.
 Juan is meditating over this

One way of interpreting this contrast is that the progressive version reflects an activity use of these verbs, which are basically stative. However, this conclusion is quite hasty taking into account other properties: first of all, the consensus now is that stage level predicates can accept the progressive, with individual level predicates being the only ones that reject it (§3.2.1). Thus, the fact that a verb accepts the progressive cannot automatically mean that it is dynamic, and therefore that it is an activity. A stronger test for dynamicity is *poco a poco* 'little by little' or *lentamente* 'slowly', all verbs of the second group allow:

- (564) a. Juan reflexiona poco a poco.
 Juan reflects little by little
 b. Juan discurre poco a poco.
 Juan thinks little by little

Note that verbs of the first group do not combine easily with this modifier, with the possible exception of *pensar* 'think'.

- (565) a. ?Juan piensa poco a poco.
 Juan thinks little by little
 b. #Juan cree poco a poco.
 Juan believes little by little

Note that in most cases the interpretation seems rather to be a degree one: *creer poco a poco* 'believe little by little' is interpretable as approaching a state of belief from a situation where one does not believe something, and not as a process of believing that

happens slowly. This reading of degree is also visible with *recordar* 'remember' and *olvidar* 'forget'.

(565) Juan recordó eso poco a poco.
Juan remembered that little by little

In this sentence, the interpretation is that Juan approaches a culmination ('to finally remember something as it was') after a process stage which puts pieces together one by one to restore the memory of that entity.

Either way, the question is whether one must assume that these verbs are basically states or activities. The verbs of the second group seem to be activities whose conceptual properties allow them to pass the strict subinterval condition, or Davidsonian states (§3.2.1), given their combination with place modifiers.

(566) a. Juan reflexiona sobre el problema en su despacho.
Juan reflects over the problem in his office
b. Juan medita en el parque.
Juan meditates in the park

With respect to the second group, they seem to act rather as pure states. Place and time modifiers trigger conditional readings:

(567) Juan piensa eso en su casa.
Juan thinks that at his place
(568) Juan recuerda eso en el parque.
Juan remembers that in the park

Note that here the interpretation of the place modifier is a conditional one (§3.2.1): 'if he is at his house he thinks that, but if he is in other places he changes his mind' or 'he only remembers that if he is in the park'.

The verbs of the second group seem to be, then, activities or Davidsonian states and either way they are not cases of pure states that develop activity readings. The verbs of the first group are better candidates to be pure states, but their combination with the progressive is the only sign that they may be reinterpreted as activities (see §9.5 for their interpretation as achievements), and that can be explained if the progressive combines with stage level predicates in general. In this interpretation, a sentence like *Juan está olvidando que María está enferma* 'Juan is forgetting that María is sick' means that normally Juan is well aware that María is sick, but in this particular situation he is not paying attention to this fact, which is a typical stage level interpretation. Thus, it is unclear that states can easily be turned into activities unless, as we will see, they are first turned into some kind of telic predicate.

This, in principle, can be taken as an argument against Dowty's (1979) claim that states underlie all other verbal classes, in essence because if that was true for activities one should expect that a stative verb would become an activity easily just by adding to it a DO predicate. However, before we rush to this conclusion let us move to accomplishments.

9.4. How to turn things into accomplishments

Given that accomplishments are always obtained compositionally, it is not surprising that activities can be easily turned into accomplishments. As we know (§2.3), the main

way is through internal arguments that set an endpoint to the event. We will not go through this again, but we want to highlight that in this view telicity is an added property to a predicate: verbs, alone, cannot be telic processes, and they either denote atelic situations (states and activities) or they denote culminations (achievements). The combination of a culmination and a process requires two constituents at least.

Achievements, as we discussed in §9.3, can only become reinterpreted as accomplishments when the participant is itself complex, and has different parts that can –by iteration– create an extended event.

(569) Los estudiantes entraron en la clase.
the students entered into the class

Evidence that this is not an operation that changes the lexical aspect of the verb from achievement to accomplishment –but rather builds a macroevent through repetition of the event, at a grammatical aspect level– is that there is no way to interpret a for-modifier here as the ongoing event:

(570) Los estudiantes entraron en la clase durante dos minutos.
the students entered in the class for two minutes

Note that the reading here is that the students entered the room and stayed there for two minutes, not that for two minutes they, one after the other, moved into the classroom. The same goes for in-modifiers, that have a delayed event reading and do not measure how much time passed from the moment in which the first student enters until the moment in which the last one enters.

(571) Los estudiantes entraron en la clase en dos minutos.
the students entered in the class in two minutes

The extended reading can only be obtained with a periphrasis.

(572) Los estudiantes fueron entrando en la clase.
the students went entering in the class
'The students were entering, one after the other, the classroom'

Thus, moving from an achievement into an accomplishment without using grammatical aspect and building a complex macroevent is not as easy as most theories expect. This contrasts sharply with how common it is to reinterpret an activity verb into an accomplishment, suggesting that the notions of culmination and extended event are significantly different, which supports Mourelatos' (1978) or Piñón's (1997) view of achievements as instantaneous events in contrast to all others, like Dowty (1979), who treat them as short accomplishments.

To move from states to accomplishments is also very restricted, and there are perhaps no real cases of this situation. One potential candidate is the class of verbs of thinking –assuming they are basically stative, remember the discussion on the previous section– when they are interpreted as verbs of mental creation.

(573) a. Juan planeó la respuesta.
Juan planned the answer
'Juan created an answer by planning'

- b. Juan imaginó un plan.
Juan imagined a plan
'Juan created a plan by imagining'
- c. Juan concibió su respuesta.
Juan conceived his answer

The parallelism with accomplishments is at least visible in the conceptual semantics: here there is a process of thought that culminates in some idea, plan or project. Grammatically, they allow an ongoing reading of the progressive periphrasis:

- (574) a. Juan está planeando la respuesta.
Juan is planning the answer
- b. Juan está ideando un plan.
Juan is devising a plan

In-modifiers do not denote delayed events, as shown by the difference in meaning with after-modifiers:

- (575) a. Juan planeó su respuesta en una hora.
Juan planned his answer in one hour
- b. Juan ideó el plan en una hora.
Juan devised the plan in one hour

However, what is less clear is that these verbs are basically stative. Their possible stative nature, as in the case of the groups discussed in §9.3 above, relates to sentences with propositional complements, used to describe mental states of the individual, which meet the Strict Subinterval Condition.

- (576) a. Juan planea que sus hijos estudien en esa universidad.
Juan plans that his children will study in that university
- b. Juan imagina que tendrá muchos nietos.
Juan imagines that will have many grandchildren

These verbs easily allow place modifiers, in general, excepting this stative interpretation:

- (577) a. Juan planea la boda en su despacho.
Juan plans the wedding in his office
- b. Juan imagina su boda en la ducha.
Juan imagines his wedding in the shower

Thus, in this case, as in verbs like *meditar* 'meditate', it seems that it is more reasonable to consider that these verbs involve processes that can be telic or atelic depending on the type of complement, and which can be reanalysed as states defining individual characterising properties, and not as states that become accomplishments. In this sense, these verbs are like other verbs that express more explicitly the process of building something through thinking and cannot take propositional complements, like *idear* 'devise', *proyectar* 'conceive', *trazar* 'sketch'.

