The role of force dynamics and intentionality in the reconstruction of L2 verb meanings: a Danish-Spanish bidirectional study[*]

Abstract

This paper examines the role of force dynamics and intentionality in the description of placement events by two groups of native speakers of typologically and genetically different languages, Danish and Spanish, and by two groups of intermediate adult learners, Danish learners of L2 Spanish and Spanish learners of L2 Danish. The results of the study showed that (a) force dynamics and intentionality are important semantic components in both languages, but their distribution and relative focus differed cross-linguistically, and (b) the two learner groups had difficulties in reconstructing the meanings of the L2 verbs involving these two semantic components. Learning difficulties were observed when moving from a less to a more complex L2 system, when moving in the opposite direction, i.e., from a more to a less complex L2 system and when moving to an L2 system that is as complex as the learners native one.

Keywords: placement events, force dynamics, Danish, Spanish, L2

1. Introduction

The concept of force dynamics refers to the way in which two entities interact with respect to force (Talmy, 1988). Among other conceptual domains, force dynamics is one of the semantic components that take part in the conceptualization of caused-motion

events, that is, situations where some kind of agent makes an object move to a certain location. Caused-motion events occur all the time in our daily life. We are used to moving objects from one place to another, and depending on how big those objects are or, how strong we are, it will take us more or less effort, that is, a higher or lower degree of force, to take that object to its final destination. Compare, for example, the difference between verbs such as *carry* and *drag* in English. However, the importance of force dynamics does not only concern the 'taking and carrying' part of a caused-motion event, but also the 'placing' stage, that is, how we place an object in its final location. Compare, for instance, the different degrees of force involved in *he puts/leaves/throws the book on(to) the table*. Another basic related semantic component in this type of events, complementary to force dynamics, is intentionality, i.e., whether the agent changes the location of an object on purpose or accidentally. Compare, for example, the Swedish verbs *släppa* 'drop intentionally' and *tappa* 'drop unintentionally'.

These semantic components are crucial in the configuration and description of placement events, the specific type of caused-motion event under study in this paper. They are basic notions that help us distinguish between different ways of placing objects in different places. Previous cross-linguistic research on the semantic categorization of placement events has shown that these types of events are pervasive and frequent in all languages (Kopecka & Narasimham, 2012). However, this research has also shown that languages provide their speakers with different linguistic resources to describe these events and, as a result, the semantic distinctions encoded in placement event descriptions vary across languages. A very well-known example is the set of positional verbs available in Germanic languages or the lack of this type of verbs in Romance languages.

These encoding differences are interesting for cross-linguistic semantic research—it is always stimulating to find out how similarly and/or differently languages map certain semantic domains—but become crucial for the study of second language acquisition since cross-linguistic differences in semantic categorization pose difficulties for adult learners (cf. Ijaz, 1986; Malt & Sloman, 2003; Saji & Imai, 2013). L2 learners need to detect possible differences in the semantic distinctions coded in their L1 and L2 and to learn the appropriate linguistic means to express those meanings coded in the L2. From this perspective, second language learning entails learning to reconstruct the meaning of the L2 or learning to categorize the world as the native speakers (NNs) of the L2, a process that has been described in the literature as learning appropriate L2 ways of thinking-for-speaking (TFS) (Cadierno, 2008) or learning to re-think for speaking (Robinson & Ellis, 2008). The easiness or difficulty of the learner's reconstruction process can be affected by the number and generality of the categories involved in each language. Previous research into the L2 expression of placement events has shown that it is difficult for learners to move not only from a general system to a more specific system (e.g., Viberg, 1998; Gullberg, 2009) but also from a more specific system into a general one (Cadierno et al., forthcoming).

In this paper, we explore the role of force dynamics and intentionality in the description of placement events in Danish and Spanish, both as L1 and L2. The structure of this paper is as follows. Section 2 offers a brief overview of the literature on placement events and force dynamics. After a description of the methodology used in this study, Section 4 presents two studies where we contrast how Danish and Spanish NSs deal with force dynamics and intentionality in the description of placement events and whether learners of both languages have acquired the native categories and

rhetorical styles of their respective L2s when describing the same situations. The paper finishes with some conclusions and future lines of research.

