

Children's endstate neglect: agentive vs. causative subjects

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Abstract

First language acquisition studies (e.g. Gentner, 1978; Gropen, Pinker, Hollander & Goldberg, 1991; Wittek, 2002; van Hout, 2005; 2008) have reported that children accept perfective change-of-state predicates, which theoretically generate completion entailment, to refer to non-culminating events. This is known in the literature as the *endstate neglect*. In an attempt to interpret this phenomenon, three main hypotheses have been proposed: the Manner Bias (Gentner, 1978), the Weak Endstate Interpretation (Wittek, 2002) and the Morphological Saliency (van Hout, 2005; 2008). However, as neither of these approaches have succeeded in providing a final explanation for children's endstate neglect, this study explores the scope of the Agent Control Hypothesis (Dermirdache & Martin, 2015), a recent theory that analyses the influence of subjects' agentivity over children's interpretation of change-of-state verbs. According to this new hypothesis, the presence of agentive subjects correlates with children's acceptance of completion entailment. Based on this theory, the present study examines Basque children and adult language in an attempt to identify whether the phenomenon of endstate neglect correlates with the presence of an agentive subject. By means of an experimental study on the influence of causative and agentive subjects over children's interpretation of punctual, change-of-state events, this paper argues that the results do not support the Agent Control Hypothesis. Instead, in line with previous studies, the results of the present study suggest that the endstate neglect is not related to change-of-state verbs but to incremental verbs, which seem to hold some grade of ambiguity for speakers' interpretation.

Keywords: Children's Endstate Neglect; Change-of-state verbs; Completion entailment; Agent Control Hypothesis; Agentive subjects; Causative subjects

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1. Introduction

Depict a situation in which you witness how a teacher tries to close a window, but she does not fulfil her purpose and the window remains open. This would be an example of a non-culminating event, as the change that could have resulted from the teacher's action did not actually occur. If you were asked whether the teacher has closed the window, you would probably provide a negative answer: "no, she didn't close the window, it's still open". Even though this seems to be any competent adults' answer, children may act differently, and so may do adult speakers' of languages such as Mandarin: they would accept the statement providing an affirmative answer, a response that is known in the literature as the *endstate neglect*. The *endstate neglect* could be defined as the phenomenon which describes how native children speakers' of certain languages accept questions that entail a culminating, changed endstate, when the reality shows a no-changed endstate.

Although this phenomenon has been the issue under study of some scholars' research throughout the past years (e.g. Gentner, 1978; Gropen et al., 1991; Wittek, 2002), it has currently gained importance on a large scale and it has become the focus of many experts' investigations (e.g. van Hout, 2005; 2008; Demirdache & Martin, 2015). This study discusses the main hypotheses that have reported and explained the existence of this phenomenon, for instance, the Manner Bias (Gentner, 1978), the Weak Endstate Interpretation (Wittek, 2002) and the Agent Control Hypothesis —ACH— (Demirdache & Martin, 2015). Following an ongoing research line, this dissertation explores the scope of the last hypothesis, the ACH, which argues that the endstate neglect is associated with the nature of the subject —agent or cause— that performs the action described by change-of-state verbs. The aim of this paper is to analyse whether Basque children accept perfective statements for non-culminating situations and, if so, to discuss whether the ACH is a possible, valid explanation for this phenomenon.

To this end, an experiment has been carried out in order to analyze the degree of endstate neglect produced by both native children and adult speakers of Basque, and to provide an overall insight into the different perceptions of reality of these different groups. The experiment discussed throughout this dissertation has been developed as a collaboration for an investigation group, GraMALL (van Hout, Demirdache, García del

Real, Hommes, Kazanina, Liu, Lungu, Martin & Strangmann, 2015) which studies the ACH and culmination entailment in Dutch, English, Mandarin Chinese and Spanish, and for which I have collected and analysed Basque data.

The paper is organized as follows: section 2 begins with a general introduction to aspect, tense, telicity, perfectivity and completion entailment. Then, I will discuss how lexical and grammatical aspect affect the acquisition of different types of predicates, highlighting change-of-state verbs, and I will provide a description of the issue under study: the neglect of the non-culmination case. I will finish this section by presenting the main hypotheses analysing this phenomenon. In section 3, some possible predictions for this experiment will be proposed. Afterwards, in section 4, I will provide a description of my own experimental research with its corresponding results (section 5), which will be discussed in section 6. I finally conclude in section 7 with a summary of the main findings and a conclusion.

2. Theoretical Background

Human language has the property of referring to specific situations or events that may not be occurring at the moment of speaking, widely known as temporal displacement. Three linguistic categories enable the different temporal interpretations of events —*lexical aspect*, *grammatical aspect* and *tense*— and they are considered essential and distinguishing properties of the human language system. First, *lexical aspect* —also named *Aktionsart* or *predicational aspect*— describes how an event develops in time, distinguishing between telic and atelic predicates among many other features. This information is expressed by the semantic features of the predicates themselves. Second, the term *grammatical aspect* is used to refer to the perfective/imperfective temporal distinction of the event, which refers to a specific part of the event described by the *lexical aspect*. Third, *tense* is used to refer to the location of the event in time. Thus, in contrast to *lexical aspect*, *grammatical aspect* and *tense* do not focus on the inherent semantics of the predicate itself, but they provide a perspective to describe the event and locate it on a specific timeline (García del Real, 2015; Wagner, 2012).

These three linguistic categories —*lexical aspect*, *grammatical aspect* and *tense*— all contribute to the different temporal interpretations of events in broadly independent

ways. Furthermore, they also interact and combine in language with the purpose of organizing and determining events' temporal information.

I consider providing the appropriate definition of these categories essential for a better understanding of some other concepts, such as telicity and perfectivity, which are crucial notions in this research. In the following section, I will provide a thorough explanation of the semantics of two of the aforementioned linguistic categories, as they are primarily relevant to this study.

2.1. Distinction between lexical aspect and grammatical aspect

Although both *lexical aspect* and *grammatical aspect* focus on the different temporal interpretations of the event, they must be analysed separately, as they are independent of each other. Let's consider the following past events for an easier interpretation.

(1) a. *Mary built a castle*

b. *Mary was building a castle*

(2) a. *John sang*

b. *John was singing*

If we analyse the pairs independently, we will notice that sentences (1a) and (2a) differ from (1b) and (2b) in grammatical aspect. For instance, concerning the first pair of sentences, (1a) expresses the event as a punctual or non-progressive moment —past simple— whereas (1b) emphasizes the progress of the event, it distinguishes its internal duration —past continuous. Therefore, temporal constituency of the event can be examined from a distance as a single moment —*perfective aspect* (PF)— or it can be examined from a closer perspective as a series of continuous events —*imperfective aspect* (IPF) (Riemer, 2010). Accordingly, as reported by Smith (1997) in García del Real (2015), "sentences with PF present a situation as a whole, including the initial and the final endpoints of the situation. Conversely, IPF does not provide information about the endpoint of a situation, but it makes explicit reference to the internal constituency of the situation" (p. 43). This difference is illustrated by the simple form of the verb, which

expresses the PF aspect (1a, 2a), in contrast to the progressive form, which expresses the IPF aspect (1b, 2b) (Riemer, 2010).

The same as grammatical aspect differs the two sentences of each pair, lexical aspect is the linguistic category which differs example (1) from example (2). Therefore, the difference between them does not account for the temporal distinction but for the semantics of the predicates themselves: *build* is a telic predicate while, in contrast, *sing* is an atelic predicate.

2.1.1. Telicity

We describe an event as *telic* when the semantics of the predicate involve an inherent endpoint or outcome, and *atelic* when it does not involve any of these. On that account, telicity is the property which classifies durative predicates into accomplishments (1) and (3b) —telic— and activities (2) and (3b) —atelic—.

However, accomplishments and activities can be modified by the presence of arguments to become atelic and telic predicates respectively. For example, if an indefinite noun [castles] is added to the sentence in (1a), we obtain sentence (3b), in which an ending point is never achieved, as the whole statement's meaning involves no outcome or final result. On the other hand, if a definite noun [a song] is added to sentence (2a), we obtain sentence (3b), which is telic because the statement acquires a definite form in which an outcome or a resulting state is involved.

(3) a. Mary builds castles

b. John sang a song

Furthermore, telic predicates accept modification by in-adverbial (*in X time*) but they cannot be combined with for-adverbial (*for X time*). Yet, the opposite holds for atelic predicates (Kearns, 2011):

(4) a. He built a castle in 10 minutes # for 10 minutes

b. She sang # in 10 minutes for 10 minutes

2.1.2. Perfectivity

As it can be interpreted from examples (1) and (2), the telic predicate *build* can be described in a PF perspective (1a) or in an IPF perspective (1b). The same happens with the atelic predicate *sing*, which can be described in a PF perspective (2a) or in an IPF perspective (2b). This verifies the initial assumption of this section that lexical aspect and grammatical aspect are independent of each other, even if they both focus on the different interpretations of the event.