9.5. How to turn things into achievements

The final traditional class of predicates, achievements, shows a puzzling connection with states when one considers how frequent it is that verbs denoting states can come to mean 'to start V', indicating only the starting point of the event. Among verbs that allow both readings we have the following:

- (578) a. Juan conoció a María hasta su muerte.
 Juan knew A María until her death
 'Juan knew María until she died'
 b. Juan conoció a María ayer.
 Juan knew A María yesterday
 'Juan got to know María yesterday'
- (579) a. María solo tuvo dos hijos durante muchos años.
 María only had two children for many years
 b. María solo tuvo dos hijos en 1978 y 1982, respectivamente.
 María only had two children in 1978 and 1982, respectively
 'María gave birth (=started having a child) only twice, in 1978 and 1982'
- (580) a. María supo esto hasta que tuvo alzheimer.
 María knew this until she had alzheimer
 b. María supo esto ayer a las tres.
 María knew this yesterday at three
 'María got to know this yesterday at three'
- (581) a. Juan pudo cantar hasta que se quedó afónico.
 Juan could sing until he got voiceless
 'Juan was able to sing until he got voiceless'
 b. Juan pudo abrir la puerta a las tres.
 Juan could open the door at the three
 'Juan managed (=starting being able) to open the door at three'
- (582) a. Juan odió a su madre durante años.
 Juan hated A his mother for years
 b. Juan odió a su madre en ese momento.
 Juan hated A his mother in that moment
 'At that moment, Juan started hating his mother'
- (583) a. Juan estuvo seguro hasta entonces.
 Juan was sure until then
 b. Juan estuvo seguro en ese momento.
 Juan was sure in that moment
 'Juan started being certain at that moment'

The stative verbs that allow this operation belong to many different groups, including psychological states, verbs of knowledge, modal verbs and descriptive properties. The achievement reading, as expected, requires the perfective aspect, while the stative reading allows the imperfective (but, as in the examples above, allows perfective provided an endpoint of the state is explicitly mentioned).

- (584) a. Juan quería un buen trabajo.
 Juan wanted a good job
 b. Juan quiso de pronto un helado.
 Juan wanted suddenly an ice cream
 'Juan started suddenly to fancy an ice cream'
- (585) a. Juan tenía hambre.

- Juan was hungry
b. Juan tuvo hambre cuando vio la comida.
Juan was hungry when saw the food
'Juan started being hungry when he saw the food'

How easy it is to move from state to achievement, in contrast to moving from states to other categories, constitutes a good support for Piñón's (1997) proposal that achievements are boundaries of states or events, and also support theories where states and achievements belong to the same macroclass (such as Vendler 1957) as the two classes that are not processes.

This is in contrast to the difficulty of moving from accomplishment to achievement. A theory where achievements are short accomplishments should predict that accomplishment with endpoints that are reached almost instantaneously should behave as achievements. Here are some candidates:

- (586) a. Juan corrió un milímetro.
Juan ran one milimeter
b. Juan bebió una gota.
Juan drank a drop
c. Juan comió una miga de pan.
Juan ate a crumb of bread

However, the in-modifier measures the time (no matter how short) that it took to reach the endpoint from the beginning, as it is noticeable through the meaning difference with an after-modifier.

- (587) a. Juan corrió un milímetro en una décima de segundo.
Juan ran one milimeter in one tenth of a second
b. Juan corrió un milímetro tras una décima de segundo.
Juan ran one milimeter after one tenth of a second
(589) a. Juan bebió una gota en una décima de segundo.
Juan drank one drop in one tenth of a second
b. Juan bebió una gota tras una décima de segundo.
Juan drank one drop after one tenth of a second

Another candidate for turning an accomplishment into an achievement is to add a result phrase. In Spanish, however, this operation is very restricted, with only cases of pseudo-resultatives (Washio 1997):

- (590) Juan cortó fina la cebolla.
Juan cut small the onion

Crucially, this predicate does not act like an achievement: the progressive is not interpreted as a preparatory stage, as the non synonymy between the following two sentences shows:

- (591) a. Juan está cortando fina la cebolla.
Juan is cutting small the onion
'Juan is chopping the onion thinly'
b. Juan está a punto de cortar fina la cebolla.

Juan is about to cut small the onion
'Juan is about to cut the onion thinly'

Thus in Spanish there is no productive way to move from accomplishments to achievements.

To the best of my knowledge there are no accomplishments that (without using phase verbs like *empezar* 'begin' or *terminar* 'end') can produce real achievements. It logically follows that activities cannot either, as they denote the same processes as accomplishments denote, and turning them into telic verbs involves making them accomplishments.

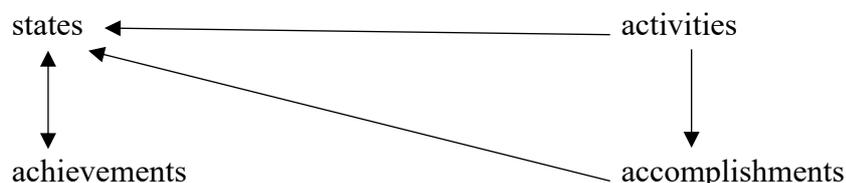
9.6. Conclusion

The conclusion that follows from this overview can be summarised as three main generalisations:

- a) There are productive ways to turn into states verbs of any other class
- b) There is a productive way to turn into achievements stative verbs
- c) Activities and accomplishments are closely related, but none of them interacts in a productive way with states or achievements

Thus, the situation can be described in this diagram:

Diagram 8. Productive alternations between lexical aspect classes



In a beautiful turn of events, the global picture seems to confirm parts of what Vendler (1957) and Dowty (1979) proposed. From Vendler's (1957) macroclasses, we have the fact that there is a tight relation between states and achievements when one sees how easy it for a verb to alternate between the two. Activities and accomplishments are also tightly related, to the extent that accomplishments are activities with an endpoint and there is no other way of producing them from states or achievements. From Dowty's (1979) side, the evidence shows that statives are a class where verbs of the other classes can also alternate. However, the system is closer to Vendler: from Dowty's perspective it might be surprising that states do not produce activities or accomplishments (with potential exceptions with some thought verbs, as we discussed), given that both classes are built from states, and clearly one does not get the connection between achievements and accomplishments that a theory where achievements are short accomplishments expects.

The system can perhaps support a view where there are two main categories, one for processes and one for absence of processes (thus explaining why there are no connections between achievements and the other two classes), but where there is an operation that allows the processual part to be suspended (in order to explain why states

can be obtained from all classes). But we leave the discussion here, hoping to be able to address it in further work.

The next question that emerges under the light of these alternations is how much information is codified in each verb, so that these alternations are possible, and therefore how much information should be put in a verbal head and how much information should be put in the structure that it is part of. This will be the topic of the next section.

10. The formalisation of lexical aspect: endoskeletal and exoskeletal approaches

The question of how much information has to be codified in the lexical verb emerges naturally from the existence of alternations –significantly, those between activities and accomplishments and those involving states–, but is at the same time informed by some partial correlations in the argument structure of the predicate. In this section we will discuss both problems; §10.1 will put together the observations made in the previous parts of the article with respect to argument structure and §10.2 will explore the contrast between theories that add different degrees of information to the lexical verb.

