

Telicity: a Lexical Feature or a Derived Concept?

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0. Introduction*

This paper deals with the phenomenon of verbal aspectual classes and the way they are articulated in the lexicon. Over the last thirty years, various aspectual classifications have been proposed. However, there is still no consensus on the way verbs should be classified with respect to aspect. The difficulty arises because verbs can shift from one aspectual category to another depending on several factors such as the arguments the verb takes or the prepositional phrases that appear in the sentence.

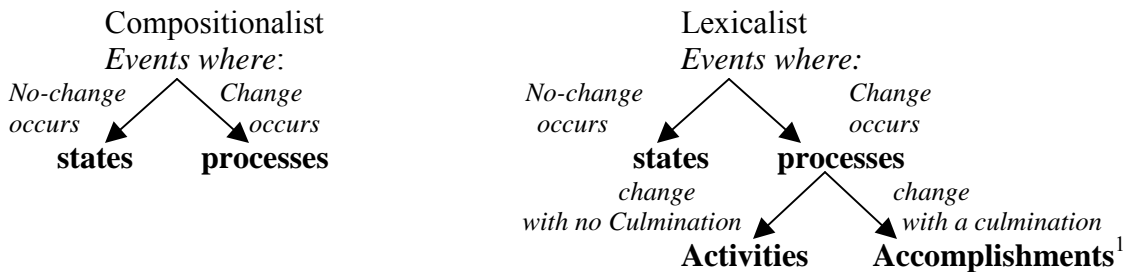
Most of the aspectual classifications distinguish between stative events or events that denote properties or situations where no change occurs through time (*to know, to like*), and processes or events describing changes of position or changes of state as time progresses (*to walk, to build*). Nevertheless, there is a major controversy on whether or not the processes should be further divided. On one hand, this division is a way to capture the intuition that certain processes exhibit an intrinsic ending point (*to build, to leave*), namely accomplishments, while some others lack this inherent ending (*to run, to sing*), the so-called, activities. *Build* exhibits an inherent ending point meaning that the semantics of *build* seems to involve the existence of a completion moment: once the object to be built has been finally *built*, the event reaches its culmination. With verbs like *run* or *sing* the intuition does not seem to be the same. While in *to build*, the *built* element marks the completion of the event, in *to run*, the intuition tells us that one could be *running* forever, in principle there is nothing delimiting the duration of the event of *running*.

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On the other hand, it is so easy for an activity like *run* to shift into an accomplishment and for an accomplishment like *build* to shift into an activity that the distinction gets fuzzy. Thus, for example, *to build* is considered as an accomplishment because it looks as if it has a culmination. As we already, intuitively the action in *to build a house* is finished when the house is built. There is no way to build a house further once the house is built. However, if the internal object is modified, as in *building houses*, it is not so clear when the process is finished. It would depend on the number of houses, and the plural *houses* is undetermined with respect to this number. In this way, after building a house there is always a possibility of building another house within the event of *building houses*. Therefore, while *build a house* is an accomplishment with an inherent end, *building houses* is an activity or a non-bounded process. Same with *run*, *running* itself does not seem to have any culmination nevertheless, when we say *to run a mile*, the event of *running a mile* seems to have a culmination. One cannot *run a mile* further, once the mile has been completed by running.

Consequently, several aspectual classification schemes do not consider the activity/accomplishment partition to be lexical. They attribute the existence of this distinction to the interaction between the verb and the elements appearing with it, such as arguments and adjuncts. The distinction is considered to be semantically compositional. We will go over this hypothesis in detail later on.

As we saw, the activity/accomplishment tension creates divergences on the way aspectual classes are conceived in the lexicon. The following graph represents the two major classifications:



¹ Under the bounded events, most of the aspectual classifications make a further split between accomplishments and achievements. We are not committed to discuss if that distinction is right or wrong, because it is not necessary for our discussion. For more information we refer the reader to Verkuyl (1972).

Our main concern will be to analyze the activity and accomplishment classes in detail, looking at different phenomena related with such distinction. The major question is to what extent this division is fully encoded in the lexicon or on the contrary derived from the interaction between the verb and the arguments in the syntax. This paper will demonstrate that the activity/accomplishment split has to be part of the lexicon. We will show that several syntactic and semantic processes could not be explained if this distinction were not part of the lexicon.

This paper is divided in four sections. The first section presents the lexicalist hypothesis. The second section introduces the compositionalist hypothesis. The third section is dedicated to analyze several syntactic and semantic data to argue in favor of the lexicalist hypothesis. Finally, we conclude with the last section wrapping up the different arguments discussed in the paper.

1. Lexical Aspect: A review of the Lexicalist hypothesis

The term *lexical aspect* or *aktionsart* refers to information about the manner in which the event takes place and is distributed through time².

Aristotle (384-322 b.c.) provided the first aspectual classification. He pointed out the distinction between two types of events; what he called *kinesis*, or events that denote a temporal culmination (i.e. leave, die, build), and *energeia* or semantically unlimited events (i.e. run, sleep, clean).

Lexical aspect has been intensely studied since Aristotle. Various new classifications emerged from these studies, but probably the most influential is Vendler-Dowty's (1967). Under this classification, there are four verbal aspectual classes: *states*, *activities*, *accomplishments* and *achievements*. *States* denote situations where no change occurs (*know, love...*). *Activities* denote situations where a change occurs but without manifesting any inherent ending for this change, that is to say, atelic situations (*run, swim...*). It is not that activities lack an ending point, just that this ending point is only

² Note that lexical aspect or *aktionsart* and sentential aspect are two different concepts.

dependent upon the causer's will. When the causer decides³ the event stops. *Accomplishments*, on the other hand represent changing situations with an intrinsic natural culmination (*build, destroy...*). Hence, an accomplishment has two possible ways of ending one if the causer stops the event and the second possible ending of an accomplishment occurs when the causer does stop the event and the event reaches its culmination. Finally, *achievements* denote situations where the inherent end is instantaneously achieved (*explode, win...*).

The verbal aspectual classification is not an isolated phenomenon. It has implications for the syntax. As Dowty (1979) pointed out, the different classes behave differently, for example, with respect to certain temporal prepositional phrases, or with respect to their compatibility with the gerund. Moreover, he used the syntactic phenomena as a test for the aspectual classification of the verbs.

Thus, activities are compatible with the prepositional phrase *for X time*. Contrastively, accomplishments are compatible with the prepositional phrase *in X time*, but not with *for X time*.

1. I ran for two hours /* in two hours
2. I built my house *for two years/ in two years

States and achievements cannot appear in gerund while activities and accomplishments can.