Nevertheless, even though lexical and grammatical aspect have been proved to be independent features of human language, when telic and atelic predicates combine with grammatical aspect —PF or IPF— they give rise to different entailment patterns (Comrie, 1976; Dowty, 1979; Hinrichs, 1986 in García del Real, 2015). As example (5a) shows, atelic predicates combined with IPF aspect —the progressive form of the verb— entail the truth of the predicate combined with the PF aspect —the simple form—. In contrast, telic predicates do not follow this entailment pattern (5b). This is not a specific property of English and Spanish but it may also be identified in Basque.

(5a) ATELIC PREDICATE + IPF	→	ATELIC PREDICATE + PF
Jon abesten ari zen	→	Jonek abestu zuen
<i>John singIPF</i>		<i>John singPF</i>
'John was singing'	→	'John sang'
(5b) TELIC PREDICATE + IPF	-/ →	TELIC PREDICATE + PF
Maria gaztelu bat eraikitzen ari zen	-/ →	Mariak gaztelu bat eraiki zuen
<i>Mary buildIPF</i>		<i>Mary buildPF</i>
'Mary was building a castle'	-/ →	'Mary built a castle'

In fact, the entailment pattern illustrated in (5b) is derived from the fact that PF telic predicates entail completion. However, when telic predicates combine with IPF aspect, they denote the part of the event leading up to the outcome —not the result— and, hence, the lack of entailment. That is to say, the fact that Mary was building a

castle (5b) does not imply that she built the castle completely (5b), as she may have not finished it. In the following section, a clarifying explanation of this notion is developed.

2.2. Completion entailment: agent vs. cause

The distinction between telic and atelic predicates with respect to completion entailment follows from the existence of an inherent endpoint or outcome in the semantics of the predicates themselves (Comrie, 1976; Klein, 1994; Parsons, 1990; Smith, 1997 in García del Real, 2015). In fact, this property guarantees entailment completion —reaching the inherent outcome— whenever telic predicates combine with PF aspect. Thus, we may assume that in example (3a) there is actually an existing letter as a result of the action. Nevertheless, IPF telic predicates can refer to situations that have finished or to situations that did not reach completion.

Interestingly, in contrast to English, Spanish or Basque —some languages¹ such as Mandarin (Koenig & Chief, 2008), Thai (Koenig & Muansuwan, 2000), Korean (van Valin, 2005) and Hindi (Singh, 1998), accept situations in which PF aspect in combination with telic predicates does not necessarily entail completion. In other words, cross-linguistically, non-culminating readings are allowed for PF accomplishments, as example (6) shows (reported and translated from Mandarin in Demirdache and Martin, 2015).

(6) Yuēhàn shāo le tā-de shu, dàn méi shāo zháo.

Yuēhàn burn perf 3sg-de book but neg burn-touch

'Yuēhàn burned his book, but it didn't get burnt at all'

According to Demirdache and Martin (2015), allowing non-culminating readings for PF accomplishments correlates with the agent's control over the described event. As these researchers have claimed, although native speakers of Mandarin accept sentences like (6), in which the subject's referent is an agent, they would reject sentences like (7) where the subject's referent is an inanimate cause.

¹ An extended list of the languages that allow non-culminating readings with PF aspect is provided in a research by Demirdache et al. (2016).

(7) Huǒ shāo le tā-de shu, # dàn méi shāo zháo.

Fire burn perf 3sg-de book but neg burn-touch

"# The fire burned his book, but it didn't get burnt at all"

However, this distinction between agentive and causative subjects is not a distinctive feature of Mandarin. Moreover, Demirdache and Martin (2013) have observed that some specific verbs like *offer* may lead to a contradiction when combined with a causative subject (see for a brief introduction to these verbs Strangmann, 2015:25). Consider the example below for some clarifications (Strangmann, 2015 from Martin and Schäfer, 2012):

(8) a. Her excellent result offered her the first position. #But she didn't take it

b. The organizer of the race offered her first position, but she refused this deal

Predicates like *offer* allow non-culmination with agentive subjects but they do not allow non-culmination with causative subjects, which means that these type of verbs "correlate with the notion of [*agent control*]" (Strangmann, 2015:25).

In sum, there are three linguistic categories which enable the different temporal interpretations of events —*lexical aspect*, *grammatical aspect* and *tense*—. Moreover, when lexical aspect —telicity— and grammatical aspect —perfectivity— interact, they give rise to completion entailment. Interestingly, completion entailment has been found to be defeasible in languages such as Mandarin (6) and with agent subjects (8). I found the aforementioned explanation appropriate to understand these crucial notions. Now that these general concepts have been refreshed, I will proceed with a discussion on the acquisition of lexical and grammatical aspect.

2.3. The acquisition of verbs and the endstate neglect

According to Wagner (2012), there is a tendency among children to confine the past tense and PF aspect to telic predicates, as well as the present tense and IPF aspect to atelic predicates. This means that children would produce utterances like (9a) but they would avoid some others like (9b).

(9) a. Mum *broke* my puzzle (*PF + telic*) / I like riding (*IPF + atelic*)

b. Mum's breaking my puzzle (*IPF + atelic*) / I rode to school (*PF + atelic*)

Interestingly, these restrictions suggest that children tend to follow a specific pattern in which they produce telic, PF and past statements for completed events and atelic, IPF and present statements for ongoing events. The table below, borrowed from Wagner (2012), illustrates the aforesaid classification.

Table 1: Two critical classes in children's early aspectual use (Table 15.1 in Wagner, 2012:460).

	Class 1 (completive)	Class 2 (ongoing)
Aktionsart	Telic	Atelic
Grammatical Aspect	Perfective	Imperfective
Tense	Past	Present

The interpretation Wagner (2012) accomplishes of this classification reveals a clear under-extension of the several combinations available between the vertical classes. Children tend to avoid cross-class combinations, which are perfectly grammatical, even though they have acquired most of the relevant morphological forms. Surprisingly, this phenomenon has been found in many languages² and, consequently, "it appears that whatever drives this phenomenon does not depend on specific structural properties of any particular language, but requires a more general explanation" (Wagner, 2012:461).

Interestingly, the endstate neglect shows just the opposite of what Wagner (2012) has described: it is a cross-class combination in which telic PF statements align with lack of completion of events. As the generation of the completion entailment depends both on the lexical and grammatical aspect of the predicate, this phenomenon could be regarded as a result of an incomplete acquisition of lexical aspect (telicity, in section 2.3.1), grammatical aspect (perfectivity, in section 2.3.2) or another type of feature

² Including English (Johnson and Fey, 2006), French (Labelle, Godard, and Longtin, 2002), Italian (Antinucci and Miller, 1976), Mandarin (Li and Bowerman, 1998) and some others cited in Wagner (2012:461).

(agentivity 2.3.3). Besides, in an attempt to provide an explanation for each of these underextensions, several theories have been proposed: the Manner Bias (Gentner, 1978; Gropen et al., 1991) and the Weak Endstate Interpretation (Wittek, 2002) as possible explanations for the difficulties in the acquisition of telicity; the Morphological Salience (Van Hout, 2005; 2008) as a possible explanation for difficulties in the acquisition of perfectivity; and the ACH (Demirdache & Martin, 2013) as a new alternative to explore the endstate neglect.

2.3.1. Difficulties at the lexical aspect level

Verb learning is usually regarded as troublesome because, unlike nouns, verbs are seldom acquired by associative learning. Besides, difficulties in verb learning may lead to inadequate interpretations of situations, closely related to the endstate neglect.

The mechanism of *associative learning* is described by Namy (2012) as an activity in which learners, whenever they see a particular object, they hear its corresponding particular label. With a continuous repetition of this process, the learner establishes an association between the object and the label. Strangmann (2015) describes associative learning as "learning by observation" (p. 2), and she asserts that verb learning is harder than noun learning due to the fact that nouns have a one-to-one relation in associative learning, while verbs do not: as it has been previously explained, verbs denote different situations —such as activities or accomplishments—. As a result, "[p]otential issues arise for acquiring verbs, compared to the acquisition of nouns. For example, an issue of timing arises: verbs are often uttered when the actual event is not ongoing" (Strangmann, 2015:2). This idea is closely related to the notion of *temporal displacement* described in the first lines of section 2.

Additionally, not all verbs are equally complex to learn. Mandler (2006) distinguishes among static verbs —states— and motion verbs —activities, accomplishments, achievements and semelfactives—. He claims that children show more interest for motion predicates and, thus, they acquire them earlier than the static ones. The following section introduces the subclass of verbs that will be analyzed in this research, which is denominated by experts as *the change-of-state verbs*.

2.3.1.1. Introduction to change-of-state verbs

We may intuitively define change-of-state verbs as *verbs that imply a change from a beginning state to a resulting state*. A widespread scholars' example would be to consider the verb *break*, which involves a change from the state of being complete (a mirror) to the state of being broken into pieces (small pieces of glass). In a way, change-of-state verbs describe both the process or motion —the undergoing change— and the result of the change (Strangmann, 2015).