10.1. *The role of argument structure*

There is a certain degree of interaction between argument structure and lexical aspect that can be summarised in two main points:

a) The role of incremental objects or paths, which determine the contrast between activities and accomplishments through the mereological parts of an object, the boundedness of a scale or the nature of a trajectory of movement (§2.3, §4, §5).

b) The role of agentivity, with the possibility that states cannot be agentive in the strong sense –while they can be causers or instruments, as we have seen in §3.2.3 and §9.2–.

c) The existence of an indirect object that defines a transfer event, which creates achievements unless there is a repetition of the transference (§6, §9.4).

Beyond this, the correlation between argument structure and lexical aspect is only indirect. In a theory like Dowty (1979) the connection between argument structure and lexical aspect is almost complete, as he does not want to rely on the contrast between temporal objects to define the classes –in particular with respect to the putative distinction between accomplishments and achievements–. Remember that in his theory causation is directly correlated with being a complex change, an accomplishment, and that he equates states with non agentive predicates. We already noted in §8.2 that this position is too strong empirically. There are causative verbs that do not pattern with accomplishments due to their temporal properties, and there are accomplishments that do not behave as causative verbs. To mention some other cases beyond those discussed in §8.2, Levin (2000) induced movement predicates as causative non accomplishments:

(592) Juan botó la pelota durante diez minutos.

Juan bounced the ball for ten minutes

(593) Juan paseó al perro durante diez minutos.

Juan walked the dog for ten minutes

The following –manner of motion verbs with an endpoint trajectory– are accomplishment verbs that cannot be interpreted as causative, as they do not involve causing another entity to be in some state:

(594) Juan hizo footing hasta la tienda.

Juan made footing to the store

'Juan jogged to the store'

Note that in contrast to real causative verbs, the two eventualities described here – moving in a particular way and moving in the direction of the store– unfold simultaneously so that one is dependent on the other. In a causative verb like *romper* 'break' –which, by the way, behaves as an achievement– the causation logically precedes the change of state:

(595) Juan rompió la ventana.

Juan broke the window

At the same time, the relation between argument structure and lexical aspect has to be nuanced also for the more established. Remember from §5.2.1 that not all analyses of accomplishments and activities agree that the incremental object is the one that determines the verb's telicity, with several cumulative (unbounded) objects producing telic predicates (Rothstein 2004). However, even in Rothstein (2004) this type of object plays a role, only that this role is based for her in atomicity rather than cumulativity or quantisation.

With respect to states and the absence of agents, we already discussed in §3.2.3. that the answer to whether agentive readings are possible with states depends to a large extent on whether one assumes that agents are defined structurally –as Dowty (1979) seems to do– or agents are just one of the interpretations of a more general notion of initiator (Ramchand 2008).

In the first case, the absence of states denoting agentive situations would imply that the structure related to states does not have the chance to define the structural position of agents. A modern implementation of this proposal is Harley's (1995) analysis, also presented in §8.2, where states are headed by a type of verbal head with a BE semantics. That head is unable to introduce an agent theta role, which is exclusively associated to verbal heads with a DO semantics –or can emerge as a non-structurally specified reading in CAUSE verbs–, which appear for instance in activity verbs involving manners (§4.2.1) and accomplishments derived from them.

In the second case, the idea is that 'agent' is a derived reading of the initiator that is present when the eventuality contains a transition or an activity in addition to causation. States are not interpreted as having agentive subjects because they lack transitions or activities, but they can have initiators. This is for instance the way in which Rothmayr (2009) analyses states with an instrument of the type that we discussed in §9.2:

(596) a. El árbol tapa el paisaje.

the tree blocks the landscape

b. $\lambda y \lambda x \lambda s$ CAUSE(x , BLOCK(y))(s)

There is a causing relationship between a state of blocking and the subject of the verb, but this causer is not interpreted as an agent because the verb does not contain any eventive part. Remember, however, that in §3.2.3 we mentioned cases where a state seems to be directly compatible with the notion of agent, at least as far as it can be tested with adverbials (García Pardo 2018), so it is less clear from this perspective which type

of information one needs to add to a stative verb to get the interpretation that its subject can be agentive –having process or change is not an option in these cases–.

Thus, the relation between argument structure and lexical aspect is not perfect. While the object's properties can influence the lexical aspect of a verb, these cases are restricted to a particular type of object, and at the same time can be obtained through other categories –scales in adjectives, directional modifiers–. The notion of causation is present in the four classes (remember that transfer verbs behave as achievements), at least if agentivity is defined as a particular reading of causation.

10.2. *Flavours, decompositionality and lexical composition*

Taking this into account, theories have tried to account for the connections between argument structure and lexical aspect in ways that are flexible enough to also account for the potential mismatches. There are two main families of theories that can be distinguished:

- a) lexically-rich approaches, where verbs contain full information about their aspectual interpretation
- b) syntactically-rich approaches, where at least the grammatically relevant parts of lexical aspect are codified through distinct syntactic heads that build up or combine with the verb

We note that for all approaches the difference between event and state is irreducible, and their differences are visible only in how they differentiate telic and atelic, or extended and punctual.

10.2.1. Lexically-rich approaches

Starting with lexically-rich approaches, it is clear that traditional theories like Vendler (1957) or Dowty (1979) belong to this class, with many verbs being unequivocally classified in one class and detailed semantic formulas that correspond to the denotation of the verb as a lexical element. Jackendoff (1990) and Pustejovsky (1991) also fall into this group of approaches; in Pustejovsky (1991) for instance the lexical aspect information is codified in a word's event structure. The event structure is one of the levels of word meaning, together with its selectional restrictions, its qualia structure (see Pustejovsky 1995) and, crucially, its argument structure. While the event structure and the argument structure of a predicate are distinct levels of representation, he assumes that the two can be related to each other through mapping rules, such as those adopted in Jackendoff (1983, 1990) and which relate theta roles of participants in a lexical entry to syntactic functions.

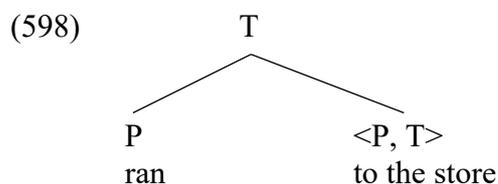
Within this approach one can differentiate between proposals where the notion of 'event' or 'state' are taken as primitive units (Jackendoff 1990) with different values, and approaches where these notions are decomposed at a subeventive level. Jackendoff's (1990: 24) entries are of the following format:

- (597) a. [event GO([], [Path TO ([)])]]
b. [state BE ([], [Place])]

Here we have a superclass of entities relevant for the lexical meaning of a verb (event, state) which can have different values depending on the nature of the semantic meaning (GO, DO, BE, etc.). These entities take arguments, some of which are not lexically specified (the empty brackets) and some of which can be other entities

specified for a particular value (like path or place). Thus, while the verb defines in this way the relations between participants and the situation expressed, the empty slots allow for some level of compositionality, because they can be filled with entities whose boundedness properties are potentially altering the interpretation of the verb. In order to account for the alternations, in principle, this approach that puts so much information in the verb and treats these entities as primitives must assume some lexical operation that adds, removes or alters the information contained in a lexical entry –in practice, producing an explosion in the number of lexical entries, as a verb that doubles as state and activity will have to be duplicated in the lexicon through two distinct entries–.