3. *I am knowing math (state)
4. * I am finding my glasses (achievements)
5. I am running (activity)
6. I am building my house (accomplishment)

³ Note that we speak about causer's will or decision, this would be the case in which the causer was an agent, but for explanatory purposes in this case we take the causer to be an agent.

Finally, achievements are compatible with *at X time* while states are not.

7. I found my glasses at two p.m.
8. *[?]I knew math at two p.m.⁴

There are several other syntactic phenomena distinguishing the different aspectual classes. The ones we mentioned are the most cited in the literature, because as we said, they are used as a test to discover the aspectual class for a given verb.

The aspectual classification has consequences at the semantic level as well. For example, what is known as the imperfective paradox, activities allow us to establish an implicational relation between the gerund and the present perfect as we can see in the following example:

9. I am running *implies* I have run

In other words, when I am running it is also true that I have run.

On the contrary, it is not possible to derive the same implication with accomplishments.

10. I am building a house *does not imply* I have built a house.

In the same way, when I am building a house it is not true that I have built a house.

Once the different aspectual classes were identified, the next issue was to come out with a proper way of representing them. How are these classes articulated in the lexicon? Dowty's (1979) hypothesis is probably the most extended one. He argues that the distinction between the different aspectual classes arises at the level of the eventual structure.

⁴ Note that this distinction is more semantic than syntactic, depending on the context it is possible to make a state being compatible with the gerund. *I knew math at 2 PM, but at 2:05 PM lightning stroke me, and then I forgot everything.*

Dowty⁵ (Aspectual decomposition)

1. Simple Statives: $\Pi_n(\alpha_1, \dots, \alpha_n)$ (John knows the answer)
2. Simple Activities: $DO(\alpha_1, [\Pi_n(\alpha_1, \dots, \alpha_n)])$ (John is walking)
3. Simple Achievements: $BECOME[\rho_m(\beta_1, \dots, \beta_m)]$
4. Agentive Accomplishments: $[[DO(\alpha_1, [\Pi_n(\alpha_1, \dots, \alpha_n)])] CAUSE [BECOME[\rho_m(\beta_1, \dots, \beta_m)]]]$

Dowty considers accomplishments to be complex events containing two sub-events: an activity sub-event and a resultative sub-event. He also considered both sub-events to be causally related. Thus, the inherent end characterizing the accomplishments is just a consequence of the existence of the resultative sub-event.

Activities are simpler in their event structure, they lack the resultative event and therefore they are lexically unbound.

2. Compositionality

In the previous section we examined the aspectual classification where the activity/accomplishment refinement is considered to be lexical. Not every theory agrees with this aspectual lexical classification. As we pointed out in the introduction, it is very easy to shift activities to accomplishments and accomplishments to activities. As shown in:

11. I ran/sang/drank for half an hour/ *in half an hour

In this sentence *run* is compatible with *for X time* therefore we can conclude that *run*, *sing* and *eat* are activities. However, example 12 shows that *run* can also be an accomplishment.

12. I ran a mile/sang Madame Butterfly/drank a beer *for half an hour/ in half an hour

The compatibility with the prepositional phrase *in X time* tells us that *run, sing* and *eat* are accomplishments in this case.

13. I sang opera/ drank beer for half an hour/ *in half an hour

Examples 11,12 and 13 show that the impact of the internal argument is huge. While the examples 11 and 13 represent activities compatible with *for*, 12 is compatible with *in* and therefore an accomplishment.

The examples above prove the possibility of forcing a class shift from what it is supposed to be a lexical activity to an accomplishment by introducing a countable internal argument. However, the following examples illustrate that the accomplishment shift to an activity is also feasible.

14. I built my house *for two years / in two years

15. I built houses for two years / * in two years

If the activity/accomplishment distinction depends on the quality of the verbal internal argument, is it possible then to tag a verb as lexical activity or accomplishment? If this is possible, would not that mean that we are considering a prototypical internal argument for these verbs in order to be able to classify them? These examples suggest that there is no lexical difference between activities and accomplishments. If the nature of the internal argument is able to force shifts between the two classes, it is quite plausible to defend a theory in which the activity/accomplishment distinction surfaces as the result of merging the verb and the internal object. To be precise, it is at the VP level where activities and accomplishments emerge. Hence, the activity/accomplishment distinction is

⁵For more information: Dowty (1979), pg 123- 125. For simplicity reasons we took from Dowty the representation for simple Activities and Accomplishments, as Van Valin does but as the reader will find out

a VP feature but not a verbal lexical feature. For that reason the distinction is no longer necessary in the lexicon, because it can be derived from the nature of the internal argument.

This proposal was defended for the first time by Verkuyl (1972). According to his hypothesis, the only aspectual information supplied by the verbal lexical entry is its dynamicity, to be precise, the information needed to tease apart states from processes (Process=Activities + Accomplishments). This distinction is a way to encode the fact that the internal argument of a state does not have any influence on the aspectuality of that State. For example:

16. I love the Mingus big band (state)

17. I love jazz (state)

In example 16 the internal argument is countable and in example 17 the internal argument is uncountable. Either way, regardless of the quality of the internal argument, the aspectual class remains the same.

More recently, various authors have shared Verkuyl's compositionalist hypothesis, among them, Hinrich (1985), Krifka (1992) and Schmitt (1996). All of them present a theory that is explanatorily more adequate than Verkuyl's. Hinrich and Krifka introduce compositionality as a semantic phenomenon, while Schmitt introduces it as a syntactic phenomenon with reflex on the semantics. We will present Schmitt hypothesis later on when discussing unaccusativity/unergativity in section 3.2.3, for now we will continue with Hinrich and Krifka's.

According to both Krifka and Hinrich, the nominal domain and the verbal domain have similar properties in some respects. If we look at the countable/uncountable distinction between nouns, this distinction seems to be based on the spatial delimitation property. Countable nouns are spatially delimited, on the contrary, uncountable nouns are

in his book the picture is more complicated

not. In the verbal field, the activity/accomplishment division is also based on the *delimitation* concept, but instead of the spatial delimitation, it is a temporal delimitation. Krifka and Hinrich argue that both countable nouns and accomplishments have a quantized, or in other words, heterogeneous reference. Uncountable nouns (plurals and mass nouns) and activities, on the contrary, both have a homogeneous reference. For a noun or an event to have a homogeneous reference the following properties need to be satisfied:

Distributive reference: $\forall e, \forall e', \forall P, (\text{Dist}(P) \leftrightarrow (P(e) \wedge (e' \subset e) \rightarrow P(e')))$

Cumulative reference: $\forall e, \forall e'', \forall P, (\text{Cum}(P) \leftrightarrow ((P(e) \wedge P(e'')) \rightarrow P(e \cup e'')))$

For example, the noun *wine* is homogeneous because it satisfies both distributivity and cumulativity.