2-. Force dynamics and intentionality in placement events

A placement event can be defined as a special type of caused-motion event, where typically some kind of agent causes an object to move to a specific location. Prior research on placement events (Talmy, 1985; Jackendoff, 1990; FrameNet-Ruppenhofer et al., 2010; Narasimhan et al., 2012) has proposed a basic set of semantic components to describe these events. Some of these are: Figure (what is moved), Agent (the causer of the movement), Ground (the location where it is placed), Causation (what triggers the placement), Motion (the act of moving itself), and Path (the trajectory followed by the Figure). These basic components represent the core placement schemata but they might be extended to capture finer-grained distinctions and relations between these elements. For example, to differentiate different types of Grounds (a bowl, a three-dimensional container vs. the floor, a two-dimensional supporting surface), to describe intentionality (accidental vs. intentional), or to specify how much force the Agent exerts on the Causation (compare *drop*, *dump* and *throw*).

Although force dynamics and intentionality are two of the basic semantic notions in placement events, they have not been given the attention they deserve in the placement event literature. One reason to explain this lack of detailed studies might lie in their own nature: they are instrinsic and necessary notions for the description of a placement event itself and, as such, researchers may have taken them for granted and focused on more divergent notions such as the configurational and topological properties of the elements involved in a placement event. Therefore, most of the studies

on this topic might touch on the role of force dynamics and/or intentionality but without going into deeper discussion. This becomes very clear if we review the papers included in the collective volume *Events of Putting and Taking* (Kopecka & Narasimhan, 2012), a blueprint in the study of placement events from a cross-linguistic perspective. All studies followed the same methodology and collected data using the same verb-clip stimuli (Bowerman et al., 2004; Narasimhan et al., 2012). These videos were carefully designed so as to provide researchers with a set of contrastive scenes to capture different semantic components of these events (types of Figures and Grounds, use of instruments, etc.). One of the semantic notions to be contrasted was intentional vs. accidental dropping as enacted in three videos: 009 DROP BOOK ACCIDENTALLY ON FLOOR, 008 DROP BOOK DELIBERATELY ON FLOOR, and 010 TOSS BOOK ON FLOOR (see Figure 1 in section 3.2 for stills of these videos).

A quick look at the papers included in this volume reveals that most of the papers actually mention these scenes and the verbs used by speakers, but few take the question of intentionality and force dynamics further. For instance, Levinson and Brown (2012, p. 286, 288) point out that Yélî Dnye speakers have some less frequent verbs of placement that depict some force dynamic differences such as *ghay* 'fall', *pw:ono* 'drop', and *dyimê* 'fall to ground'. Kopecka's (2012) study on Polish placement events also mentions that some force dynamic verbs such as *rzucić* 'throw' and *puśic* 'drop' require an accusative PP if they express a final destination. Nouaouri (2012) explains how Moroccan Arabic speakers employ the intransitive verb *t2ah2* 'fall' in a dative of interest construction when they want to describe an accidental change of location . If the placement event is intentional they will choose between two options: the verb *t2iyyeh2* 'drop, let fall' and the verb *slah2*, *rma* 'throw, toss'. The difference between these two