In Pustejovsky (1991), the goal is to go down to a subeventive level and decompose what Jackendoff (1990) takes as primitive entities into parts. We already saw in §8.3 the primitives used by Pustejovsky (1991), which are state, process and transition, with transitions acting as complex objects that can at least consist of a process and a subsequent state. In order to account for the alternations, this system has the advantage over the previous one that it allows a compositional operation at least at the level of transitions. For instance, Pustejovsky (1991: 28) treats a sentence like *Juan ran to the store* as follows:



The verb alone is a process, but the prepositional phrase projects its own event structure and acts as a function $\langle P, T \rangle$ that takes a process and builds a transition out of it. This is possible because transitions are themselves complex objects at an event structure.

The appeal of theories that treat eventualities as complex objects at a lexical level is that they allow for a more flexible interaction between the verb's entry and the other members that at a VP level influence their lexical aspect. In relation to this, Levin & Rappaport-Hovav (1999) propose a principle that is adopted also by some syntactically-heavy theories, like Lohndal (2014):

(599) The Argument-Per-Subevent Condition

There must be at least one argument XP in the syntax per subevent in the event structure.

This in principle means that structures consisting of two subevents must at least have two arguments, which is the case with causative accomplishments:

(600) [[x ACT<manner>] CAUSE [BECOME [y <STATE>]]]

In this representation (Rappaport Hovav & Levin 1998), there is a causative relation between two events, which act as subevents of the whole predicate. The action takes one agent (x) and the result takes one patient (y), which are each mapped into subject and object. This opens the possibility that when one adds more arguments relevant to the event as a whole, new subevents must be added, and this makes it natural that the presence of additional arguments will influence the lexical aspect of the predicate, as in the contrast between *Juan runs* and *Juan runs to the store*.

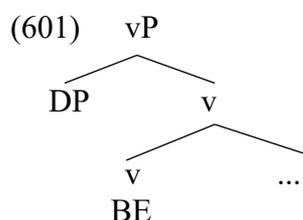
Again, the challenge here is to account for alternations not involving the traditional activity - accomplishment contrast. In a standard lexical entry the incremental relation between an argument and a verb can be accounted for as in Jackendoff (1990), by letting the *y* variable be filled by entities whose mereological parts influence the event, but in contrast turning a lexical verb that contains CAUSE and BECOME into a state can only be obtained by letting that lexical entry be modified, potentially leading again to an explosion in lexical entries.

10.2.2. Syntactically-rich approaches

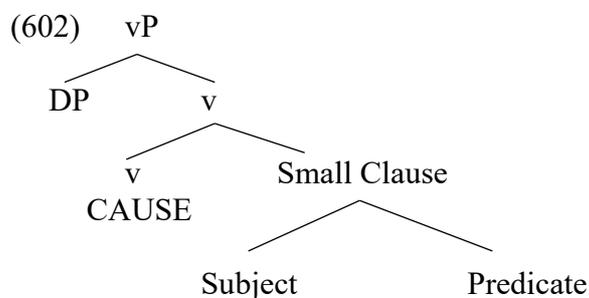
Let us now move to syntactically heavy theories. The common denominator of these is that what is generally interpreted as a single verb in fact is a complex object built in the syntax by combination of matrixes of features. Like in the lexically-heavy theories, here we can also differentiate between approaches that treat entities like state or activity as primitive units (Harley 1995) and those that decompose them into parts (Borer 2005, Ramchand 2008, 2018), but again here all theories must assume a primitive difference between state and event.

The intuition underlying these theories is the same as in Verkuyl (1972): the properties related to lexical aspect have to be defined for complex structures, with individual verbs having little information about its lexical aspect, if at all.

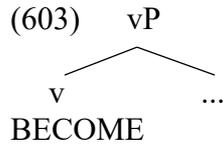
Harley (1995), who was introduced in §8.2, proposes that lexical aspect is codified by a head that combines with the lexical part of the predicate. In her original proposal (Harley 1995) that head is called Event, while in further work (Folli & Harley 2005, 2008), it is identified as little *v*, a head which defines a root as a verb and closes the syntactic domain of the verbal predicate, heading what is traditionally known as the VP. From the combination of these works, four different types of little *v* emerge. The stative one is identified with BE, and does not assign an agent theta role.



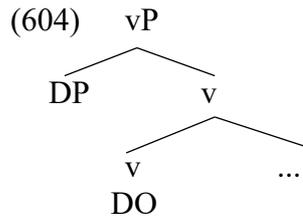
CAUSE requires its complement to be itself a predication structure, and does not assign the agent theta role either:



This accounts for why causative events tend to have at least two participants. BECOME involves only a change of state and does not project a position for an external argument –the verb is interpreted as unaccusative–.

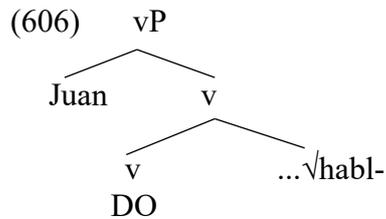


Finally, DO contrasts with CAUSE in that it imposes an animacy requisite to the external argument and it does not need to select a complex predicational structure.

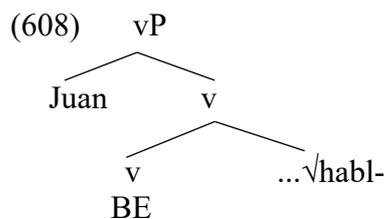


This type of approach is successful in deriving the alternations. The complement of the little v head can contain a lexical verb, or a root standing for that verb. Crucially in this decomposition, because little v is what determines the nature of the eventuality, that complement lacks that information. For a verb to alternate between state and activity, for instance, as it is the case of the ability reading of a predicate like the following one, it is enough that the little v flavour is different in each one of the two constructions, and the lexical part of the verb can be the same.

(605) Juan habla inglés en este momento. Activity
 Juan speaks English in this moment



(607) Juan habla inglés. State
 Juan speaks English
 'Juan is able to speak English'



For this, of course, one needs to accept that the lexical meaning of the verb is much more flexible and less specified than it is assumed in theories like Levin & Rappaport Hovav (1995), that is, that their semantic representation is close to empty if not

completely empty. This is at the same time the main challenge of these theories: if the lexical part of the verb contains virtually no information about its meaning, how does one restrict the alternations? Remember that it is difficult to turn states into anything else than achievements: what information has the lexical part of a state verb that blocks the combination with cause or do to obtain these other classes? The answer is unclear from this perspective, as the same assumption that one needs to do to explain flexibility in verbal elements will predict a much broader and less systematic combination than this proposal.

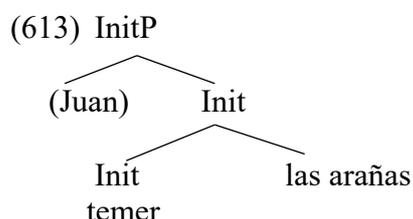
One option in order to restrict further the alternations is to decompose the flavours of little *v* into smaller units, corresponding roughly to Pustejovsky's (1991) subevents. This is the proposal done in Ramchand (2008), who proposes initially three heads associated each to a subevent:

- (609) Init(iation), which defines a causative stative relation
- (610) Proc(ess), which defines the dynamic part of an event
- (611) Res(ult), which defines a result state.