Although I have pointed out before that motion verbs are easier to be acquired than other types of verbs —because movement arouses children's interest (Mandler, 2006)—, change-of-state verbs could be considered an exception to this statement. As change-of-state verbs describe complex eventualities which involve both motion and an outcome, children show relevant difficulties in their acquisition. In her study, Wittek (2002) highlights the need to provide an accurate description of verbs' properties so as to develop valid conclusions on how children comprehend change-of-state verbs. In order to fully understand change-of-state verbs, children must acquire their three main components, which are illustrated in example (8): the *agent* that initiates or does the action (A), the *patient/theme* that undergoes the action (B) and the causal relationship between both of them (*Sam caused the plate to break*).

(8) Sam (A) broke (CAUSE) the plate (B)

Some scholars (Gentner, 1978; Gropen et al., 1991; Wittek, 2002; Van Haut, 1998; 2005; 2008) have found that children face difficulties understanding the semantics of these verbs and the change of state implied in the action. "Children sometimes display a neglect of the end state. This means that they somehow accept a certain change verb "yes, dad woke up his daughter", when the change did not come about (the daughter is still asleep)" (Strangmann, 2015:6). In the following sections, two hypotheses which have focused on difficulties in verb learning are presented.

2.3.1.2. The Manner Bias

The Manner Bias was first described by Gentner (1978) after her research on children's (age 5-9) preference for action verbs like *stir* over function verbs like *mix*. While *stir* denotes an activity and describes an action which does not involve an

outcome (atelic), the verb *mix* describes a situation in which two substances become homogeneous as a result of the action (telic). Additionally, this last process involves a change-of-state of the substances that are being mixed.

Gentner's (1978) experiment's results showed that the youngest group (age 5-7) were not able to completely distinguish between action and function verbs, as they accepted situations in which a homogeneous substance was mixed. Thus, her experiment proved children's preference for action verbs as they considered *mix* an action—in which even a homogenous substance could be mixed—rather than a function or an outcome of the action itself. These results, she concluded, are evidence for children's neglect of the endstate.

In a subsequent experiment by Gropen, Pinker, Hollander and Goldberg (1991) more evidence for the endstate neglect was found. These researchers examined children's perception of the predicates *fill* and *pour*. Although both verbs describe an action, we would have to distinguish between the notions of *filling a recipient with a substance* and *pouring a substance into a recipient*. See that while the verb *fill* describes a resulting state in which the recipient is full of the substance, hence, a change-of-state, the verb *pour* describes an action.

The results of Gropen et al.'s (1991) experiment showed that children perceived both *fill* and *pour* as action verbs, as they accepted *fill* when the substance only reached half of the recipient. Thus, these results support Gentner's (1978) conclusion that children tend to misinterpret change-of-state verbs—*mix* and *fill*—as action verbs—*stir* and *pour*—, showing a general preference for manner predicates. Furthermore, all experts concluded that their experiments showed evidence for the difficulties in the acquisition of change-of-state verbs and, thus, the endstate neglect.

Strangmann (2015) rejects the Manner Bias hypothesis by arguing that children understand the action (e.g. pouring) preceding the endstate (e.g. filling) as an essential part of the change-of-state verb's meaning (e.g. fill). The change of state is, clearly, the result of the action. Moreover, Strangmann (2015) also claims that children displayed the endstate neglect in Wittek's (2002) third experiment which, she assumes, undermines the Manner Bias.

2.3.1.3. The Weak Endstate Interpretation

The Weak Endstate Interpretation hypothesis was proposed by Wittek (2002) when she argued that her experiments' results did not uphold Gentner's Manner Bias hypothesis (1978). Wittek (2002) carried out three experiments in which the influence of the morphology of the verbs towards children's acquisition of verbs was analysed. She predicted that change-of-state verbs' acquisition would be easier when they were complex predicates —*blow out*— as they would be more transparent for children than mono-morphemic, opaque verbs —*close*—. She predicted that the separate morpheme (e.g. *out*) influenced children's successful acquisition of the predicate.

Although Wittek's (2002) first and second experiments' results did not support her initial prediction (children performed better with mono-morphemic verbs), she accomplished it after a third experiment in which children doubled the error rate in no-change situations with mono-morphemic verbs compared to complex verbs. Additionally, she concluded that even if a change was accepted by children in the no-change situations, they could perfectly produce sensible interpretations of the situations: change-of-state predicates do not obligatorily require an endstate for children, but they correctly assume that a change could arise.

However, according to Strangmann (2015) these hypotheses do not provide a final explanation for the phenomenon under study. As she points out, Wittek's (2002) results only aligned with the Weak Endstate Interpretation in the third experiment, where she manipulated the particles of the complex verbs by placing them in sentence-final position. Hence, it would be Witteks' (2002) manipulation of verbs the reason for childrens' improvement, but not the comprehension of the semantics of predicates themselves.

Although there is not a final explanation for difficulties at the lexical aspect level, the next section considers children's difficulties in acquiring the PF.

2.3.2. Difficulties at the grammatical aspect level

It has been previously mentioned (introduction of section 2.3) that the endstate neglect could be regarded as an incomplete acquisition of perfectivity. In the following

lines, the Morphological Saliency hypothesis (van Hout, 2005; 2008) will be presented, a theory which develops a detailed explanation of the acquisition of grammatical aspect.

2.3.2.1. The Morphological Saliency hypothesis

The Morphological Saliency hypothesis claims that "[t]he semantics of morphologically salient paradigms is acquired early" (Van Hout, 2007:1753). This hypothesis was supported by Van Hout's (2005, 2008) experiments, in which she examined the acquisition of Polish aspect —PF vs. IPF— and the acquisition of Dutch, Italian and Polish aspect —perfectivity and telicity—. Her aim in both studies was to analyse whether completion entailment —PF aspect and telic predicates— was accurately acquired by children or, instead, they accepted PF statements as incomplete situations.

Van Hout's (2005) first experiment's results showed that the youngest children (age 2-3) accepted an incomplete situation for a PF statement 22% of the time, while this rate decreased for older children (age 4) in 5%. Nevertheless, she claimed that the fact that children had chosen an incomplete situation for a PF statement revealed that they had not fully acquired completion entailment of the PF and, therefore, they were another example of the endstate neglect.

In contrast, in Van Hout's (2008) second research, the results indicated that Dutch and Polish children (age 2-3) did actually perform adult-like in the PF's completion entailment, whereas Italian children still showed difficulties towards an appropriate interpretation. She concluded that these differences in acquisition could be determined by a salient morphological marker for the PF, which is present both in Dutch and Polish. This makes the one-to-one —form to meaning— mapping and, thus, the acquisition of completion entailment easier for their speakers. Nevertheless, as only Basque data has been tested in this study, no cross-linguistic comparison will be realized regarding morphological saliency.

In sum, since neither of the previous hypotheses provides a final explanation to the endstate neglect, this study considers the ACH as an alternative explanation to the problem. A more extended and detailed introduction of the ACH is provided in the following section.

2.3.3. An alternative hypothesis: the Agent Control Hypothesis

As mentioned in section 2.3, some languages such as Mandarin accept situations in which the PF aspect in combination with telic predicates does not necessarily entail completion. This is only possible when the sentence has an agentive subject. Since culmination rejection has also been found in child language, it is reasonable to question whether the culmination rejection found in some adult languages corresponds to that of children. However, in all the experiments which led to the hypotheses I have discussed above, the subjects of the actions were always agents and never causes. Thus, as observed by Demirdache and Martin (2015), the results of these experiments could be determined by the agenthood of the subjects.

Therefore, the ACH provides a new perspective to examine the endstate neglect. As reported by Strangmann (2015), unlike causative subjects, agentive subjects have some inherent properties such as intentionality and reasoning which could lead children to "display less endstate neglect when the subject is a cause, compared to PF sentences when the subject is agentive" (p. 26). Consider the examples below for a better understanding of these concepts:

(10) a. The wind blown out the candle

b. Lisa blown out the candle

In view of the ACH, if these PF statements were combined with incomplete situations (zero-result), children would be more likely to accept sentence (10b) than (10a).

In the subsequent sections the experiment developed in this study is presented. First, I will introduce the study-line of this experiment, noting some possible predictions. Then, the methodology will be described, followed by the results. Finally, the initial predictions and the results found will be discussed.

3. Research questions and predictions

This paper investigates whether children's neglect of non-culmination is related to Chinese adult's non-culminating readings, or, what is to say, if the ACH can explain the non-culminating readings of PF telic in child language.

In light with the ACH, in this research I have studied the phenomenon of the endstate neglect in Basque children language to analyse whether children do actually display less endstate neglect when the subject is a cause. To this aim, we have examined situations with agentive subjects versus situations with causative subjects. Considering the ACH, we expected children to accept more non-culmination for sentences with agentive subjects than for those with causative subjects.

4. Methodology

In this section the characteristics of the investigation are presented. First, the participants will be introduced, followed by the description of the materials and design used for participants' testing. Afterwards, the exact procedure that has been followed will be mentioned. The section will be closed with a full example of the procedure.