options lies in the degree of force exerted. The latter pair involves a higher degree of force and this is why all speakers choose the verb *rma* 'throw, toss' to describe the 'tossing' event. Narasimhan (2012) points out that Hindi speakers prefer specific put verbs for uncontrolled movement (*gir* 'fall') over the general verb *rakh* 'put'. However, Hindi speakers do not seem to pay attention to the force dynamics since the verb *phEk* 'throw' is used for both the accidentally dropping and the tossing scenes. For Tamil speakers, on the other hand, neither intentionality nor force dynamics seem to play an important role in the categorization of these events. The general verb *pooDU* 'put/drop' is used across those scenes no matter how intentional or accidental the placement event is. Andics (2012) highlights the importance of intentionality (what he calls 'agentive control relations') in Hungarian placement events and argues that "Agentive control relations in a placement event could not sufficiently be described by specifying the relation at the Source and the Goal the relationship. Events also differed in whether the Figure was under agentive control along the motion Path or not" (2012, p. 196). As such, Hungarian speakers clearly make a distintion between prototypical cases of intentional dropping and accidental dropping by using different verbs, namely, *dob* 'throw' and *ejt* 'let fall' respectively. O'Connor (2012) notes that in Lowland Chontal, a language that typically uses compound stem predicates with information about the manner, means and shape of path of change as well as the type and posture of figure, speakers tend to use few compound stem predicates when describing accidental and intentional placement events. In these cases, speakers use the same variety of simple predicates (*ñoy-* 'lay', *mas-* 'release', *te'e-* 'drop', *te-* 'fall', *jwixko-* 'toss, throw') without taking into account the type of figure. She concludes that "these verbs have less

to do with specific figures and more to do with perceived control of placement" (2012, p. 316).

Ibarretxe-Antuñano's (2012) description of placement events in Basque and Spanish is perhaps the most detailed account of intentionality and force dynamics in the book. This author points out that speakers of these two languages pay attention to three conceptual elements when describing placement and removal events. These three elements are (i) agency: it refers to the causer of the movement, either oneself (e.g., *the book falls down*) or an external agent (e.g., *the book is thrown out*), (ii) force dynamics, and (iii) intentionality. They interact and appear in different degrees in the semantics of the verbs and constructions used to describe these events. Ibarretxe-Antuñano (2012, p. 138) proposes the following continuum to capture these differences.

INSERT FIGURE 1 AROUND HERE

This author illustrates this continuum with examples in Spanish as reproduced in (1) and argues that speakers divide the semantic space on the basis of the degree of intentionality that the agent shows (no intentionality in (1a) vs. intentionality (1b-e)) and the force that the agent exerts in order to move the object from one place to another (gentle in (1b) and increasingly more violent in (1c-e)).

(1)   a.   *se le cae el libro*

               cl.3 dat.3sg falls the book

               'He drops the book unintentionally'

        b.   *deja caer el libro*

allows fall the book

'He drops the book intentionally but gently'

c.   *tira el libro*

throws the book

'He throws the book'

d.   *lanza el libro*

throws.away   the book

'He throws the book away'

e.   *arroja el libro*

throws.away.violently the book

'He violently throws the book away'

Ibarretxe-Antuñano shows how Spanish and Basque NSs consistently make use of these resources to distinguish between different types of placement and removal events with a very low rate of cross-speaker variability as summarized in Figure 2. Similarly to Moroccan Arabic speakers, Spanish speakers use three different types of verbs to distinguish between unintentional and intentional events, and within the latter, between lower and higher force: *caerse*+dative 'fall CL+dative', *dejar caer* 'let fall' and *tirar* 'throw'. Basque speakers, on the other hand, differentiate between unintentional placement (the verbs *erori*, *jausi* 'fall' in the dative construction) and intentional placement, but do not seem to pay attention to differences in force dynamics since they use the same verb *bota* 'throw' both for deliberately dropping and for tossing.

INSERT FIGURE 2 AROUND HERE

What one can conclude from the studies reviewed above is that, generally speaking, all languages seem to deal with these notions of intentionality and force dynamics in one way or another. Every language provides the speaker with some specific verb that highlights the forceful (*throw*, *toss*) and/or unintentional (*let fall*) placement, but above all, these studies reveal that speakers do not pay attention to the same details; they divide the placement events in different ways. For example, Tamil speakers basically ignore these components and simply use a general verb to cover all scenes. Spanish speakers, on the other hand, do care about these distinctions and consistently discriminate different degrees of intentionality and force dynamics. In fact, it has been shown that Spanish speakers are better at remembering intentional and accidental events than English speakers. In an experimental study on causative motion, Filipović (2013) found that speakers of these two languages produced similar constructions to describe intentional caused motion actions but that Spanish speakers offered explicit information about the non-intentional character of the event. These preferences were reflected on the memory tests speakers went through. English and Spanish speakers recall intentional caused motion events equally, but Spanish performed better in those cases were accidental causation was involved.