Distributivity:

$\forall x, \forall x', \forall \text{Wine}, \text{Dist}(\text{Wine}) \leftrightarrow (\text{Wine}(x) \wedge (x' \subset x) \rightarrow (\text{Wine}(x')))$.

In plain words, if something is wine, a part of that wine is also going to be wine.

Cumulativity:

$\forall x, \forall x'', \forall \text{Wine}, \text{Cum}(\text{Wine}) \leftrightarrow (\text{Wine}(x) \wedge \text{Wine}(x'') \rightarrow (\text{Wine}(x \cup x'')))$.

In other words, if we have wine, for example to our left and wine to our right, if we combine both wines we will still have wine.

With respect to verbs, an activity verb like run will also be homogeneous satisfying both ditributivity and cumulativity.

Distributivity:

$\forall e, \forall e', \forall \text{Run}, \text{Dist}(\text{Run}) \leftrightarrow (\text{Run}(e) \wedge (e' \subset e) \rightarrow \text{Run}(e'))$.

So, if we consider an event of running and a subevent of running this subevent can still be considered as an event of running.

Cumulativity:

$\forall x, \forall x'', \forall \text{Run}, \text{Cum}(\text{Run}) \leftrightarrow (\text{Run}(x) \wedge \text{Run}(x'') \rightarrow \text{Run}(x \cup x''))$.

If there are two events of running, the union of them will still be an event of running.

Neither countable nouns nor accomplishments satisfy cumulativity or distributivity, so they are considered elements of heterogeneous reference. For example, a part of an apple is not an apple (distributivity), and an apple plus an apple is not an apple but two apples. With the accomplishments it is the same: a subevent of building a house is not building a house, but building a part of a house but not a house (distributivity). With respect to cumulativity, the union of an event of building a house with another event of building a house is not an event of building a house but an event of building two houses.

Krifka explains the correlation between mass/plural nouns and activities and quantified nouns and accomplishments through a homomorphic relation. This homomorphic relation appears between the verb and its internal argument⁶. When the homomorphism is created between the internal argument and the event, if the internal argument is a quantified element like *A glass of wine*, the boundaries of the element itself will create boundaries on the event. On the contrary, if the internal argument is not quantified (a mass noun or a plural), like *wine*, then the event will inherit the unboundness from its object. That is to say, due to the homomorphism, when the internal argument is a mass term or a plural, the cumulative properties of these elements will be transferred to the event. So

$\forall \text{Wine} [\text{CUM}(\text{Wine}) \leftrightarrow (\forall x, \forall y [\text{Wine}(x) \wedge \text{Wine}(y) \rightarrow \text{Wine}(x \cup y)]]$

Consequently

$$\forall \text{ Drink } [\text{CUM (Drink)} \leftrightarrow (\forall x, \forall y [\text{Drink (x)} \wedge \text{Drink (y)} \rightarrow \text{Drink (x} \cup \text{y)}^7]]$$

The quantitative or cumulative nature of the internal argument is an intrinsic nominal feature of the argument, and through the homomorphism, it will be transferred to the event. Therefore, due to this homomorphism, it seems logical to conclude that for reasons of economy and to avoid redundancy, the activity/accomplishment distinction should not be considered a lexical feature but a result of compositionality. Moreover, since verbs never appear in isolation there would be no way to argue that in fact it is the verb and, not the arguments or the compound, that *bears* a delimiting feature.

3. Contrasting Hypotheses

The data presented until now tilts the argument in favor of the compositionalist hypothesis. If it is true that the activity/ accomplishment distinction is basically derived from the elements surrounding the verb, it seems logical to think that the activity/accomplishment distinction is not lexical but compositional. If this were the case, then no resultative event would appear in a verbal lexical entry, because it is precisely this resultative event that lexically distinguishes activities from accomplishments. Then the first question is, which would be the alternative lexical representation for verbs like *arrive* or *leave* or *build* if it cannot longer be something like:

Arrive: BECOME (be-at X)

Leave: BECOME ((be-at X)

Build: Y ACT (BECOME(X be built))

⁶ This is not so in every case, but depends on the theta role that relates the argument and the event.

⁷ If and only if the union of the *drinkings* is an event, that is to say, *my drinking of a beer* plus *your drinking of a beer* are not going to form an event as a whole. So it cannot be the case.

The second question is, how would the compositionalist theory explain several syntactic and semantic data that seem to emerge from the lexical distinction between activities and accomplishments?

The following paragraphs will be devoted to presenting and analyzing these syntactic and semantic processes. We will confront both theories and we will see that the compositional theory will not have much to say.

3.1. Syntactic and semantic phenomena resulting from the activity/accomplishments distinction

Levin and Rappaport pointed out the existence of certain verbs that allow a wider range of variation than some others. For example, verbs of manner: contact with surface (sweep, vacuum...), manner of motion (run, swim...), sound emission (whistle, ring...). These verbs appear alone (Terry swept), or with a direct object (Terry swept the floor), or with a goal (Terry swept the crumbs into the corner)....

Levin and Rappaport argue that verbs like *sweep* admit more variation because they are activities and their internal representation is simpler than the internal representation of accomplishment verbs like *break*.

Sweep: X ACT Y

Break: [X ACT] CAUSE [BECOME Y <BROKEN>]

Break is a resultative verb, therefore an accomplishment. It has bigger restrictions on its use. For example, *break* will always be transitive while *sweep* can appear as intransitive. *Break* cannot appear with resultative phrases, *sweep* can. The obligatory transitivity shown by *break* would follow from the fact that *break* is encoded as a two-subevent verb, a causal event [X ACT] and a resultative event [BECOME Y <BROKEN>]. The Argument Realization Condition states that: “[T]here must be an argument XP in the syntax for each participant in the event structure and Each argument XP in the syntax must be associated with an identified subevent in the event structure”.

So since *break* must have two participants, one for each subevent, this Argument Realization Condition will force the verb to be transitive. *Sweep* on the contrary is an only subevent verb, therefore it must have obligatorily one argument. The appearance of the other argument follows from the idiosyncratic meaning of the verb, that is, the meaning of sweep requires one surface to be cleaned. Nevertheless, this argument can be syntactically omitted. On the contrary, the internal argument of *break* must be syntactically present, because it is structurally required.