In Ramchand (2008), Init and Res are the same head, a stative one, and ontologically one only has two primitives, corresponding each to state (Init, Res) and event (Proc). Init and Res contrast to each other configurationally: Init is the interpretation that the stative head adopts when it takes Proc as a complement –as the state that precedes the process, that causes it– and Res is the interpretation adopted when the stative head is a complement of Proc –the state that follows its completion–. However, in Ramchand (2018) this changes: Init, Proc and Res are different heads, with Init differing from the other two in not introducing an argument in its specifier. A new head, Event, responsible for turning the subevents into a full eventuality with time and world parameters, is the one that introduces the external argument, whose theta role depends on the lower heads.

Assuming this second system, Ramchand proposes that a stative verb is a projection of Init (plus Event, which we will ignore in this presentation for not contributing anything to the lexical aspect of the predicate). Stativity is assumed, as in other theories, to be the absence of a process (absence of Proc).

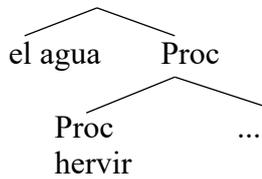
- (612) Juan teme a las arañas.
Juan fears A the spiders



The subject of a state is assumed to be an initiator because the state is held by it due to the internal properties that it has –fearing spiders is possible because of Juan's mental properties, so to say–. An activity verb involves Proc without Res, with or without Init, provided that there is no bounded incremental theme in its complement. The incremental theme must be located as a complement to Proc (remember §5.2.3), and measures the process through an isomorphism between the event and the values underlying the theme.

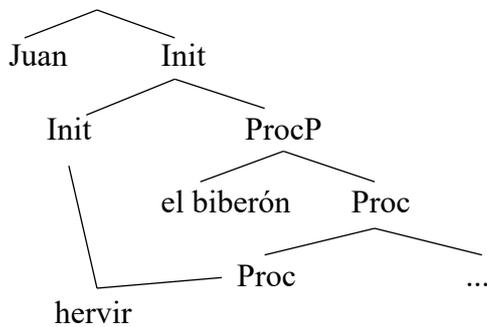
(614) El agua hierve.
the water boils

(615) ProcP



(616) Juan hierve el biberón.
Juan boils the baby-bottle

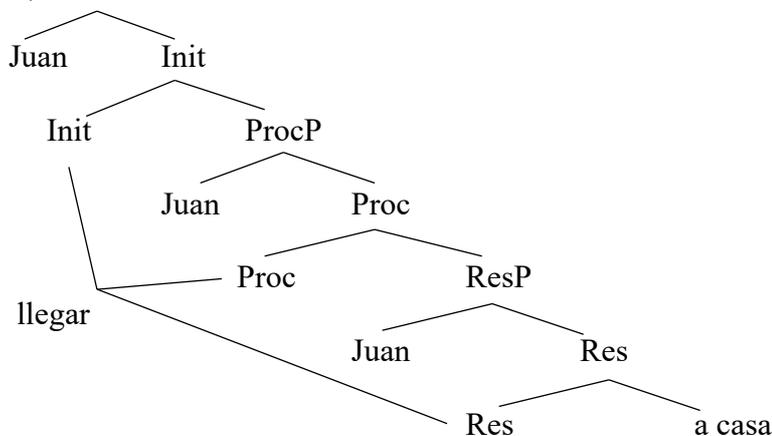
(617) InitP



An accomplishment has the same conditions as an activity, except that an incremental theme with bounded properties must be located in the complement of Proc. An achievement is the most complex structure, involving Init, Proc and Res. Note that telicity in this theory is not a primitive notion, as it can be obtained through incremental themes or through results.

(618) Juan llega a casa.
Juan arrives to home

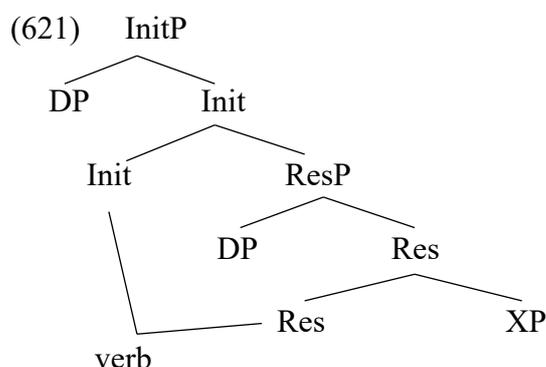
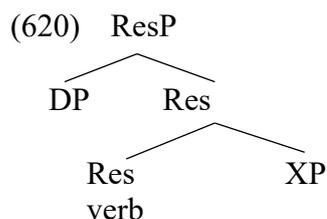
(619) InitP



Ramchand (2008) only differentiates achievements from all classes by the claim that their verbs identify a Res head in addition to Proc and Init. Her proposal is that, like

accomplishments, they contain a process –in this sense, she is closer to Dowty (1979) than to Mourelatos (1978)– but that process is interpreted as instantaneous because the same verb identifies Init, Proc and Res and that imposes a temporal simultaneity condition on the three subevents. Remember, however, that not all achievements behave as having a result state (§5.2.3.), which constitutes a problem for this approach.

If Init and Res are configurational interpretations of the same head (Ramchand 2008), other options do not exist: Init and Res cannot combine together without Proc because Proc is what differentiates them, and Res cannot appear alone or above Proc. But once one assumes that these heads are not ordered syntactically, as in Ramchand (2018), it is in principle possible to have at least the following additional types:



Thus the system, by decomposing the primitive notions (although keeping a standard difference between state and process), allows to generate further types of eventualities. We noted already, however, that the complementarity between results and incremental themes is not always correct (§5.2.3), so perhaps the composition rules should be further altered.

Consider now how this system can account for an alternation. In Ramchand (2008) the lexical verb spells out the relevant heads, and is associated to a lexical entry that combines them –that is, she does not have acategorical roots in the system–, but she allows these lexical entries to be introduced in the tree with some flexibility. As an illustration, for instance, the root for a verb can have the following entry:

(622) verb <----> [Init, Proc]

This entry indicates that in principle one can use the root when there is an InitP that takes as its complement a ProcP –while ResP is either absent or spelled out by another element, such as a particle–. The principle that allows this verb to spell out only Init or only Proc is called Underassociation, and is defined as follows (Ramchand 2008: 98):

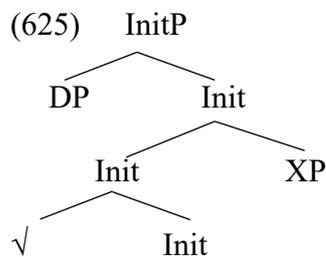
(623) If a lexical item contains an underassociated category feature [the feature in its lexical entry that it does not spell out]

- (i) That feature must be independently identified within the phase and linked to the underassociated feature, by Agree
- (ii) The two category features so linked must unify their lexical encyclopedic content.