Taking as a starting point Ibarretxe-Antuñano's (2012) previous account of placement events in Spanish, this paper explores the role of force dynamics and intentionality in the description of placement events in Danish and Spanish, both as L1 and L2. By means of a bidirectional design, this paper addresses the directionality of L2 meaning reconstruction in a single study.

The choice of these two languages is deliberate. First, Spanish and Danish show opposite patterns of conflation and distribution of semantic information in the linguistic encoding of motion and caused-motion events (Talmy, 1991). Spanish is a verb-framed (*salir corriendo* 'exit running') and positional-less language (*estar* 'stative be') (Ameka & Levinson, 2007; Cadierno, 2004) whereas Danish is a satellite-framed (*løbe ud* 'run out') and a positional verb (*ligge* 'lie', *stå* 'stand') language. This complementary characterization makes them perfect candidates for the kind of bidirectional second language acquisition study we develop in this paper. Second, although this is not the goal of our study, our data can be further used to explore the issue of intratypological variation within genetically-similar languages (Hijazo-Gascón & Ibarretxe-Antuñano, 2013). Third, the last reason is convenience: our previous research in (caused-)motion events (Cadierno, 2004; Ibarretxe-Antuñano, 2012) provide us with ready-available speakers, previously-analyzed data and good knowledge of the two languages in question both from an L1 and L2 perspective.

To the best of our knowledge, this is the first study that focuses on these two semantic components from a bidirectional perspective. Our main research questions are two:

- Are there cross-linguistic differences with respect to force dynamics and intentionality in the verbalization of placement event verbs between Spanish and Danish?
- If so, what are the implications for Spanish and Danish L2 learners whose L1 and L2 do not share the same force dynamic and intentionality patterns?

3. Methodology

3.1. Participants

The results presented here are part of a wider project that studies placement and removal events in Danish and Spanish in L2 acquisition. There were a total of 52 participants in this study: 10 NSs of Spanish (2 male and 8 female), 14 NSs of Danish (4 male and 10 female), 14 adult Danish learners of L2 Spanish (3 male and 11 female) and 14 adult Spanish learners of L2 Danish (2 male and 8 female). The NS data were collected among university students in Spain (University of Zaragoza) and in Denmark (University of Southern Denmark). These informants can be characterized as functional monolinguals as they were not studying English or any other L2 at the time of data collection and the languages that they used in their daily lives were Spanish and Danish, respectively (Brown & Gullberg, 2012). Neither group reported knowledge of the other language. At the time of data collection, the Spanish learners of L2 Danish were all studying Danish at the Escuela Oficial de Idiomas (Official School of Languages) in Madrid.[1] Their level of proficiency was also in between B1 and B2 according to the Common European Framework of Reference (CEFR). The Danish learners of L2 Spanish were first-year students of this language at a Danish university. Their level[2] of Spanish proficiency was in between B1 and B2 according to the CEFR.

In addition to the placement tests, learners in both groups filled out a language background questionnaire in their native languages where they were asked about their exposure to Spanish and Danish, respectively, in both formal and informal settings and were asked to self-evaluate their level of L2 proficiency in the various languages that

[1] Official Schools of Languages in Spain are regulated by an Organic Law of 2006 and provide teaching in numerous foreign languages.
[2] Their level was tested through the use of the online test of the Cervantes Institute (http://ave.cervantes.es/prueba_nivel/default.htm), a governmental agency devoted to teach and promote the Spanish language and culture internationally.

they knew. The L2 Spanish learner group had all studied Spanish in high school for three years (approximately 235 hours) and most of them had lived and studied Spanish in a Spanish-speaking country for a period ranging from two months to one and half years. All participants reported good knowledge of English and some of them reported some knowledge of other languages such as German and Greek. The L2 Danish learner group had lived and studied Danish in Denmark for a period ranging from one month to four years. All the learners but one reported advanced knowledge of English and some of them reported some knowledge of other languages such as German, French and Italian.