With respect to the resultative phrases, *break* does not admit a resultative because, contrary to a verb like *sweep*, *break* already encodes a result, a delimitation. Following Tenny, an event that has two delimiters will be ungrammatical, hence a verb like *Break* + a resultative phrase would result in an ungrammatical sentence. In contrast, a verb like *sweep* that lacks of an inherent result encoded as part of the verb's lexical entry would satisfy perfectly the condition of not having two delimiters. The resultative phrase would just add a result.

In Spanish the facts are the same. Spanish does not have resultative phrases as English does, at least not the same kind. Nevertheless, there are two structures that can be considered as resultatives, *a fondo* and *a tope*, literally translated as *to the deepest* and *to the limit*. All the speakers we consulted agree that *a fondo* is grammatical with *sweep*, *clean*, *vacuum*.... meaning that the surface was completely clean.

18. Yo he barrido el suelo a fondo
I swept the floor to the deepest

While if the sentence is

19. Yo he barrido el suelo
I swept the floor

it does not necessarily imply that the floor is clean.

For some speakers the first sentence *yo he barrido el suelo a tope* is grammatical and has two meanings. The first, *I swept the floor to the limit of my strength*, focuses on the activity part. Do the second meaning, this phrase can also mean the same as *a fondo*, in other words, meaning that the result has been completely achieved.

As Levin and Rappaport's theory predicts, the verb *break* cannot be combined with the phrase *a fondo*.

20. * Yo he roto el vaso a fondo

I broke the glass to the deepest

It is not even possible with *a tope* (to the limit)⁸.

The compositional theories have no way to explain these differences. For them the lexical distinction between activities and accomplishments does not exist. Their theory predicts that depending on the cumulative or quantitative nature of the internal argument the whole VP will be bounded or unbounded. However, they cannot explain that a basic activity shows up in general, in a bigger number of syntactic structures. If there is not lexical difference between *sweep* and *break* why should they appear in different syntactic structures? If *break* lacks the resultative sub-event as the compositionalist would argue, is there a possible explanation for its incompatibility with

⁸ It is worth noticing that when we asked some speakers for judgments on the use of *a tope* with some other accomplishments, for example *build*, we got different responses. Some speakers considered it to be ungrammatical, but some other speakers considered *a tope* to be grammatical.

Yo construí la casa a tope.

I built my house to the limit

Interestingly enough, for these speakers the meaning is *to the limit of my strength*; *a tope* the activity part of the accomplishment not the result state.

the resultative phrases? If on the contrary *break* has a resultative sub-event, then its incompatibility with the resultative phrases follows from Tenny's theory: an event cannot be delimited twice. Moreover, if both *sweep the floor* and *break the window* are accomplishments by composition as the compositionalist would argue, and if they are both equal having the same lexical encoding how is it possible that *sweep the floor* admits a resultative phrase? If on the contrary sweep and break result from different lexical encoding, the facts Levin and Rappaport pointed out would follow from this difference.

Notice that a theory like Levin and Rappaport's does not deny the existence of compositionality. The influence of the internal argument on the final aspectuality of the event is huge. So huge that it is not possible to deny it. However, observe that even if the lexical distinction between activities and accomplishments can be considered redundant and therefore unnecessary at the first sight, different phenomena rely on this lexical distinction. Hence, even if the lexical activity/accomplishment distinction could be overwritten by compositionality, it exists.

3.2.1. The distribution of the aspectual *se*

The previous section was devoted to the analysis of the resultative phrases. We concluded that their felicity seems to depend on the inherent lexical distinction between activities and accomplishments. We concluded that as Levin and Rappaport pointed out the activity/accomplishment distinction is structural. Activities lack the resultative sub-event in their lexical representation while accomplishments have it.

This section discusses the manifestation of the aspectual particle *se* and its predictability. We will demonstrate that its distribution follows from the activity/accomplishment distinction as stated as in Levin and Rappaport.

It is very difficult to characterize the aspectual *se*. *Se* can appear in multiple environments, meaning multiple things (for more references see Nishida 1994).

21. Reciprocal SE

Mis padres SE besaron

My parents each other kissed

“My parents kissed each other”

22. Inchoative SE

La ventana SE rompió

The window SE broke

“The window broke”

23. Middle SE

Un test se corrige fácilmente

A test SE correct easily

“A test corrects easily”

24. Impersonal SE

La leche SE lleva a las casas a las 10

The milk SE brought to the houses at the ten

“The milk is delivered to the houses at ten”

25. Aspectual SE

Sonia SE comió una manzana a las dos

Sonia SE ate an apple at the two

“Sonia ate up an apple at two”

The meaning of the aspectual *se* is very similar to the particle *up* in English, however, the distribution of the aspectual *se* is more restricted. It seems that *se* cannot be found with inherent accomplishments. For example, take a verb of *decremental theme*. These verbs represent situations where the internal argument disappears as a consequence of the action carried by the verb, i.e. *eat*, *drink*, *consume*. Verbs belonging to the *decremental theme* cluster appear to be the most representative semantic group for

characterizing the aspectual *se*. Beber (to drink), comer (to eat), fumar (to smoke). When any of them appear intransitively or with a mass noun it is not possible to use the particle *se*.

26. *Juan SE come

Juan SE eats

“Juan eats”

27. *Juan SE fuma tabaco

Juan SE smoke tobacco

“Juan smokes tobacco”

However, when the internal object is a quantitative element, then the SE variation is possible, even preferred.

28. Juan se bebió una cerveza

Juan SE drank a beer

“Juan drank a beer up”

29. Juan se fumó dos cigarros

Juan SE smoked two cigarettes

“Juan smoked two cigarettes”

But the aspectual SE is not compatible with accomplishment verbs of decremental theme.

30. * Juan se destruyó la casa

Juan SE destroyed the house

“Juan destroyed the house”

31. *Juan se quemó los apuntes

Juan SE burned the notes

“Juan burned the notes”

32. *Juan se consumió todo el tabaco que tenía

Juan SE consumed all the tobacco that had-3pers.

“Juan consumed all the tobacco he had”

This case can be considered like the *sweep* case treated by Levin and Rappaport. In the first sentence, there is just the activity event where *Juan* acts on the food. The food is an intrinsic argument required by the idiosyncratic semantics of the verb, but it is not a structural argument. In the second sentence, the appearance of the SE particle seems to give a resultative meaning to the sentence. How is it possible to characterize the distribution of the *se*?