4.1. Participants

Participants were a group of 20 5-year-old children and 14 adults who had Basque as their native language and lived in the Basque Country (Spain). The 5 year-olds were tested at Gainzuri school in Urretxu, Gipuzkoa. They all had Basque as the language of instruction, and we could learn from the document for permission signed by their parents that most children lived in a completely Basque atmosphere. Concerning the adult control group, they were tested in different locations including the University of the Basque Country. All participants were tested individually. An overview of both experimental groups is offered below:

Table 2: overview of number, mean age, average age and gender of participants

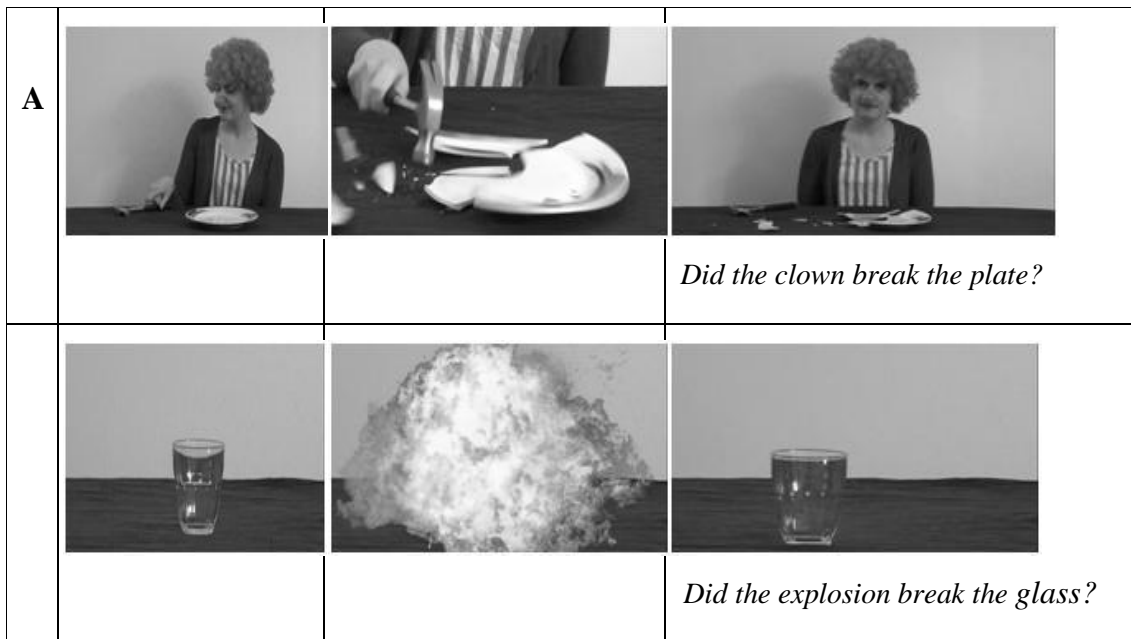
	Number	Mean Age	Range	Gender
5-y-o	20	5;8	5;02-6;03	11 female
Adults	14	30;00	18;11-58;11	9 female

4.2. Materials and design

The materials I used to carry out this study were a laptop, which was used to play a power point presentation containing the movies for each of the filler and experimental questions; a hand puppet, which was used to catch children's attention before and during the task; and a recorder together with an answer sheet, which were used to record children's answers and comments on the questions. Both the power point and the answer sheet were borrowed from GraMALL research group's materials and modified according to the needs of this investigation (see 4.2.1).

The experiment was based on a series of short films. Different actions were depicted which showed either culminated situations or failed attempts to perform an action, and could be carried out by an agent or by some natural force. The videos lasted less than 10 seconds and consisted of three shots (see Figure 1).

Figure 1: Stills from clips in two conditions: A) Agent in full-change; B) Causer in zero-change situation



As illustrated in Figure 1, first, a wide shot would show a beginning state. Second, in some of the movies a closer shot would show the change/no-change occurred. Some other movies would keep a wide shot for a clearer view of the whole action. Third, another wide shot would show the end state. This last shot remained visible for some seconds before the next movie was played.

Besides, two types of subjects were shown in the videos. For the agentive subjects, a clown and a pirate were chosen, as they were considered two familiar characters for children. For the causative subjects, the researchers chose an explosion and a hard blowing wind, as they both could occur randomly without the presence of an agent. Both causes were edited into the movies using Adobe Premiere and supported by their corresponding sounds of a bang and a strong wind. The notion of wind was also illustrated by some birthday flags flapping in every video, with the aim to help participants to identify the cause.

After each video, two types of questions were asked: first a filler question and then, the experimental question (see section 4.3.2). Two types of filler questions were used: question object fillers (e.g. *Kandela al da hori?* Is that a candle?) and question object appearance fillers (e.g. *Kandela arroxaxa al da?* Is the candle pink?). Half of the fillers within each type were yes-targeted items, whereas the second half were no-targeted items. Immediately thereafter, the experimental questions for each video were asked, for which we used a perfect tense and a transitive verb (see section 4.3.2).

Thus, the design of the non-culmination task proposed by GraMALL manipulated two independent variables, which were "Result-state" (Full versus Zero) and "Subject type" (Agent versus Cause). They developed a 2x2 design with four conditions: 1st Agent-Full result; 2nd Agent-Zero result; 3rd Cause-Full result and 4th Cause-Zero result. As there were 7 items per condition (7 different change-of-state verbs), the design consisted of 28 experimental items in total. In addition, 6 training videos were added to these items, resulting in a total of 34 videos. Two randomized ordered lists were used in order to avoid item order effects. In the coming section, the criteria followed for the modification of materials into Basque is presented.

4.2.1. Adaptation to Basque materials

The adaptation and translation of materials into Basque was the main contribution of this study to GraMALL's investigation. First, the translation of verbs was discussed followed by that of the 34 items used in the questionnaires. For an adequate translation of verbs, specific criteria was followed, which determined that the verbs had to be telic—for which I used the adverbial tests "in X time" and "for X time"—, and that they had

to be punctual, change of state verbs. These criteria guaranteed that the items used for GraMALL's cross-linguistic investigation adhered to the same pattern.

I translated the 7 verbs³ used in the experimental videos as follows: *itzali* (blow out), *puskatu* (break), *tapatu* (cover), *zaititu* (cut), *ireki* (open), *itxi* (shut) and *askatu* (untie). I opted for the words that were most used in children's dialect of Basque (Gipuzkera). However, some difficulties arose with the verb "cut", as it yields to four different translations: *moztu*, *erdibitu*, *ebaki* and *zaititu*. We carried out a discussion in which *moztu* and *ebaki* were found unusual for cause agents, and *erdibitu* was considered more for adult language. Hence, *zaititu* was our final choice for "cut".

4.3. Procedure

Following GraMALL's protocol, I began the sessions by introducing each participant to the hand puppet, named *Arraitxo*. The child was told that s/he was going to watch some videos together with *Arraitxo*. In these videos they would see many different things: sometimes an explosion would occur, a hard wind would blow, or a clown or pirate would appear. The child was told to pay attention, as s/he would have to help *Arraitxo* understand the videos. *Arraitxo* would ask questions about the movies and, sometimes, these questions could be a bit silly *Arraitxo*'s sight problems. In those cases in which *Arraitxo* asked silly questions, the child would have to tell him that he was wrong and explain him what really happened in the movie. Therefore, *Arraitxo* would be the one asking children the filler and the experimental questions and his voice, together with the rest of the interaction, if any, was supplied by the experimenter.

4.3.1. Training items

Before the real filler and experimental questions were presented, six training items were shown in order to familiarize the child with the task. In these videos the child was introduced both the design of the filler/experimental questions and the subjects of the actions (the two causes: wind and explosion; the two agents: clown and pirate). However, the training videos did not use change-of-state verbs but atelic/ongoing events. Three of the actions were interrupted so that the child would have to produce a

³ Originally, eight verbs were used by GraMALL investigation group. However, the verb *kill* was excluded as its usage is not considered adequate in children testing.

"no" answer and explain what had happened in the movie. For the other three videos a positive answer was expected, allowing participants to familiarize with both types of reactions. Furthermore, it was during these training items that children were corrected by the experimenter whenever they produced an inaccurate answer. After the training items, the participants were not be corrected by the experimenter in any case.

4.3.2. *Experimental items*

The experimental items were presented after the six training items. They were introduced by the experimenter, naming only the verb (e.g. *Bideo hau zerbait puskatzeari buruzkoa da*. This video is about breaking something).

After each video had finished, the hand puppet asked the child the filler question and the subsequent experimental one. The fillers were designed by GraMALL with the purpose of confirming that children were focused on the task. The answers for both types of questions were yes/no targeted and, just for some of the items, we decided to ask children for an explanation about what they have answered or seen in the video. We asked them "*zergatik?*" (why?) for each of the seven change-of-state verbs, once with an item with an agentive subject and once with an item with a causative subject. Half of the total selected items required a yes-targeted answer while the other half were no-targeted answers.

A complete item interaction example is provided below, since it may help to clarify the procedure explained throughout this section.