3.2. Data collection

Data were collected with the stimuli of the PUT task, designed at the Max Planck Institute for Psycholinguistics in Nijmegen, The Netherlands (Bowerman et al., 2004; Kopecka & Narashiman, 2012). This task consists of 61 short video clips arranged in three different randomized orders. Each video shows a human actor performing a caused motion event. The scenes vary along a series of dimensions, such as the nature and spatial configuration of the Figure and the Ground and the manner in which the Figure is moved. Although our data were collected using the full video set (61), this study focuses only on a subset of placement events (8 videos). Removal events are not considered in this paper. Table 1 shows the list of the 8 video clips used in this study.

INSERT TABLE 1 AROUND HERE

This subset of videos was specifically selected to investigate the role of force dynamics and intentionality in the description and acquisition of placement events. The difference between intentional and accidental placement events was taken into consideration in the design of these video stimuli (contrast videos 009 and 008), but none of them was specifically developed to uncover differences in force dynamics. However, previous research in this area suggests that speakers distinguish different degrees of force dynamics in placement events (Ibarretxe-Antuñano, 2012). Group A consists of three videos were the placement event occurs with different degrees of force dynamics and intentionality. Group B consists of 5 videos were all placement events are intentional but differ in their force dynamics.

Each participant watched one video clip at a time and was asked to describe the event shown to the experimenter. In the case of the learners, they were told that if they did not know the name for a given object in the video, they could use words like 'that' or 'that thing' or ask the experimenter. If asked, the experimenter provided the Spanish / Danish nouns for the Figure object or the Ground (e.g., Spanish *libro* 'book') but never for the L2 verbs required to describe the placement event in question.

4. Analysis

4.1. Different intentionality and different force dynamics in Group A

As mentioned in previous sections, the semantic elements of force dynamics and intentionality reveal to be important in the description of placement events in Spanish (Ibarretxe-Antuñano, 2012). In order to test how similar or different native speakers of

Danish and Spanish deal with these two components in placement events, we selected the data from three videos designed to contrast intentionality (see Table 1, Group A). In contrast to prototypical placement events, the Agent in these three video clips does not maintain manual control of the Figure object until it reaches the Ground. Table 2 shows the semantic categories—verbs—used for each scene by each native informant group.

<mark>INSERT TABLE 2 AROUND HERE</mark>

As shown in Table 2, L1 Spanish speakers used a total of five different verbs: the construction *caerse*+dative 'fall CL+dative' for scene 009 (e.g., *se le cayó el libro* 'the book fell on him'); two verbs, *dejar caer* 'let fall' (if the speakers consider the Agent did it without intentionality) and *tirar* 'throw' (if they consider the Agent did the action on purpose), for scene 008, and three verbs for scene 010: *tirar* 'throw', *lanzar* 'throw away', and *arrojar* 'throw away violently', but the latter two only with one token each. L1 Danish speakers use a total of seven different verbs. They employed two verbs, *tabe* 'drop, lose', and *spilde* 'spill', for scene 009; five verbs for scene 009: *smide* 'throw', *tabe* 'drop, lose', *lade falde* 'let fall', *lægge* 'lay', *give* 'give', and *kaste* 'throw away violently'; and two verbs, *smide* 'throw' and *kaste* 'throw away violently', for scene 010. Despite the diversity of verb types in Danish and, to a lesser extent in Spanish, it is important to underline that the tokens per verb differ. Thus, in Danish each scene has one or two predominant verbs: the verb *tabe* 'drop, lose' for scene 009, the verb *smide* 'throw' and *tabe* 'drop, lose' for scene 008, and the verbs *smide* 'throw' and *kaste* 'throw away violently' for scene 010.