Let's suppose that a resultative event was added to a verb like *eat*, transforming it from something like [X ACT Y] into something like [X ACT Y] CAUSE [Y BECOME EATEN] (*augmentation up to template*). Recall the Argument Realization Condition (section 3), which requires on one hand the existence of one argument in the syntax for each participant in the event structure, and on the other hand that each argument in the syntax to be associated with an identified subevent in the event structure. Then the resultative event would not have any argument associated with it; therefore, the sentence would be ungrammatical. But *se* could be playing the role of that missing argument, and hence the sentence would be grammatical. Consider the following examples:

33. “Juan comió el plato de lentejas que le preparastes durante diez minutos, pero

Juan ate the plate of lentils that for-him prepared for ten minutes but

luego no pudo mas”.

after no can more

“Juan ate the plate of lentils you prepared for him for ten minutes, but afterwards he could not finish it”

34. “Juan comió el plato de lentejas que le preparaste pero dejó un par
Juan ate the plate of lentils that for-him prepared but left a pair
de cucharadas”
of spoons

“Juan ate the plate of lentils that you prepared for him, but he left some”

35. *”Juan se comió el plato de lentejas que le preparaste durante diez minutos
Juan se ate the plate of lentils that for-him prepared for ten minutes
pero luego no pudo más”
but after no can more

“Juan *se* ate (ate up) the plate of lentils you prepared for him for ten minutes, but afterwards he could not finish it”

36. *”Juan se comió el plato de lentejas que le preparaste pero dejó un par
Juan ate the plate of lentils that for-him prepared but left a pair
de cucharadas”.
of spoons

“Juan *se* ate (ate up) the plate of lentils that you prepared for him, but he left some”

There is a contrast between these groups of sentences. The first group allows the reading in which the eating event of the lentils was not completed. The second group (the *se* group), on the contrary, does not allow a reading where the lentils were not totally consumed. Note that the addition of this resultative event, that is to say the template augmentation, could be happening at the lexical level or at the syntactical level. Let’s suppose that it was a syntactic operation as Mori (1997) would argue. She would tell us that *eat* would be projected in the syntax as an activity, and by adding more structure to the syntax of the VP we would get the accomplishment reading. In fact, she could argue

that *se* represents the syntactic element showing that more structure has been added. In order to predict the distribution of the aspectual *se*, she would still have to argue that *consume* and *eat* are canonically different; *consume* projects as an accomplishment and *eat* projects as an activity. This way, once *eat* is projected in the syntax, the *se* gets added giving more structure to the event and therefore shifting it from an activity to an accomplishment. This seems to be a possibility. In any case, what is important for our purposes is that the distinction between the activities and the accomplishments has to be codified in the lexicon, it has to be canonical.

There are two important issues on the distribution of the aspectual *se* on one hand it only appears with inherent activities, and on the other hand, *se* gives to the event a resultative meaning. When *se* shows up, there is no way to understand the event as not finished. The explanation follows from what we already said. Verbs like *eat*, *drink* or *smoke* are lexical activities. Therefore, their lexical representation would be X ACT Y. Idiosyncratically they require two arguments, but not structurally, because contrary to verbs like *consume* or *destroy* lack the resultative event. If their event template is augmented by introducing a resultative event then, according to the Argument Realization Condition the aspectual *se* could be considered as a variable placeholder. *Se* fills the place of the new variable introduced by the resultative event. It is due to the resultative event that the sentences with *se* do not allow the interpretation where the argument is not completely consumed. Therefore, it follows the distinction between the sentences in 33 and 34 with respect to the sentences in 35 and 36. Notice that accomplishments already have a full lexical event template, thus no other event can be incorporated to their eventual structure. One could argue however, that achievements do not have a full eventual template. They lack the activity event. Then why do they not appear with the aspectual *se*? If the achievements' eventual template had to be augmented the only way to do it would be by introducing an activity. If this was the case, and by the Argument Realization Condition, the *se* should also be introduced. But in that case the *se* would not get the right semantics. It would acquire an inchoative semantics as in the case of:

37. La ventana *se* rompio

“The window broke”

In this case, the *se* is a place holder in the activity event of *break* and it gets an inchoative semantics.

[*se* ACT] CAUSE [BECOME *the window* to be broken]

Compositionalists face two main problems with respect to the aspectual *se*. First of all, if they do not distinguish between lexical accomplishments and derived accomplishments there is no way for them to explain the distribution of the aspectual *se*. *Se* appears just with inherent activities. Under the compositionalist view, both *eat the plate of lentils* and *consume the plate of lentils* are accomplishments to the same level. Neither *eat* nor *consume* would have an inherent resultative sub-event. Their boundness is the result of the homomorphism created between the verbs and their quantitative internal arguments. The spatial boundness of *the plate of lentils* is transferred to the temporal domain of the event. As a consequence, both *ate a plate of lentils* and *consume a plate of lentils* are equally bounded. Therefore, if there is no difference between *eat* and *consume*, it is not possible to explain the compatibility of *se* with *eat*, and the incompatibility of *se* with *consume*. *Se* appears with accomplishments derived from inherent activities⁹, and not with inherent accomplishments. Hence, *se* is susceptible to the distinction between derived and basic accomplishments. Once again, compositionalist do not seem to have the means to explain the distribution of the *se*.

The second problem they face is the impossibility of explaining the different interpretation of the sentences with *se* with respect to the sentences without the *se*. They could not explain why in example 34 it is possible to get the reading where the event is not completed, while in 36 the event has to be completed. In example 34, the homomorphism between the internal argument and the event would require the event to have a bounded reading. The internal argument is spatially bounded therefore, the event has to be temporally bounded. From this point of view, first it would not be easy for them

⁹ There are some states that allow the SE.

to explain why it is possible to get a non-completed reading of the event. Secondly, if the event is already bounded as a result of the homomorphism between the event and the internal argument, to add something like the *se* would contradict Tenny's theory where an event can be delimited only once.

3.2.2. The Re data

Another phenomenon that seems to depend on the activity/accomplishment lexical distinction is the semantic interpretation of the *re* prefix. Wechsler analyzed in detail this prefix in English. He relies on Dowty's hypothesis to predict the distribution of the prefix *re*. According to Dowty, this prefix appears just with accomplishments that encode a result state.

Wechsler's aim was to solve the puzzle that sentences like 38 and 39 pose to Dowty's hypothesis.

38. * John *reput* the antenna on his car

39. John *reread* Ulysses in one day.

Under Dowty's hypothesis 38 should be grammatical because *put* encodes a result state (at least under his lexicalist hypothesis). On the contrary, 39 should be out because *read* does not encode any result state (in the sense of affected/effecting object resulting in a change like becoming built or broken...)

What is important for our purposes is that Wechsler shows through some examples that there are certain accomplishments where *Re* does not imply that the action has been done twice to come out with a certain result. The meaning simply implies that the result has been achieved twice, without any need of appealing to the repetitions of any activity. The following examples will clarify this idea.