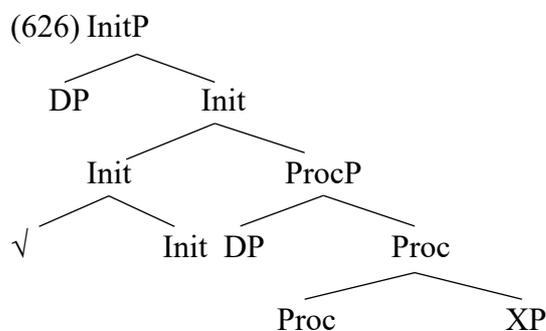
This means, in practice, that Ramchand (2008), like lexically-heavy systems, would need two different lexical entries to express an alternation. The reason is that, if the verb identifies both Init and Proc, it cannot be used in a tree that does not contain Proc or Init, because it is crucial for underassociation that the feature that the verb does not identify is present in the tree, and lexicalised by something else. Thus, a verb defined as Init, Proc may correspond to an activity, but will never correspond to a state: even if the verb only lexicalises Init, the tree must also contain Proc –lexicalised by something else– and therefore the whole will be interpreted as an activity. For a verb that doubles as state and activity, then, Ramchand has to assume two entries:

- (624) a. verb <---> [Init]
- b. verb <---> [Init, Proc]

Nothing prevents, however, using roots also in Ramchand's system. Her take on lexical verbs is that there is no independent node for the root, and that the 'root' is in actuality the lexical verb that identifies the Init, Proc and Res heads, but one could assume that roots are independent (perhaps to accommodate verbalisers too), and they can be adjoined to Init, Proc and Res. On the assumption that the root, then, does not identify any verbal feature, the alternation would be similar to Folli & Harley (2005, 2008), and with the same overgeneration problem. A stative version of an activity would correspond to the following diagram:



And the activity version could correspond to this other diagram, with Proc:



Like in Folli & Harley's work, and the other cases that we have analysed, this more flexible system does not immediately restrict the more typical alternations that we have seen. It is unclear in all systems, except for Dowty (1979), why verbs of all classes can

move to states. In all the systems analysed, except for Vendler (1957) –who does not formalise it explicitly–, it is surprising that states cannot move to any class that is not an achievement. In any system where achievements are short accomplishments, the fact that achievements and accomplishments do not communicate is unexpected. On the other hand, all systems analysed account straightforwardly for the connection between accomplishments and activities.

The conclusion of this section is as follows: neither the primitives used in the theories revised or the procedures to combine these primitives generates in a straightforward way the attested alternations. In the base of this problem lies the fact that most theories take the distinction between event and process as basic and irreducible: with the exception of Dowty (1979), state and process (event) are two different primitives in Jackendoff (1990) and works that follow him, Pustejovsky (1991), Harley (1995) and Folli & Harley in their different works, or Ramchand (2008). With respect to Dowty (1979), the alternations can be somehow implemented only on the condition that removing or neutralising a predicate is easy –triggering a stative reading of an eventive verb– but adding a predicate to the stative formula always involves using a different lexical verb, an asymmetry that is in principle difficult to maintain.

An additional observation is that the flexibility of a lexical entry is not directly associated to how much of a decomposition of the event structure is done. Both Pustejovsky (1991) and Ramchand (2008) decompose events in a subevent structure, and in both cases the way in which lexical entries are designed in the system makes them rigid. At the same time, it is difficult to find a balance between avoiding overgeneration and allowing just enough flexibility to account for the alternations: systems where the eventive heads combine freely with constituents devoid of that information clearly overgenerate with respect to the attested alternations and systems where lexical entries somehow determine the combination of subevents do not manage to be flexible enough for these operations. Current systems are basically designed to express the alternations between activities and accomplishments, and partially the correlations with agentivity, but do not allow an easy account of alternations involving states and achievements.

11. Conclusions

Given how long this article has turned out to be, I am certain that the reader will appreciate a slightly detailed set of conclusions. Let us start with the nature of the four main aspectual classes.

The main issue related to these traditional classes is the definition of state. The main problem with states is that most tests used to identify them are negative, such as the difficulty of combining them with iterative modifiers (627). There are few tests that aim for positive properties, such as the possibility of having a probability or conjecture future (628).

(627) *Juan tiene una casa tres veces.

Juan has a house three times

(628) Imagino que Juan tendrá una casa.

imagine that Juan will.have a house

'I guess that Juan probably has a house'

Negative tests do not define natural classes, as things can fail to meet a requisite for a variety of reasons, which explains why there are so many different proposals about

types of states and why in a sense nouns and adjectives have been considered also states despite them not combining with temporal elements. Moreover, in combination with the Strict Subinterval property, this has had the effect that there is some level of uncertainty with respect to how to classify predicates that meet the Strict Subinterval condition but combine easily with the progressive periphrasis, with approaches like the Davidsonian State one in Maienborn (2003). The problem, again, lies at the nature of tests that we currently have: the Strict Subinterval test aims at identifying a condition that looks more related to the real world than to grammar: whether we accept that any minimal interval, no matter how small, reproduces the properties of the situation as the whole interval does. It is difficult to determine, from this perspective, whether verbs of thought (that do not show external manifestations of movement or creating an object) meet the Strict Subinterval condition because of how we view this situation in the real world or whether we should go down to the level of neural synapsis to claim that the condition is not met because the electric impulses are not there at each single instant in all neural connections.

A second problem with the traditional classes is the observation that there are no cases of verbs which, alone, denote an accomplishment. Apparently all verbs, when considered without other arguments, denote states, activities or achievements. This means that accomplishments are derived objects, and moreover they have to be derived from activities.

(630) Juan comió durante una hora.

Juan ate for one hour

(631) Juan comió un filete en una hora.

Juan ate a steak in one hour

Again, this matches the intuition that telicity is somehow a marked option within lexical aspect, but we must be cautious about the nature of this assumption. Given that generic internal arguments and implicit objects cannot telicise a verb, we must be aware that perhaps we treat accomplishments as derived because the empty arguments are incompatible with telicity –unless, of course, they are the effect of an ellipsis operation–. Either way, and even if telicity is marked, the question emerges of why there are no single lexical verbs that codify telic processes. This might mean, perhaps, that telicity can only be defined syntactically –which would mean that achievements are not strictly telic, despite the traditional approach–, and that is the reason why no lexical verb alone can express it.

With respect to accomplishments, there is a second issue which is their correlation with result states. Even though participles from accomplishments easily denote result states (632), it is incredibly infrequent to identify accomplishment predicates that denote a result state that can be measured by a for-phrase (633).

(632) a. Juan escribió una carta.

Juan wrote a letter

b. La carta está escrita.

the letter is written

(633) #Juan hizo una pompa de jabón durante un minuto.

Juan made a bubble of soap for one minute

Intended: *'Juan made a bubble and the bubble existed for one minute'

It is already an interesting question why there is this tendency for accomplishments not to denote a result state in their composition –remember Ramchand's (2008) proposal that results and incremental themes occupy the same position–, but it becomes even more interesting if our proposal that verbs meaning to disassemble denote a result state that can be modified by a for-phrase.

(634) Juan desmontó la tienda durante un par de horas.
Juan disassembled the tent for a couple of hours

If correct, this means that there is no specific ban on combining telic processes with result states, but that this option is not favoured. Identifying then the structural or semantic reason that makes the combination only valid in very specific cases remains a problem, I believe.

With respect to achievements, the problem is the opposite: despite the strong tendency to contain results that can be measured, there are cases of achievements that reject this modification.

(635) *Juan llegó durante una hora.
Juan arrived for one hour

The tendency is strong, though:

(636) Juan entró durante una hora.
Juan entered for one hour

Again, what is it that a boundary of a happening has so that results appear typically but not always? This constitutes a problem for Piñón's (1997) view, to the extent that the presupposed happening should always be accessible for modification or never be accessible for modification. Among the achievements that are presumably end boundaries of a previous event, however, the present of result states is typical but not absolute. Again, I believe that it is unclear which property of these verbs, at a syntactic or at a semantic level, determines the tendency to have results and what is special about achievements that lack them.