In sum, both Spanish and Danish NSs seem to be aware of the differences between the intentionality and force dynamics in these three scenes. If we only focus on those verbs with higher number of tokens, we find a similar distribution of categories in these two languages. Three categories in Danish: *tabe* 'drop, lose', *smide* 'throw' and *kaste* 'throw away violently', and three in Spanish: *caerse*+dat 'fall CL+dat', *dejar caer* 'let fall', and *tirar* 'throw'. Perhaps the two main differences lie in the number of tokens per verb category, with Spanish speakers being more consistent than Danish speakers, and, more importantly, the boundaries between these categories. Spanish speakers clearly differentiate (i) between accidental and intentional dropping, the construction *caerse*+dat 'fall CL+dat' is only used for scene 009, whereas Danish speakers used *tabe* 'drop, lose' for scenes 009 and 008, and (ii) between intentional dropping and intentional throwing, with the verb *dejar caer* 'let fall' only being used for scene 008, whereas Danish speakers used the verb *smide* 'throw' for scenes 008 and 010. Although the number of tokens is minimal, one per verb, it is also interesting to point out that Spanish speakers followed this continuum of increasing force dynamicity quite nicely: *tirar* 'throws' appears in both intentional scenes 008 and 010, but only in the latter the verbs *lanzar* 'throw away' and *arrojar* 'throw away violently' make their appearance. In Danish, on the other hand, both the verbs *smide* 'throw' and *kaste* 'throw away violently' turn up in these two scenes.

On the basis of the L1 data, the L2 learners in these two languages do not have to move between a different number of categories, since both languages have three basic categories for each scene, but they have to learn to distinguish between the boundaries among these categories. Table 3 summarizes the verbs used by L2 Spanish and L2 Danish learners.

As shown in Table 3, the L2 Spanish learner group employed a total of twelve different verbs. For the first scene—DROP BOOK ACCIDENTALLY ON FLOOR—the learners used *caerse*+dat 'fall CL+dat', *perder* 'lose', *estar* 'be', *llevar* 'take', *pedir* 'ask', and *tener* 'have'. The descriptions for the video DROP BOOK DELIBERATELY ON FLOOR show the use of nine different types of verbs with very few tokens each: *caer* 'fall', *estar* 'be', *perder* 'lose', *caerse* 'fall+refl. pronoun', *dejar caer* 'let fall', *lanzar* 'throw away', *quitar* 'remove', *tirar* 'throw', and *tocar* 'touch'. Finally for the video TOSS BOOK ON THE FLOOR the learners used the verbs *perder* 'lose', *irse* 'go away', *lanzar* 'throw away', *quitar* 'remove', *saltar* 'jump', *tener* 'have', and *tirar* 'throw', but all with very low frequencies once again. The learners' use of the verbs thus do not coincide with the verbs used by the Spanish NSs. They used eight verbs that were not employed by the Spanish NS group and out of the five verbs that were used by both the NS and the learner groups, only two—*dejar caer* 'let fall' and *tirar* 'throw'—cover the appropriate semantic categories, but with a very low token, one speaker per verb in each scene. Other verbs such as *lanzar* 'throw' and *caerse* 'fall+refl. pronoun' were used across categories. This reveals that Spanish L2 learners, contrary to what native speakers do, do not make clear distinctions between intentional vs. accidental dropping, and between intentional dropping and throwing. In addition, cross-linguistic influence in the form of semantic transfer seems to be present in the learners' use of the Spanish verb *perder* 'lose'. Semantic transfer refers to the "use of an authentic target-language word with a meaning that reflects the influence from the semantic range of a corresponding word in

another language" (Jarvis & Pavlenko, 2008: 75). The Danish verb *tabe* has two meanings: 'to drop an object' and 'to lose an object', and the learners seem to use the Spanish translation of the inappropriate linguistic label—*perder* 'lose'—in a context where they should have employed the alternative construction *dejar caer* 'let fall'.