40. The satellite *reentered* the earth's atmosphere.

This sentence does not mean that it is the second time that the satellite is coming from the space to the earth, but that the satellite was once already on the earth and that the satellite is achieving again the state of being on the earth, in this case by entering from space.

More examples: the police reopened the case, the police reconstructed the scene of the crime....

With activities, the reading focuses on the fact that the activity was done once and it is done again. John reread the book, John reran the last kilometer.....

Even if the distribution of the *re-* cannot be explained as following from the activity/accomplishment distinction, there is a divergence in the semantic interpretation of an inherent accomplishment bearing the *re-* prefix, and an inherent activity bearing the *re-* prefix. If there is no difference between the accomplishments and the activities at the level of the lexicon, verbs within the same semantic group such as for *enter* (motion verb) and *run* (manner motion verb) would not be expected to behave differently. Both *read a book* or *open a door* have a quantitative internal argument and therefore they both surface as accomplishments. For the compositionists, as the activity/ accomplishment distinction is not encoded lexically, there is no way to tease apart a “basic accomplishment” *to open something* from a “derived accomplishment” *to read something* (activity + quantified internal argument). Thus, the differences found with respect to the *Re* prefix could not be explained.

3.2.3 The Unaccusative/unergative distinction

In this section, we will explore the syntactic phenomena of unaccusativity/unergativity. Zaenen (1988), Van Valin (1990), and Levin and Rappaport (1995) reported an interesting correlation between unergativity/unaccusativity and atelicity/telicity distinction (activities are atelic that is temporally unlimited, while accomplishments are telic, in other words, temporally bounded).

41. Bill died (Unaccusative accomplishment)

42. Bill cried (Unergative activity)

41 and 42 exemplify the correlation between telicity and unaccusativity and atelicity and unergativity. The correlation works as follows: every telic intransitive verb (that is, a verb possessing a resultative sub-event) will incorporate into the syntax as an unaccusative verb. An atelic verb (that is, a verb lacking a resultative sub-event) will project into the syntax as unergative or unaccusative depending on some other factors like for example internal causation. This correlation could be re-written in implicational terms as follows:

Telic → Unaccusative

Atelic → Unergative or Unaccusative (Depending also on some other factors apart from aspect)

However, the correlation could also be presented the other way around. It would still capture the link between unergativity/unaccusativity and atelicity/telicity.

Unergative → Atelic

Unaccusative → Telic or Atelic

These pairs of implications rely on different presuppositions. The first pair presupposes that the lexicon encodes the telic/ atelic distinction. The prediction would be that the unaccusativity/unergativity can be derived from this distinction. This goes along with the lexicalist hypothesis.

The second pair of implications predicts that telicity/atelicity derives from the unaccusative/ unergative syntactic distinction. The only argument of the unaccusatives is incorporated as the internal argument while the only argument of the unergatives is incorporated as the external argument (Burzio 1981, Perlmutter 1978). If there is no

internal argument as in the unergative case, it is easy for the compositionists to argue that the homomorphism between the internal argument and the event does not take place and therefore in principle the event would not get delimited. Hence, the correlation between atelicity and unergativity would follow from compositionality. If this were the case, the unaccusative/unergative phenomena will not sustain the lexicalist hypothesis. We will analyze in the following subsections, both implications.

3.2.3.1 The Activity/Accomplishment distinction as a derived phenomenon from unaccusativity/unergativity

As presented in section 3.2.3, the correlation between unaccusativity/unergativity and telicity/atelicity can be instantiated in different ways. We will start by looking at the other plausible implication: Telicity and atelicity as the result of the unaccusative/unergative syntactic nature of the verbs. Compositionists would defend this hypothesis by claiming that the telic/atelic distinction is not lexical. Therefore, the telic/atelic lexical split could not possibly drive the phenomena unaccusative/unergative syntactic incorporation. Hence, they have to explain the existing correlation in the opposite way. In this case the question is: Are compositionist able to predict that every unergative is atelic and that unaccusatives can be found being in some cases as atelic (descend, grow, cool) and in some others as telic (arrive, go, die, stay, seem...)?

As we already said, based on Perlmutter's or Burzio's syntactic theory on unaccusativity/unergativity, it is plausible to derive the telic/atelic quality of these verbs by compositionality. According to Perlmutter and Burzio, unergatives lack an internal argument, so the existence of Krifka's homomorphism between the event and the internal argument is not obvious. Hence, if the homomorphism does not take place, there is no way to delimit the event. Consequently, the event has to be atelic.

On the contrary, unaccusatives under Perlmutter and Burzio's hypothesis have an internal argument, the verb could in principle be telic or atelic. It would depend on the quantitative/cumulative nature of that internal argument.

Notice that this conclusion is tricky. If we have a look to the unaccusative¹⁰ atelic verbs reported by Levin and Rappaport, it is not the case (or at least it is not a requirement) that the internal argument is a mass noun or a plural, as the compositionnalists would expect.

43. The soup / The bowl of soup cooled for ten minutes.

44. The plane descended for fifteen minutes.

The so-called, *degree achievements* (cool, warm...) are quite problematic for any aspectual theory. As far as we can see, compositionnalists do not have much to say about these cases. Degree achievements show a dual status, as it is exemplified by the verb *cool* in example 40: They can be considered to be telic and atelic:

45. The soup cooled for two hours inside the fridge.

46. The soup cooled in two hours so we were able to serve it.

We will discuss the *degree achievements* in section 3.2.4, and show that there is a way to predict their behavior from the lexicalist point of view. For now, we will continue analyzing some other problematic verbs like *descend*.

The verb *descend* is also peculiar. *Descend* is atelic regardless of the nature of its internal argument.

47. The plane descended¹¹ for ten minutes.

¹⁰ Levin and Rappaport place the verb *roll* inside this group, that is to say, inside the unaccusative/atelic group. We are not going to take *roll* into account because the unaccusative nature of this verb is not proven. Moreover in Basque, as in French, this verb is unergative.

Baloiak birak eman zituen.
 The ball-ERG turns-ABS give transitive aux.
 “The ball rolled”
 La balle a roulé.
 The ball trans.aux rolled.
 “The ball rolled”

¹¹ Descend behaves like *push*. The internal argument of *push* does not force any telic reading.

48. The planes descended for ten minutes

47 exemplifies the atelic behavior of the verb *descend* even when the internal argument is a quantified element. Compositionists like Krifka would probably argue that motion verbs are a very particular case, where the homomorphism is not established between the event and the surface of the internal argument but with its location. Let's assume this for now, and take it as a valid explanation. Like that Krifka would be able to explain the atelicity of verbs like *descend*.