Introduce Item	EXP:	" <i>Bideo hau zerbait isteari buruzkoa da</i> "
[Shutting a door]		"This video is about shutting something"
		play video
Filler question	PUPPET:	"Mahaia al da hori?"
		"Is that a table?"
Child answer	CHI:	" <i>bai/yes</i> " or " <i>ez/no</i> "; if "no"*

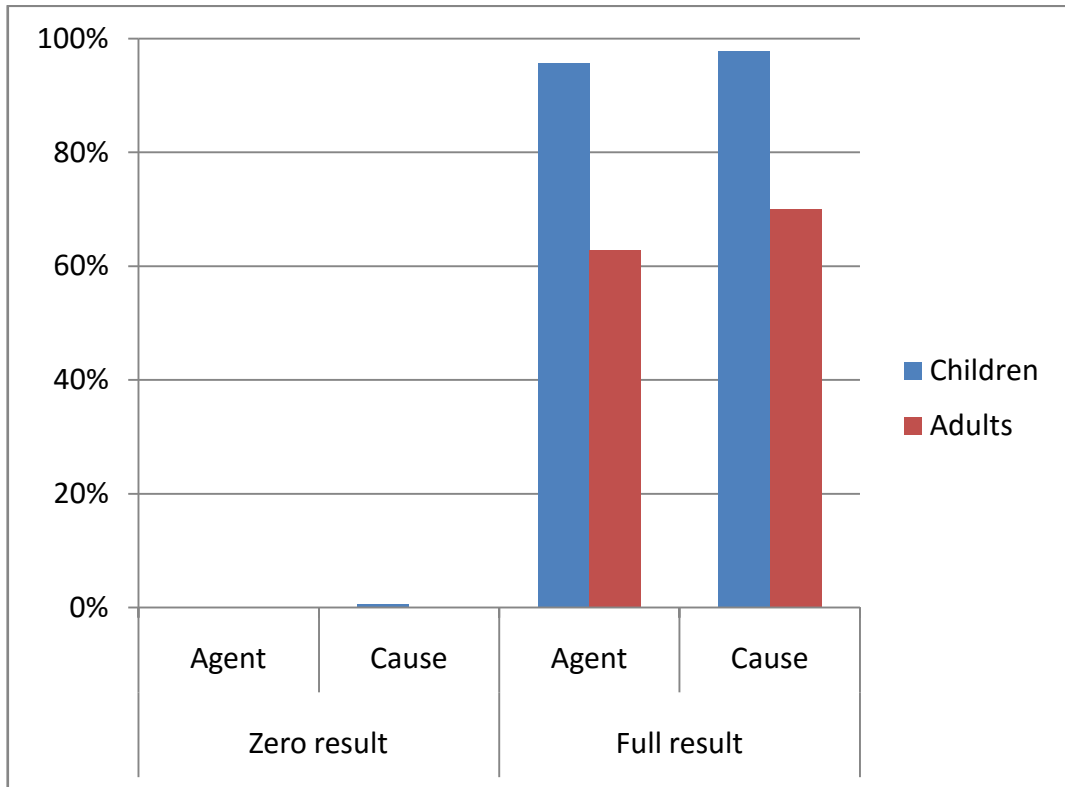
	EXP:	"Zer da orduan?"
		"What is it then?"
Test question	PUPPET:	"Haizeak atea itxi al du?"
		<i>wind-ERG door-ABS closePF aux</i>
		"Did the wind shut the door?"
Child answer	CHI:	" <i>bai/ez</i> ; yes/no"
	EXP:	* <i>zergatik?</i> / why? *

5. Data analysis and results' interpretation

In this section my purpose is to extract, describe and analyze the data observed in participants' answers with the aim of drawing some generalizations on the endstate neglect produced by Basque children and adults.

First, it is crucial to mention that both groups of participants performed notably well in the task. Before presenting the results, recall that our aim in this analysis was to identify whether participants accepted PF statements for situations with no outcome when they interpreted change-of-state verbs. To this aim, we used a design in which four conditions were shown, two —with agentive and causative subjects— would have no outcome while the other two —also with both types of subjects— would imply a resulting state. Interestingly, all participants rejected the PF for zero result conditions whereas they accepted the PF for full result conditions, see Figure 2.

Figure 2: Percentage of Children's and adults' acceptance of PF statements for the four conditions under study: agent_zero, cause_zero, agent_full and cause_full.



As we may observe in this graph, there is no significant difference between adults and children with respect to the understanding and acquisition of change-of-state verbs. All participants show an exceedingly well performance when they reject incomplete situations for telic events when combined with PF aspect, although it is surprising that adult's also reject PF in full result situations. We may conclude that the phenomenon of the endstate neglect is not perceptible in Basque adult or children language.

In the following figures, an overview of full and zero result acceptance concerning each of the analysed change-of-state verbs if provided. As we may notice, a slight difference between adults' and children's interpretations can be observed.

Figure 3: Percentage of Children's acceptance of full and zero result for each verb

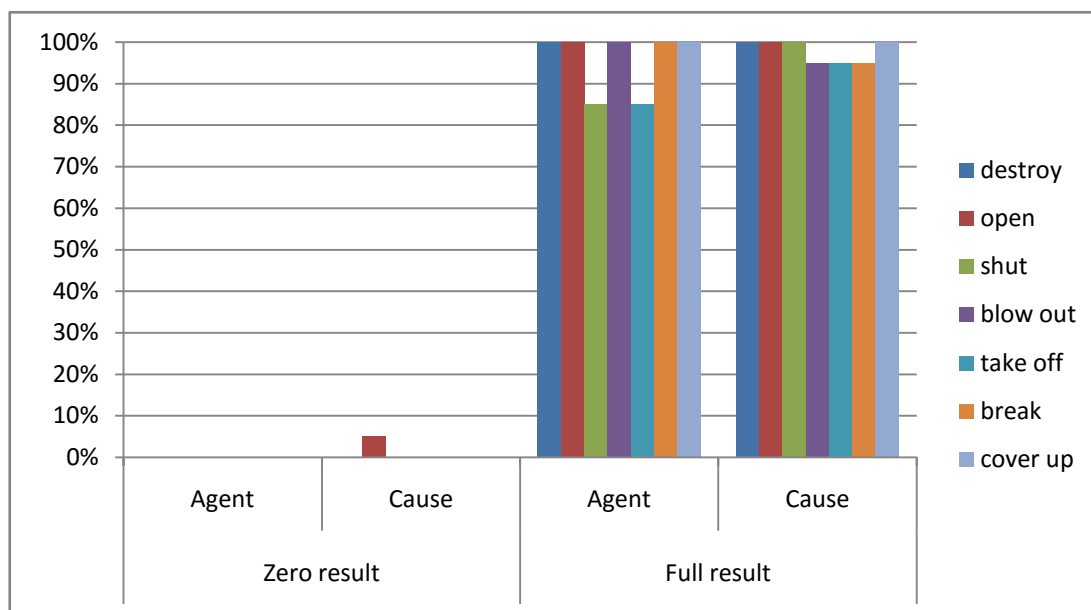
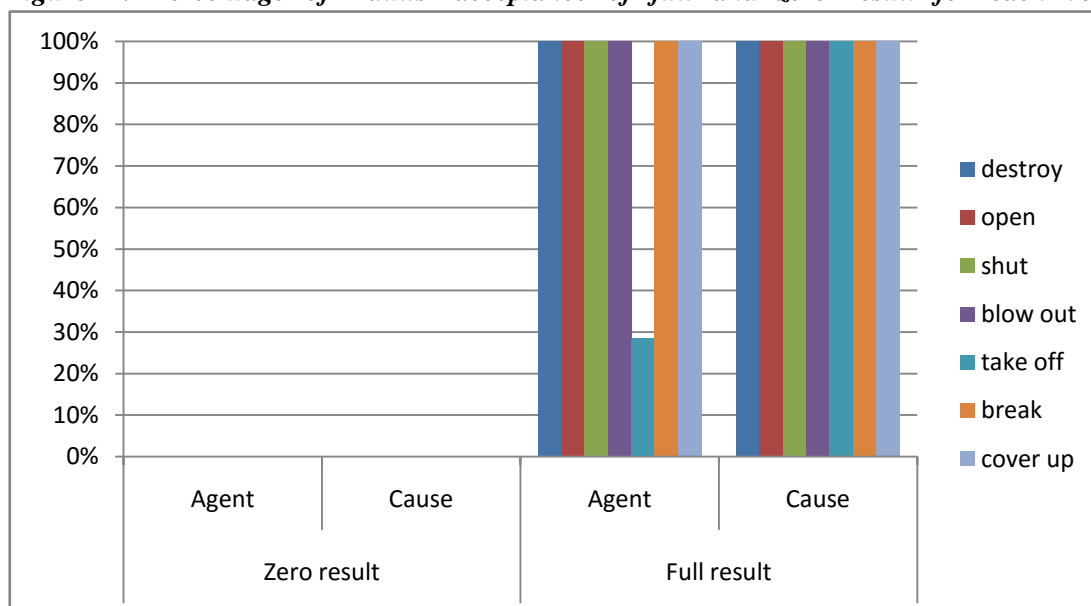


Figure 3 shows that the verb *ireki* (open) has led to children's acceptance of zero result situations when combined with PF aspect. In this specific example, a 5 year-old child rejected the result state for the item 26 in List 1 (see Appendix I). However, it will be considered an isolated example which will not be accepted as evidence for the endstate neglect, as it is perceivable in an extremely low percentage (5%) and, hence, we would regard it as a non-target answer. Moreover, the endstate neglect was never produced by adults (see Figure 4). Thus, we may deduce that this phenomenon is not a characteristic of Basque.