Let us now move to the general problems related to the theoretical implementation of these classes. Starting with states, it is clear that most states do not define agents, although they can clearly take as subjects other elements interpretable as general initiators, such as instrumentals or causers. This, in principle, could be interpreted as an association between agents and processes –similar to the one first proposed by Vendler (1957), who also notes that achievements do not define agents–, but remember that García Pardo (2018) has identified a class of states that seems to select agentive subjects at least as far as adverbial modification lets us check it:

(637) En este momento, los bandoleros bloquean voluntariamente el camino.
In this moment, the bandits block willingly the road

Thus, the notion of agent cannot be simply associated to a notion of process, or else we have to redefine what a process is so that it fits with the description in (637). The strong tendency not to have agents with states, then, is just a tendency and not a full ban.

In theoretical terms, there is a significant problem in how one can define telicity within the contrasts between activities and accomplishments. Despite the popularity of the quantisation approach, which argues that quantised predicates produce telicity, even within that approach one has to admit that not all telic predicates are quantised. In this sense, quantisation is a good first approximation, useful to explain the alternations between activity and accomplishment (638, 639), but one that does not cut the cake in the right way.

- (638) Creation verb + quantised object = quantised predicate
 escribir una carta
 write a letter
- (639) Creation verb + cumulative object = cumulative predicate
 escribir poesía
 write poetry

The alternatives to the quantisation approach are the atomic approach in Rothstein (2004), where what counts is whether the situation can be interpreted as containing arbitrary divisions or involves a natural interpretation of it as an atomic unit, and any traditional approach where telicity is associated only to endpoints.

Interestingly, the role of telicity forces a view where end boundaries of eventualities are more relevant for the definition of lexical aspect than initial boundaries. We noted that the possible conceptual distinction between achievements that denote an initial boundary (640) and those that denote an end boundary (641) is not relevant for the grammatical behaviour of these elements, with members of the two classes lacking or having result states.

- (640) *empezar*
 begin
- (641) *terminar*
 end

This highlights the possibility that initial boundaries are at least less relevant than final ones, although this might just be a hasty conclusion and what actually happens is that we have not paid enough attention to the grammar of initial boundaries to arrive to any systematic conclusion, given the overwhelming attention that telicity has received in lexical aspect studies. In fact, the class of verbs that Marín & McNally (2011) study shows that it is possible to have an initial boundary of change without any telic result:

- (642) *enfadarse*
 get.angry

The strongest theoretical problem when it comes to achievements is the definition of punctuality. There are, as we have seen, two options: the first treats achievements as short accomplishments. They occupy intervals, but these intervals are very short given our world knowledge of how long those events take in order to culminate. The second approach is that punctuality means literally to occupy one instant, which ontologically is a different object from an interval –an instant is a point, a thin object that does not create a thick object by iteration–. We have seen that the tests suggest that achievements do not occupy intervals, no matter how short:

- (643) Juan está llegando.
Juan is arriving
'Juan is about to arrive', not 'Juan is in the process of arriving'
- (644) Juan corrió un milímetro en un momento.
Juan ran one milimeter in one moment
(not synonymous to 'Juan ran one milimeter after one moment')

If telicity and punctuality are both controversial, dynamicity is not easy to define either. We have already noted that the Strict Subinterval condition has the shortcoming that it is built on our real world understanding of real world properties, which makes it a tool that adapts badly to testing thinking processes. This is what lies below the proposal of Davidsonian states as states that contain an event variable, based on their alleged absence of internal change for the situations that they describe, as for instance with waiting predicates (645) and some verbs of emission (646).

- (645) Juan aguarda la noticia en el despacho.
Juan waits for the news in the office
- (646) La lámpara brilla en la entrada.
the lamp shines in the entrance

There is nothing in the notion of emission verbs that inherently associates them to Davidsonian states or even to any type of predicate that necessarily meets the Strict Subinterval condition. In fact, (646) meets this condition because the light that is being produced is conceptualised as a mass, but one easily finds cases of light emission verbs that do not meet this condition:

- (647) La lámpara parpadea en la entrada.
the lamp twinkles in the entrance

The clear difference between (646) and (647) is the type of light dynamics that the two events express, but obviously the type of light produced cannot be a grammatical property in itself; at most it is a conceptual semantic property that has indirect effects on the grammatical behaviour of the element. The two notions are easily confused because the Strict Subinterval test targets conceptual knowledge, but whether this distinction is relevant or not depends on the assumptions one makes about the role that conceptual semantics plays in syntax. If syntactic structures can coerce conceptual semantics by imposing to them grammatical features, then the Strict Subinterval is a consequence, and not a cause, of something being a state, and we have to question again what property is imposed on a state so that it defines a class.

Moving now to more global matters, the main problem that we have identified with existing theories is that they have problems when it comes to the overgeneration of unattested classes of lexical aspect. As we said, if one takes two binary criteria (as Vendler 1957 or Rothstein 2004 do), one expects to see four classes of predicates (648). As soon as one has three or more features, the classes are incremented exponentially (649, 650).

- (648) a. +A, +B (2²)
 b. -A, +B
 c. +A, -B
 d. -A, -B

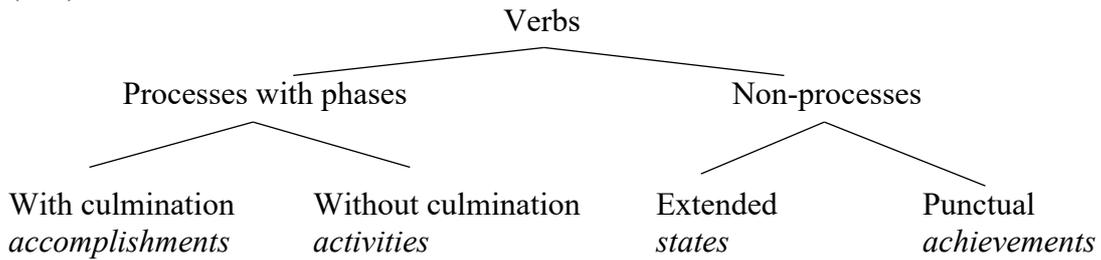
- (649) a. +A, +B, +C (2³)
 b. -A, +B, +C
 c. +A, -B, +C
 d. -A, -B, +C
 e. +A, +B, -C
 f. -A, +B, -C
 g. +A, -B, -C
 h. -A, -B, -C
- (650) a. +A, +B, +C, +D (2⁴)
 b. -A, +B, +C, +D
 c. +A, -B, +C, +D
 d. -A, -B, +C, +D
 e. +A, +B, -C, +D
 f. -A, +B, -C, +D
 g. +A, -B, -C, +D
 h. -A, -B, -C, +D
 i. +A, +B, +C, -D
 j. -A, +B, +C, -D
 k. +A, -B, +C, -D
 l. -A, -B, +C, -D
 m. +A, +B, -C, -D
 n. -A, +B, -C, -D
 o. +A, -B, -C, -D
 p. -A, -B, -C, -D

It is an empirical question how many classes of lexical aspect should be distinguished, although the fact that most of the extra classes identified display a combination of properties of two or more of the existing classes suggests that there should not be too many additional classes of aspect to be discovered. However, we have seen candidates to be verbs that express, for instance, only a middle point in the event (651) or a starting point followed by a state (652).