We spoke about the unaccusative atelic verbs like *descend*, but what about the unaccusative telic verbs? Examples of these verbs are *arrive* and *land*. Under Krifka's theory the prediction would be that the telicity of these verbs follows from the homomorphism between the internal argument and the event. Therefore, if the internal argument is quantitative, then the event will be telic. On the contrary, if the internal argument is cumulative (mass or plural noun) the event will be atelic. The following examples seem to support and prove this notion.

Internal argument not cumulative / telic event

49. La carta llegó en media hora/ a las dos en punto

The letter arrived in half an hour/ at two o'clock.

"The letter arrived in half an hour/at two o'clock"

50. Cuatro tanques de agua llegaron al campo de refugiados en

Four tanks of water arrived to the camp of refugees in

media hora/a las dos

half an hour/at the two

I pushed a cart for one hour/ * in one hour.

I pushed carts for one hour / * in one hour.

“Four tanks of water arrived to the refugees’ camp in half an hour/at two”

Internal argument cumulative / atelic event:

51. Llegó¹² correo durante media hora / a las dos en punto
arrived mail for half an hour / at two o’clock
“(Some) mail arrived for half an hour/ at two o’clock”

52. Llegó agua al campo de refugiados durante media hora/ a las dos
Arrived water to the camp of refugees for half an hour/at two
“(Some) water arrived to the refugees’ camp for half an hour/at two”

Notice that these verbs are also motion verbs, therefore they should follow same logic as in the case of *descend* as explored above. In this case, the homomorphism takes place between the location of the internal argument and the event. Therefore, the same reasoning as for *descend* would apply in this case predicting *arrive* to be atelic regardless of the nature of the internal argument. This would be the wrong prediction. Besides, if the homomorphism materializes between the location of the internal argument and the event, in examples like 51 and 52, where the internal element is a mass noun, the homomorphism could not occur with the location of the element. The reason for this is that a mass noun does not have a defined location.¹³ In any case, whether Krifka assumes the homomorphism with the location or with the internal argument itself, he is not going

For Tenny (1994), push does not assign a measurer aspectual role but a path role. So, in Krifka’s terms, the homomorphism would not be generated with the surface of the internal argument, which cannot be inherently limited (only externally limited by a PP like “to the earth”).

¹² We put these examples in Spanish because they do not seem to be possible in English. The reason does not seem to be anything related to aspect, but, rather to the fact that the unaccusative construction parallel to the Spanish one has a very restricted usage and in this case is even ungrammatical. * There arrived mail for half an hour.

¹³ For example a mass noun like water can be located discontinuously along a surface and it is considered to be water, a singular count noun cannot be discontinuously located. Singular count nouns are atomic and therefore they cannot be in different locations at the same time. Consequently one representative feature of a countable noun is its location.

to be able to predict correctly the behavior of both *descend* and *arrive* at the same time. If Krifka was not assuming the homomorphism between the location and the event he would have problems to explain the *descend* cases. If he was, then he would have problems to explain the telic behavior *arrive* and *land*.

Schmitt's syntactic aspectual theory is another hypothesis that derives the correlation between unergatives and atelicity. According to Schmitt not every internal argument will create a telic, bounded reading. For Schmitt the condition for an internal argument to establish a delimitation on the event is that the internal argument must be in the direct object position, and it must be quantitative.

She follows Hale and Keyser's theory on unergatives. Hale and Keyser consider unergatives to be normal transitive verbs where the internal argument is incorporated into the verb. They predict several syntactic data, such as the fact that unergatives appear in languages like Italian or Dutch with the transitive verb's auxiliary even if they surface as if they were intransitives. So if unergatives are the result of the incorporation of the internal argument into a light verb, then, their internal argument does not surface in a direct object position (that is to say, in the specifier of the Agro projection) and consequently under Schmitt hypothesis the aspect could never be calculated as telic. According to her, aspect is calculated at the Agro projection by compositionality of the verb and the direct object lying on the specifier position of the Agro.

If it is Agro the locus for the aspectual interpretation, then she will not be able to predict the telic nature of certain unaccusatives. In the case of the unaccusative verbs the internal argument is not the direct object but the subject and thus it does not land in the specifier of the Agro but on the Specifier of AgrS.

It seems that the compositionlists are able to predict unergative/atelic correlation though it is not clear that they are able to predict the unaccusative telic/atelic correlation in a satisfactory way.

3.2.3.2. Unaccusativity/unergativity as an aspectually derived phenomena

Is it possible to derive the unergativity/unaccusativity distinction from the activity/accomplishment distinction as claimed by Van Valin (1990); Zaenen, (1988)? Probably it is Van Valin's theory the most elaborated and explanatory hypothesis, so we will follow it.

Van Valin bases his whole theory on the aspectual decomposition. Van Valin argues that activity verbs incorporate to the syntax as unergatives. The rest of the verbs (states, achievements and accomplishments) will do it as unaccusatives. If we follow Levin and Rappaport's decompositional theory, it is possible to form a natural class with *states*, *accomplishments* and *achievements*, and another natural class with *activities*. Activities lack a "state predicate" in their aspectual decomposition. On the contrary, states arise from stative events. Accomplishments and achievements also possess one in fact; their resultative event is a stative event. As we can see it is possible to create natural classes where activities belong to a different class than states, achievements and accomplishments.

The implication is not Telic--→ Unaccusative

But state predicate belonging to decomposition → Unaccusative.

Nevertheless, this theory faces two main problems. The first problem comes by the variable behavior verbs. These verbs are unaccusatives in certain environments, and unergatives in some others. For example, manner of motion verbs like *run*. When run appears to be syntactically unergative it does not appear with a prepositional phrase like "to the island". In this case, the verb incorporates as unergative.

If this is the case, it does not seem very plausible to argue that the unaccusative/unergative distinction can be derived from any lexical feature. Moreover, derived from the eventual decomposition of the verb. This eventual decomposition does

not change depending on the environment. The second problem this theory faces is the wrong prediction it makes with respect to verbs like the smell emission verbs (smell, stink...).

Variable behavior verbs are problematic for a lexicalist hypothesis. Any theory that wants to explain the unaccusative/unergative distinction has to account for these verbs. Van Valin proposes the existence of a lexical rule that derives accomplishments from activities, and consequently unaccusatives from unergatives. This is the way, in which he predicts the behavior of these verbs.

“Activities(motion,creation,consumption) →Accomplishments: Given an activity LS (...predicate...) add CAUSE (BECOME predicate ...) to form a X CAUSE Y accomplishment LS.”