Figure 4: Percentage of Adults' acceptance of full and zero result for each verb



It is noticeable from the data above that an unexpected irregularity arose from adults' interpretations of the verb *askatu* "untie". As we deduced from their later explanations, the action represented in the movie was unclear. Only 4 out of 14 adults accepted that the bow had been untied by the pirate, which influenced the acceptance of full result in Figure 1. In contrast, a notably higher percentage of adults (71%) clarified that, in fact, the pirate had not untied the bow but took it off. However, this specific irregularity is not relevant for our investigation, as it cannot be related to the phenomenon under study but to difficulties with the item's representation.

To sum up, there is evidence to reject the endstate neglect concerning the Basque language, as it not apparent in participants' answers. Moreover, there is no significant difference between agent subjects and cause subjects, as neither of them influence speakers' interpretations of conditions. In the next section, a more detailed discussion of results will be developed.

6. Discussion

In this study we have investigated the ACH proposed by Demirdache and Martin (2015) to analyse if the correlation between agentive subjects and the phenomenon of the endstate neglect could be observed in Basque. To this aim, considering that causative subjects were never tested in previous studies analysing the endstate neglect, an experiment comparing zero and full result situations with both causative and agentive subjects has been carried out. In light with the ACH, our prediction for Basque was that children would accept zero result situations —non culmination— for those PF sentences which had agentive subjects. However, they were expected to reject zero result for PF sentences with causative subjects.

Some concluding remarks are now presented in the light of the results obtained. First and foremost, our results (Figure 1) indicate that there is no significant difference in children's interpretation of sentences with causative subjects and agentive subjects with respect to change-of-state verbs. All participants showed an exceptional performance on the task, showing an accuracy of more than 95% on average for children and almost 100% on average for adults (if we invalidate *untie*). Moreover, neither children nor adults accept zero result situations for PF statements. Thus, our results do not support the ACH.

Although all participants provided similar answers and explanations for the non-culmination situations, it is important to highlight that a significant difference has been found between both groups' answers to the follow up question (*zergatik?* 'why?'), closely related to the ACH. Unlike children, almost half of the adults were aware of the *intentionality* of agentive subjects. This could be appreciated in some of their answers. For instance, in a zero result situation of closing a window, they would be asked whether the pirate had closed the window and their answer would always be "no". Afterwards, they were asked to provide the reasons for their negative answer or explain what had really happened. Interestingly, adults would answer things like "he didn't want to" or "it wasn't his aim to do so", making clear reference to the intentionality of the agent. However, when they had to explain why the wind had not closed the window, they would answer things like "the wind wasn't strong enough" or "the window is too heavy", making reference to either the cause or the object. Therefore, intentionality was never mentioned for causative subjects, as they do not have this property which is a specific human characteristic.

Even though agentive subjects' intentionality was not perceptible in children's interpretations, adults' awareness of this property supports our previous remark that our results do not support the ACH, which claims that the agentive property of the subject is what allows the acceptance of zero result situations. In line with this statement and assuming that the property of intentionality correlates with agenthood, in the previous example, participants would have accepted that the pirate had closed the window. However, this was not the case with Basque speakers, who fully rejected the statement independently of the agent's intention. By contrast, according to Demirdache and Martin's (2015) explanation, we may deduce that speakers of Mandarin would have actually provided a positive answer "yes, the pirate has closed the window" despite of seeing in the video that it remained open.

It is crucial to acknowledge that our experimental design did not distinguish between non-intentional agents (e.g. a pirate who accidentally closes a window) and intentional agents. This distinction would be essential for a definitive rejection of the ACH and something to consider in future research. However, as we unexpectedly found that our participants noticed agents' property of intentionality, we will argue that our results reject the ACH as an explanation for endstate neglect. What is more, we found

that Basque results correlate with GraMALL's results from English, Dutch, Spanish and compound Mandarin, although this does not happen in mono-morphemic Chinese, which is the only one that accepts non-culminating readings (see Appendix III).

The second goal of this paper was to discuss whether our results aligned with any of the hypotheses proposed previous to the ACH, which were the Manner Bias (Gentner, 1978; Gropen et al., 1991), the Weak Endstate Interpretation (Wittek, 2002) and the Morphological Saliency (Van Hout, 2005; 2008).

Scholars who proposed the Manner Bias assert that children show a general preference for manner predicates. Their results showed that children misinterpret change of state verbs —*mix* and *fill*— as action verbs —*stir* and *pour*— when, for example, the verb *fill* was accepted for a situation in which the substance only reached half of the recipient. Hence, according to the Manner Bias, the typicality of the event's manner would overrule the outcome of the event itself, leading children to accept PF aspect for zero condition.

Although change-of-state verbs are the main focus of this study, in the agent condition typical manners for each change-of-state were assumed (e.g. we show opening by pulling). However, our results showed that the PF for zero result was rejected by children in almost 100% of the cases, despite of the typicality of the event. Hence, because of this well performance of children, whose answers were not overruled by the typicality of the event, I argue that our results do not support the Manner Bias hypothesis.

On the other hand, the Weak Endstate Interpretation (Wittek, 2002) suggests that complex, transparent predicates —*blow out*— are easier to acquire than mono-morphemic, opaque predicates —*open*—. According to her hypothesis, the presence of endstate neglect should be higher with simple verbs. As all the verbs tested in this study were mono-morphemic, in line with this hypothesis, a high rate of endstate neglect was expected (see Chinese results in appendix III). However, our study shows that Basque children performed extremely well with simple verbs. Hence, although Basque complex verbs should be analysed for a conclusive rejection of this hypothesis, I argue that the Weak Endstate Interpretation does not provide a final explanation for the phenomenon of the endstate neglect.

Finally, van Hout's (2005, 2008) Morphological Saliency hypothesis claims that a noticeable morphological marker for the PF guarantees an easier acquisition of predicates. Basque could be considered an example in which perfectivity is morphologically marked: "Miren kandela itzaltzen ari zen" —IMP— versus "Mirenek kandela itzali zuen" —PF—. Hence, supporting van Hout's (2002, 2008) theory, this one-to-one —form to meaning— mapping could be a reason for Basque children's good performance on this task.

On the basis of the data that has been presented in this paper, I assume that, although the endstate neglect has not been significant in the present study, it is undeniable that such phenomenon prevails. As a matter of fact, it has been proved to be present in languages such as Mandarin (Demirdache & Martin, 2015). Besides, as Gentner (1978) asserts, this phenomenon can be observed in verbs that involve an incremental aspect, for instance, the verb *fill*. As Strangmann (2015) argues, judging whether a glass is *filled* or *full* could originate controversy in speakers' perception of the situation. Thus, I absolutely agree with GraMALL's hypothesis that children show difficulty not in analysing the endstate itself, but in interpreting the incremental aspect of the verb.

7. Conclusion

This study has focused on the recently proposed ACH, which claims that the endstate neglect correlates with the agentivity and the intentionality of the subject. According to this hypothesis, agentive subjects and causative subjects should differ in generating endstate neglect, being causative subjects less predisposed to allow non-culminating interpretations. In order to analyse children's acceptance of PF change-of-state predicates for incomplete situations, an experimental study has been developed.

Interestingly, the results obtained in this study do not support the ACH, as no significant difference was found between agentive and causative subjects. Besides, we could observe that the endstate neglect is hardly produced by children and adult speakers of Basque. However, as all the verbs tested in this study were punctual change-of-state verbs, in line with Gentner's (1978) Manner Bias hypothesis, I conclude that children's endstate neglect may be related to the difficulties in the interpretation of incremental verbs, rather than to the intentionality of the agentive subjects.

References

- Antinucci, F., & Miller, R. (1976). How children talk about what happened. *Journal of Child Language*, 3, 167-189.
- Comrie, B. (1976). *Aspect: An introduction to the study of verbal aspect and related problems* (Vol. 2). Cambridge university press.
- Demirdache et al. (2016). *Testing the Agent Control Hypothesis with non-culminating events. Experimental evidence from Adult Mandarin & Dutch*. Talk presented in DGfS 2016.
- Demirdache, H., & Martin, F. (2015). Agent control over non-culminating events. In Barrajón, E., Cifuentes, J. L. & Rodríguez, S. (Eds.), *Verbal Classes and Aspect*, (pp. 185-217). John Benjamins B.V.
- Demirdache, H., & Sun, H. (2014). *On non-culminating accomplishments in Mandarin*. Unpublished manuscript. University of Nantes.
- Dowty, D. R. (1979). *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ*. Dordrecht: D Reidel Pub. Co.
- García del Real Marco, I. (2015). *The acquisition of Tense and Aspect in Spanish*. Unpublished PhD. Dissertation. UPV/EHU.
- Gentner, D. (1978). On relational meaning: The acquisition of verb meaning. *Child Development*, 49(4), 988-998.
- Grasping Meaning Across Languages and Learners -GraMALL- (2015). A. van Hout (University of Groningen), H. Demirdache (LLING UMR 6310, CNRS/Nantes), F. Martin (University of Struttgart), Kazanina (University of Bristol), L. Liu (LLING UMR 6310, CNRS/Nantes), O. Lungu (LLING UMR 6310, CNRS/Nantes), I. Stragmann (University of Groningen), I. García del Real (University of the Basque Country), L. Gómez (Autonomous University of Barcelona), A. Gavarró (Autonomous University of Barcelona).
- Gropen, J., Pinker, S., Hollander, M., & Goldberg, R. (1991). Syntax and semantics in the acquisition of locative verbs. *Journal of Child Language*, 18(1).