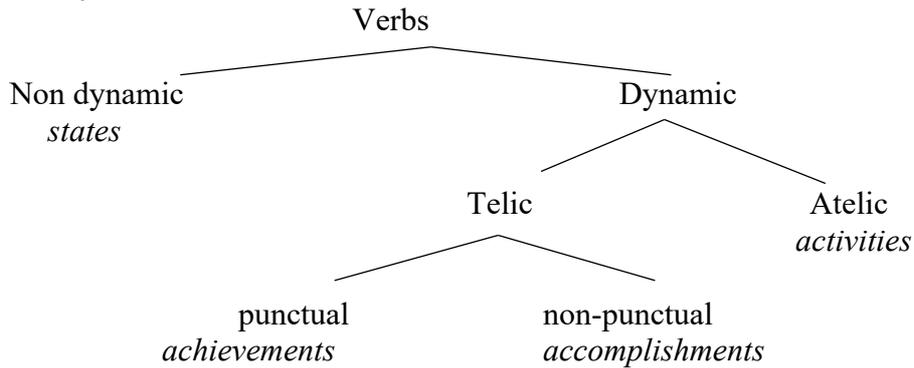
- (651) Juan sigue al coche.
 Juan follows the car
- (652) Juan se aburre.
 Juan SE gets.bored

As we noted, one way to avoid the explosion of predicted lexical aspect categories is to resort to feature geometries, so that some of the features involved in the analysis presuppose the existence of a positive or negative value of another feature –in other words, the features do not combine freely–. However, this has the outcome that in a feature geometry one is defining strict macroclasses of elements which are defined by not being able to express one particular property. We noted the possibility that the following macroclasses could be defined:

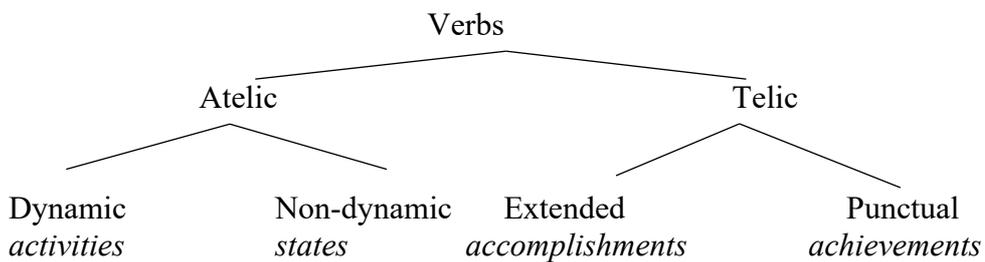
(653) Vendler's macroclasses



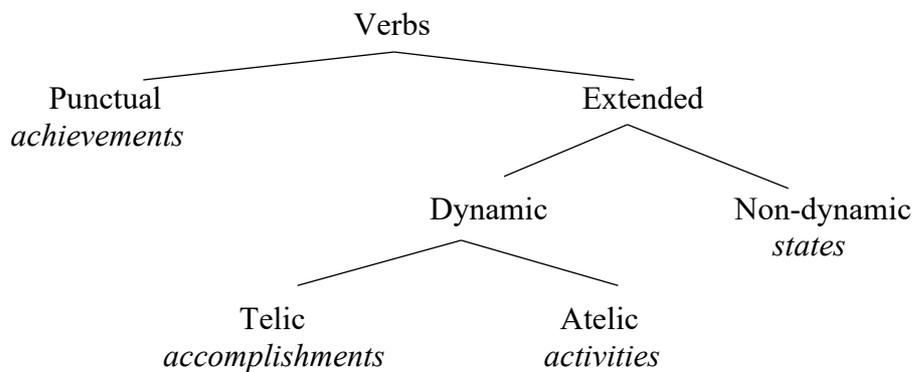
(654) Kenny's macroclasses



(655) Ryle's macroclasses



(656) Macroclasses close to Piñón's proposal



The alternations that we have noted support in principle the Vendler approach, because states and achievements show a closer relation with each other than the one that achievements have with respect to activities or accomplishments.

- | | |
|-------------------------|-------------|
| (657) Juan sabía eso. | State |
| Juan knew this | |
| (658) Juan supo eso. | Achievement |
| Juan knew this | |
| 'Juan got to know this' | |

Piñón's proposal is also well suited to account for this particular connection, as states are closer to achievements than accomplishments or activities are, but the problem is that in his proposal achievements and states belong to two different ontological types, boundaries and happenings.

In contrast, the fact that it is easy to turn verbs of all other classes into states (while they cannot be turned into achievements without periphrastic constructions) supports Dowty's proposal.

- | | |
|--|---------------------------|
| (659) Juan habla chino. | originally activity |
| Juan talks Chinese | |
| 'Juan is able to talk Chinese' | |
| (660) Juan se bebe un litro de cerveza en diez segundos. | originally accomplishment |
| Juan SE drinks one liter of beer in ten seconds | |
| 'Juan is able to drink one liter of beer in ten seconds' | |
| (661) Juan encuentra el menor error en un texto. | originally achievement |
| Juan finds the smallest mistake in a text | |
| 'Juan is able to find the smallest mistake in a text' | |

The asymmetry, on the other hand, is that states are not easily moved to classes that are not achievements. Cases of states that double as activities (662) are more likely to be analysed as activities that can become characterising predicates related to the mental state of the individual, and cases involving states that have accomplishment uses (663) are likely to be activities that can be bounded by a count noun, and also can become characterising properties of an individual.

- | |
|--|
| (662) Juan está pensando que María está enferma. |
| Juan is thinking that María is sick |
| (663) Juan ve una película. |
| Juan watches a movie |

This suggests that states should be considered, on empirical grounds, the basic type of eventuality, and perhaps also that the distinction between state and process – assuming that this term fits well with both activities and accomplishments– is a basic one.

- | |
|----------------|
| (664) a. state |
| b. process |

This fits with most existing approaches to the decomposition of lexical aspectual classes, which treat these two classes as primitive entities that in principle do not share anything beyond defining a domain of eventualities when they are conjoined. Determining the exact nature of the distinction, however, requires us to reconsider what is actually dynamicity and whether we can have non dynamic events or not. At the center of this problem lies the possible notion of Davidsonian state, as a candidate to be

an event that is defined by maintaining a situation and not by change. If the Davidsonian event approach is correct, then the distinction between event and state cannot be defined through dynamicity and one needs to take events to be distinct from states through other notions, like the localisation in time and space or manner.

(665) Juan {espera / *sabe inglés} en su despacho.
Juan waits / knows English in his office

This in turn forces one to reconsider the classification of types of state, with perhaps the distinction between individual level and stage level predicates being orthogonal to the distinction between states and events.

The simpler possible system, then, would be composed of state and process as primitives. In order to derive achievements as boundaries of either of the two previous classes, one can imagine that there is a third element, an operator that selects the boundary of an eventuality, initial or final perhaps depending on its location.

(666) Parsimonious system of primitives for lexical aspect
a. state
b. process
c. boundary operator

The notion of telicity, as suggested by the absence of lexical verbs denoting accomplishments, would be defined syntactically and not through a primitive element. Thus, to conclude, (666) seems to be the minimal set of primitives that one needs in order to account for the properties of lexical aspect in Spanish. We, therefore, finish here this article.

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