However, this lexical rule needs further specification, otherwise this lexicalist theory loses strength. Exactly under which conditions does it apply? Levin and Rappaport (1995) proposed a very concrete lexical rule for predicting the variable behavior of these verbs. They argue that these verbs are basically unergatives, and they shift to be unaccusatives under the appearance of a directional phrase. For example in Italian.

53. Gianni ha corso

John has run

“John has run”

54. Gianni è corso a casa

John is run to home

“ John has run home”

If this was true, it means that the unaccusative/unergative distinction cannot be fully predicted from the lexicon. Nevertheless, when looking at more examples, things get a little bit more complicated.

55. Gianni ha/ è corso verso l'isola
John has/is run towards the island

“Verso l'isola” is a directional phrase, however, it seems that this phrase is not forcing the unaccusativity on the verb. The intuition of the speakers is that there exists a semantic distinction between both possibilities. In the sentence with “habere” as the auxiliary, the directional phrase does not add semantically very relevant information. It is not critical information for the semantical interpretation of the event. On the contrary, in the “essere” version, the directional phrase is considered to be relevant information for the semantic interpretation of the sentence. If we have a look to a language like Basque we see that this intuition gets perfectly instantiated. Italian shows incorporation in both cases, and Basque could be considered as the non-incorporation version of Italian. In Basque there are two different light verbs for each case. The version with “habere” is the version with the “do” light verb in Basque, and of course it shows the “habere” Basque version of the auxiliary as well.

56. Jonek korrika egin du irlearuntz
John run do have-aux towards-the-island
“John ran towards the island”

Basque shows also the “essere” version, but the light verb changes from “egin”(do) to “joan” (go).

57. Jon korrika joan¹⁴ da irlearuntz
Jon run go be-aux towards-the-island
“John ran towards the island”

All this data seems to show the possibility of the non-existence of the variable behavior verbs. They are different verbs with a common constant (running) that gets incorporated to the verb. If this is the case, a lexicalist hypothesis like Van Valin's would not have any problem. The behavior of the variable behavior verbs would not be such. We would be speaking about two different verbs with different lexical. Hence, they would expect to be projected into the syntax in a different way.

Finally, Levin and Rappaport show in their "unaccusativity" book that there are some cases of state verbs like verbs of smell emission (smell, stink....) that are unergatives and a theory like Van Valin's would not be able to do such a prediction because they are states. If it were the case Van Valin's theory would expect them to be unaccusatives. But, it is not clear whether these verbs are or not states. The reason is that they can appear in the gerund form and presumably, states are not grammatical with a gerund:

58. This is smelling very bad vs. This smells bad

59. I am stinking vs. I stink

The eventual decomposition of these verbs is not clear enough to base any criticism on them.

After this whole analysis, to predict syntactic unaccusativity/unergativity distinction from telicity appears to be very plausible. This reinforces the hypothesis that the activity/accomplishment (atelic/telic) distinction is a lexical distinction. The unaccusative/unergative split is another syntactic phenomena based on the existence of a lexically defined full aspectual information.

The next section will be dedicated to analyze the *degree achievement* predicates. We will see that Hay&Kenedy&Levin (1999) offer a nice explanation for their dual

behavior. Moreover we will see that this explanation is compatible with the lexicalist hypothesis.

3.2.4. Degree Achievements.

Degree achievements pose another problem for a compositionalist view as much as they do for a lexicalist, at least at a first sight, because they are compatible with the telic and the atelic reading. For example,

60. The soup cooled in two hours

61. The soup cooled for two hours

Following the analysis that Hay&Kennedy&Levin made on these verbs, there seems to be a lexicalist explanation for their dual behavior. According to Hay et al. *degree achievements* are codified as accomplishments, that is to say, they have a resultative event internally codified. But in contrast with some other accomplishments like build or destroy, the adjective part the resultative event [BECOME [Y BUILT]] or [BECOME [Y DESTROYED]], does not impose the same gradual properties to the element undergoing the change as an adjective like *cool or warm*. According to them, these adjectives(cool, warm, soft...) introduce a gradient against which the change can be measured. This gradient can introduce a limit as well or it can be open, introducing just a lower “difference value”. When the element reaches that lower value, it is possible to consider that the predicate is true, but it does not mean that it cannot continue changing. According to them with adjectives like *cool* it could still continue changing because it does not establish an upper bound. On the contrary some other adjectives like *built* will introduce that limit.

Therefore and following this hypothesis, it is normal that degree achievements show a dual behavior. On one hand, they will be compatible with *in X time* when they mean to achieve the *lower difference value*, on the other hand they will be compatible with *for X time* when they mean to pass and continue passing that *lower difference value*.

But in their structure they are accomplishments, that is to say, they have a resultative event as part of their lexical entry. Therefore and for being projected they will appear as unaccusatives. Hence lexicalist would still be able to explain that even if their meaning allows them to be compatible with *for X time*, their structure will make them project as unaccusatives.

Conclusion

The goal of this paper was to show that the activity/accomplishment distinction is codified in the lexicon. The data presented so far argues in favor of this hypothesis. Nevertheless, no one can deny that compositionality exists, thus if a delimiting element appears in composition with an activity, this activity will shift into an accomplishment. The opposite shift, that is to say, from an accomplishment to an activity seems to be possible as well.

The existence of compositionality complicates the learnability of the lexical aspect. How is a child supposed to learn that *drink* is a canonical activity if there are certain environments in which it behaves like an accomplishment (*I drank a Coke*), and some environments in which it acts as an activity (*I drink*)? As we show there are certain syntactic and semantic processes that occur just with activities and not with accomplishments, making learnability of the activity/accomplishment distinction possible.

The lexicon is no longer considered in the linguistic theories as a bunch of words, it seems to be a very organized system. But it is still difficult to discover, how does the lexical system work, or which is the representation of the words inside the lexical system. It seems logical at this point to think that words have canonical forms that can be altered in the syntax or the semantics, giving rise to multiple interpretations. For example, as we saw, aspectual compositionality would be a way to alter the canonical aspectual interpretation of a verb. The hypothesis would be that whenever these shifts from the canonical form happen there is going to be a syntactic or semantic signal (like the Spanish *se*) to mark the non-canonical use of the word. For example, in the

causative/inchoative alternation, a verb like *break* has a causative canonical representation in the lexicon; (x ACT y) BECOME (y to be BROKEN). When this canonical form is altered as in the inchoative version of the verb, where the state component of the verb is focused, this alteration will be signaled in the syntax somehow. For instance, in Spanish through the inchoative *se*. This way, learnability of the canonical form is possible. To explore this possibility would be part of our future work.

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