- Hinrichs, E. (1986). Temporal anaphora in discourses of English. *Linguistics and philosophy*, 9(1), 63-82.
- van Hout, A. (2005). Imperfect imperfectives: On the acquisition of aspect in Polish. In P. Kempchinsky, & R. Slabakova (Eds.), *Aspectual inquiries*. (pp. 317-343). Dordrecht: Springer-Verlag.
- van Hout, A. (2008). Acquiring perfectivity and telicity in Dutch, Italian and Polish. *Lingua*, 118, 1740-1765.
- Johnson, B. W., & Fey, M. E. (2006). Interaction of lexical and grammatical aspect in toddler's language. *Journal of Child Language*, 33, 419-435.
- Kearns, K. (2011). *Semantics*. Palgrave Macmillan.
- Klein, W. (1994). *Time in language*. London: Routledge.
- Koenig, J. P., & Chief, L. (2008). Scalarity and state-changes in Mandarin, Hindi, Tamil, and Thai. *Empirical issues in syntax and semantics*, 7, 241-262.
- Koenig, J. P., & Muansuwan, N. (2000). How to end without ever finishing: Thai semi-perfectivity. *Journal of Semantics*, 17(2), 147-182.
- Labelle, M., Godard, L., & Longtin, C. M. (2002). Grammatical and situational aspect in French: A developmental study. *Journal of Child Language*, 20, 201-326.
- Li, P., & Bowerman, M. (1998). The acquisition of aspect in Mandarin. *First Language*, 18, 311-350.
- Mandler, J. (2006). Actions Organize the Infant's World. In K. Hirsh-Pasek., & R. M. Golinkoff (Eds.), *Action Meets Word: How Children Learn Verbs* (pp. 111-133). Oxford University Press.
- Martin, F., & Schäfer, F. (2012). The modality of offer and other defeasible causative verbs. In *Proceedings of the 30th West Coast Conference in Formal Linguistics* (pp. 248-258). Somerville: Cascadilla Proceedings Project.
- Namy, L. L. (2012). Getting specific: Early general mechanisms give rise to domain-specific expertise in word learning. *Language Learning and Development*, 8, 1. 47-60.
- Parsons, T. (1990). *Events in the Semantics of English* (Vol. 5). Cambridge, Ma: MIT Press.

- Riemer, N. (2010). *Introducing semantics*. Cambridge University Press.
- Singh, M. (1998). On the semantics of the perfective aspect. *Natural language semantics*, 6 (2), 171-199.
- Smith, C. S. (1997). *The Parameter of Aspect*. Studies in Linguistics and Philosophy. 2nd ed. Springer Science & Media.
- Strangmann, I. (2015). The effect of subject agents and subject causes on the interpretation of non-culminating endstates. Master's thesis, University of Groningen.
- van Valin Jr, R. D. (2005). *Exploring the syntax-semantics interface*. Cambridge University Press.
- Wagner, L. (2012). Primary language acquisition. In Binnick, R. I. (Ed.), *The Oxford Handbook of Tense and Aspect* (pp. 458-480). Oxford University Press.
- Wittek, A. (2002). *Learning the Meaning of Change-of-State Verbs: A Case Study of German Child Language*. Berlin: Mouton de Gruyter.

Appendix I. Protocol List 1.

1	Intro sentence	Filler question	Circle	If no, ask for explanation	Test question	Circle	If no, explanation	
1	aulkia jotzen	Aulkia al da hori?	bai / ez	-	Pailazoak aulkia jo al du?	bai / ez		1
2	edalontzia astintzen	Loreak urdinak al dira?	bai / ez	Zein koloretakoak dira?	Eztandak edalontzia astindu al du?	bai / ez		2
3	kotxea jotzen	Bizikleta al da hori?	bai / ez	Zer da orduan?	Piratak kotxea jo al du?	bai / ez		3
4	bandera astintzen	Bandera urdina eta zuria al da?	bai / ez	-	Haizeak bandera astindu al du?	bai / ez		4
5	kotxea bultzatzen	Kotxea al da hori?	bai / ez	-	Haizeak kotxea bultzatu al du?	bai / ez		5
6	pelota kanporatzen	Pelota gorria al da?	bai / ez	Zein koloretakoa da?	Eztandak pelota kanporatu al du?	bai / ez		6
7	platera puskatzen	Edalontzia al da hori?	bai / ez	Zer da orduan?	Pailazoak platera puskatu al du?	bai / ez		7
8	saskia irekitzen	Saskia marroia al da?	bai / ez	-	Piratak saskia ireki al du?	bai / ez	Zergatik?	8
9	atea ixten	Mahaia al da hori?	bai / ez	Zer da orduan?	Haizeak atea itxi al du?	bai / ez	Zergatik?	9
10	kandela itzaltzen	Kandela al da hori?	bai / ez	-	Pailazoak kandela itzali al du?	bai / ez		10
11	lazioa askatzen	Globoa al da hori?	bai / ez	Zer da orduan?	Haizeak lazoa askatu al du?	bai / ez	Zergatik?	11
12	azenarioa zatitzen	Azenarioa al da hori?	bai / ez	-	Pailazoak azenarioa zatitu al du?	bai / ez		12
13	Edalontzia puskatzen	Edalontzia al da hori?	bai / ez	-	Pailazoak edalontzia puskatu al du?	bai / ez	Zergatik?	13
14	globoa askatzen	Globoa urdina al da?	bai / ez	-	Piratak globoa askatu al du?	bai / ez		14
15	armairua irekitzen	Leihoa al da hori?	bai / ez	Zer da?	Haizeak armairua ireki al du?	bai / ez	Zergatik?	15
16	atea ixten	Atea urdina al da?	bai / ez	Zein koloretakoa da?	Piratak atea itxi al du?	bai / ez		16
17/	adarra zatitzen	Arkatza al da hori?	bai / ez	Zer da orduan?	Pailazoak adarra zatitu al du?	bai / ez	Zergatik?	17
18	adarra zatitzen	Adarra gorria al da?	bai / ez	Zein koloretakoa da orduan?	Eztandak adarra zatitu al du?	bai / ez		18
19	txankleta tapatzen	Txankleta gorria al da?	bai / ez	Zein koloretakoa da?	Piratak txankleta tapatu al du?	bai / ez	Zergatik?	19
20	globoa askatzen	Globoa al da hori?	bai / ez	-	Haizeak globoa askatu al du?	bai / ez		20

21	kandela itzaltzen	Kandela arrosa al da?	bai / ez	-	Haizeak kandela itzali al du?	bai / ez	Zergatik?	21
22	azenarioa zatitzen	Azenarioa laranja al da?	bai / ez	-	Eztandak azenarioa zatitu al du?	bai / ez	Zergatik?	22
23	platera puskatzen	Platera zuria al da?	bai / ez	-	Eztandak platera puskatu al du?	bai / ez		23
24	leihoa ixten	Leihoa zuria al da?	bai / ez	-	Piratak leihoa itxi al du?	bai / ez		24
25	ahate txikia tapatzen	Ahate txikia al da hori?	bai / ez	-	Eztandak ahate txikia tapatu al du?	bai / ez		25
26	saskia irekitzen	Saskia al da hori?	bai / ez	-	Haizeak saskia ireki al du?	bai / ez		26
27	ahate txikia tapatzen	Ahate txikia horia al da?	bai / ez	-	Piratak ahate txikia tapatu al du?	bai / ez		27
28	edalontzia puskatzen	Edalontzia gorria al da?	bai / ez	Zein koloretakoa da?	Eztandak edalontzia puskatu al du?	bai / ez	Zergatik?	28
29	txankleta tapatzen	Txankleta la da hori?	bai / ez	-	Eztandak txankleta tapatu al du?	bai / ez	Zergatik?	29
30	kandela itzaltzen	Arkatza al da hori?	bai / ez	Zer da orduan?	Pailazoak kandela itzali al du?	bai / ez	Zergatik?	30
31	laoa askatzen	Laoa horia al da?	bai / ez	Zein koloretakoa da orduan?	Piratak laoa askatu al du?	bai / ez	Zergatik? +	31
32	leihoa ixten	Atea al da hori?	bai / ez	Zer da orduan?	Haizeak leihoa itxi al du?	bai / ez	Zergatik?	32
33	armairua irekitzen	Armairua urdina al da?	bai / ez	Zein koloretakoa da?	Piratak armairua ireki al du?	bai / ez		33
34	kandela itzaltzen	Kandela morea al da?	bai / ez	Zein koloretakoa da orduan?	Haizeak kandela itzali al du?	bai / ez		34

Appendix II. Protocol List 2.

2	Intro sentence "Bideo hau, ...-ri buruzkoa da. (...)"	Filler question	Circle	If no, ask for explanation	Test question	Circle	If not, explanation	
1	aulkia jotzen	Aulkia al da hori?	bai / ez	-	Pailazoak aulkia jo al du?	bai / ez		1
2	edalontzia astintzen	Loreak urdinak al dira?	bai / ez	Zein koloretakoak dira orduan?	Eztandak edalontzia astindu al du?	bai / ez		2
3	kotxea jotzen	Bizikleta al da hori?	bai / ez	Zer da orduan?	Piratak kotxea jo al du?	bai / ez		3
4	bandera astintzen	Bandera urdina eta zuria al da?	bai / ez	-	Haizeak bandera astindu al du?	bai / ez		4
5	kotxea bultzitzen	Kotxea al da hori?	bai / ez	-	Haizeak kotxea bultzatu al du?	bai / ez		5
6	pelota kanporatzen	Pelota gorria al da?	bai / ez	Zein koloretakoa da orduan?	Eztandak pelota kanporatu al du?	bai / ez		6
7	armairua irekitzen	Armairua urdina al da?	bai / ez	Zein koloretakoa da?	Piratak armairua ireki al du?	bai / ez		7
8	azenarioa zatitzen	Azenarioa laranja al da?	bai / ez	-	Eztandak azenarioa zatitu al du?	bai / ez	Zergatik?	8
9	edalontzia puskatzen	Edalontzia gorria al da?	bai / ez	Zein koloretakoa da orduan?	Eztandak edalontzia puskatu al du?	bai / ez	Zergatik?	9
10	laoa askatzen	Laoa horia al da?	bai / ez		Piratak laoa askatu al du?	bai / ez	Zergatik? +	10
11	txankleta tapatzen	Txankleta gorria al da?	bai / ez	Zein koloretakoa da?	Piratak txankleta tapatu al du?	bai / ez	Zergatik?	11
12	platera puskatzen	Platera zuria al da?	bai / ez	-	Eztandak platera puskatu al du?	bai / ez		12
13	saskia irekitzen	Saskia marroia al da?	bai / ez	-	Piratak saskia ireki al du?	bai / ez	Zergatik?	13
14	Adarra zatitzen	Adarra gorria al da?	bai / ez	Zein koloretakoa da?	Eztandak adarra zatitu al du?	bai / ez		14
15	Atea ixten	Atea urdina al da?	bai / ez	Zein koloretakoa da?	Piratak atea itxi al du?	bai / ez		15
16	armairua irekitzen	Leioa al da hori?	bai / ez	Zer da orduan?	Haizeak armairua ireki al du?	bai / ez	Zergatik?	16
17 /	leioa ixten	Leioa zuria al da?	bai / ez	-	Piratak leioa itxi al du?	bai / ez		17

18	azenarioa zatitzen	Azenarioa al da hori?	bai / ez	-	Pailazoak azenarioa zatitu al du?	bai / ez		18
19	globoa askatzen	Globoa al da hori?	bai / ez	-	Haizeak globoa askatu al du?	bai / ez		19
20	ahate txikia tapatzen	Ahate txikia horia al da?	bai / ez	-	Piratak ahate txikia tapatu al du?	bai / ez		20
21	kandela itzaltzen	Kandela morea al da?	bai / ez	Zein koloretakoa da?	Haizeak kandela itzali al du?	bai / ez		21
22	platera puskatzen	Platera al da hori?	bai / ez	Zer da orduan?	Pailazoak platera puskatu al du?	bai / ez		22
23	kandela itzaltzen	Kandela arrosa al da?	bai / ez	-	Haizeak kandela itzali al du?	bai / ez	Zergatik?	23
24	ahate txikia tapatzen	Ahate txikia al da hori?	bai / ez	-	Eztandak ahate txikia tapatu al du?	bai / ez		24
25	edalontzia puskatzen	Edalontzia al da hori?	bai / ez	-	Pailazoak edalontzia puskatu al du?	bai / ez	Zergatik?	25
26	laoa askatzen	Globoa al da hori?	bai / ez	Zer da orduan?	Haizeak laoa askatu al du?	bai / ez	Zergatik?	26
27	kandela itzaltzen	Kandela al da hori?	bai / ez	-	Pailazoak kandela itzali al du?	bai / ez		27
28	leioa ixten	Atea al da hori?	bai / ez	Zer da orduan?	Haizeak leioa itxi al du?	bai / ez	Zergatik?	28
29	txankleta tapatzen	Txankleta al da hori?	bai / ez	-	Eztandak txankleta tapatu al du?	bai / ez	Zergatik?	29
30	globoa askatzen	Globoa urdina al da?	bai / ez	-	Piratak globoa askatu al du?	bai / ez		30
31	kandela itzaltzen	Arkatza al da hori?	bai / ez	Zer da orduan?	Pailazoak kandela itzali al du?	bai / ez	Zergatik?	31
32	atea ixten	Mahaia al da hori?	bai / ez	Zer da orduan?	Haizeak atea itxi al du?	bai / ez	Zergatik?	32
33	adarra zatitzen	Arkatza al da hori?	bai / ez	Zer da orduan?	Pailazoak adarra zatitu al du?	bai / ez	Zergatik?	33
34	saskia irekitzen	Saskia al da hori?	bai / ez	-	Haizeak saskia ireki al du?	bai / ez		34

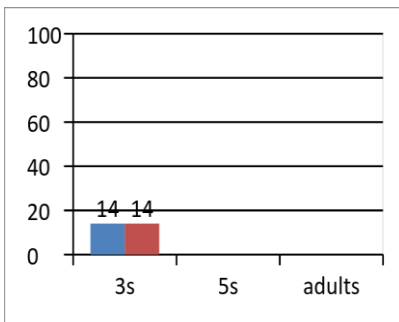
Appendix III. GraMALL's results from other languages

(a) Test sentences for test items using a perfective aspect form: simple past in English, present perfect in Basque, Dutch and Spanish and perfective marker *le* in Mandarin.

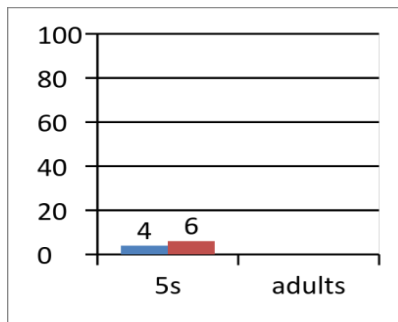
English	<i>Did the clown break the plate?</i>	<i>Did the explosion break the glass?</i>
Basque	<i>Pailazoak platera puskatu al du?</i> clown-ERG plate.ABS break.PF INT have.PRES	<i>Eztandak edalontzia puskatu al du?</i> explosion-ERG glass.ABS break.PF INT have.PRES
Dutch	<i>Heeft de clown het bord gebroken?</i> has the clown the plate broken	<i>Heeft de explosie het glas gebroken?</i> Has the explosion the glass broken
Spanish	<i>¿El payaso ha roto el plato?</i> the clown has broken the dish	<i>¿La explosión ha roto el vaso?</i> the explosion has broken the glass
Mandarin mono	<i>Xiaochou sui-le na-ge diezi ma?</i> clown break-PERF that-CLF plate Int	<i>Baozha sui-le na-ge bolibei ma?</i> explosion break-PERF that-CLF glass Int
Mandarin VV		
comp		

(b) Mean percent acceptance zero-culmination conditions: blue bars = Agent; red bars = Causer

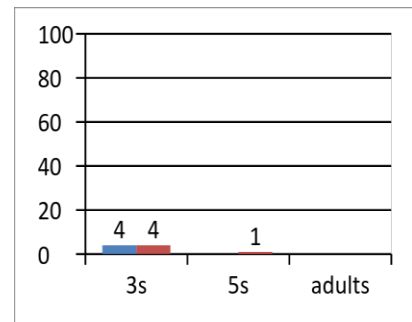
Dutch



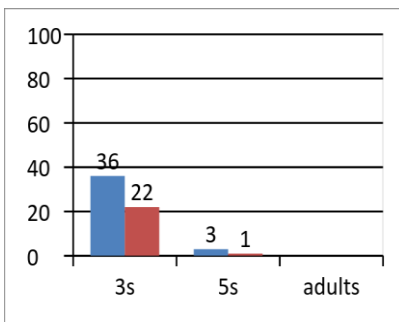
English



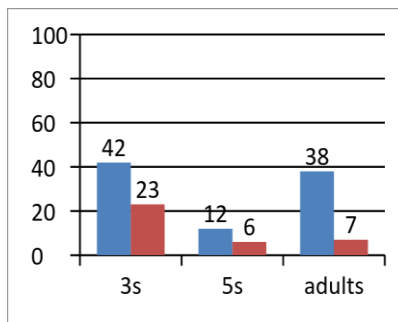
Spanish



Mandarin V-V compounds



Mandarin monomorphemic verbs



Basque