The L2 Danish learner group employed a total of seventeen verbs. For the scene DROP BOOK ACCIDENTALLY ON FLOOR, the learners used six different verbs: *falde* 'fall', *bære* 'carry', *gå* 'walk', *tabe* 'drop', *blive* 'stay', and *slå* 'hit'; for the scene DROP BOOK DELIBERATELY ON FLOOR, they used eleven different verbs with very few tokens each: *falde* 'fall', *droppe* 'drop', *dumpe* 'fall, drop', *gå* 'walk', *have* 'have', *kaste* 'throw away violently', *lægge* 'lay', *tabe* 'drop', *tage* 'take', *sætte* 'set', and *slå* 'hit'. Finally, when describing the scene TOSS BOOK ON FLOOR, the learners used nine different verbs, again with few tokens each: *putte* 'put, put in', *lægge* 'lay', *falde* 'fall', *have* 'have', *ligge* 'lie', *smide* 'throw', *tabe* 'drop', *tage* 'take', and *trække* 'pull'. The learners' use of the verbs do not coincide either with the verbs employed by the Danish NSs or with their frequencies. On the one hand, there are five verbs that are used by both the NS and the learner groups (*lade falde* 'fall', *lægge* 'lay', *kaste* 'throw away violently', *smide* 'throw', *tabe* 'drop, lose'), but they do not reflect the same semantic categories. On the other, there are thirteen verbs that were not used by the Danish NSs (*bære* 'carry', *blive* 'stay', *droppe* 'drop', *dumpe* 'drop', *falde* 'fall', *gå* 'walk', *have* 'have', *ligge* 'lie', *putte* 'put, put in', *sætte* 'set', *slå* 'hit', *tage* 'take', and *trække* 'pull'). Despite the type-token diversity in these data, it might be possible to draw a few insights. First, it is interesting to notice that, despite of not coinciding with the Danish native speakers' verb choices, L2 Danish learners seem to be aware of the accidental vs. intentional dropping and the force dynamics involved. The number of tokens per verb is not

sufficient enough to propose any significant results, but if we closely look at the choice of verbs, some tendencies arise. For the accidental dropping scene, six learners chose the verb *falde* 'fall' (the verb type with the highest token agreement) and two the verb *tabe* 'drop, lose'. The verb *falde* 'fall' does not turn up in the native data but it is very close to the preferred construction in L1 Spanish speakers for the same video. For the intentional dropping, on the other hand, learners used some verbs that mean 'drop' in Danish, *droppe, dumpe* and *tabe* (only this is in L1 Danish), plus the verb *kaste* 'throw away violently'.

Two tendencies seem to be present in the two L2 learner data in comparison with the two L1 NS data. The first is that both learner groups made use of non-caused motion verbs when describing the placement scenes (e.g., Sp. *estar* 'be (stative)', *tener* 'have'; Da. *gå* 'walk', *have* 'have'). These verbs were not used by the corresponding NS groups. The second tendency is that a greater variety of verbs per scene were used by the two learner groups as compared to the corresponding NS group.

Similar results are obtained if we include the whole set of 31 video stimuli (see Cadierno et al., forthcoming). For this analysis, which includes a larger set of video-clips, we calculated the Simpson's Diversity Index for the four participant groups. The Simpson's Diversity Index, which varies between 0 and 1, measures speakers' degree of consistency when describing a given scene. The higher the value of D, the higher degree of consistency there is in the verbs used by each group. We first calculated D for each video clip and for each participant group separately and then we calculated the mean D for each informant group. Simpson's Diversity Index was calculated using the following formula: $D = (n_i - 1) / N (N - 1)$. N_i is the total number of occurrences of a particular verb (e.g., *lægge* 'lay') and N is the total number of all verbs. The results of this

analysis revealed a higher degree of consistency for the two NS groups in comparison with the two learners groups. The D value for the L1 Spanish group was 0.56 whereas the D value for the L2 Spanish group was 0.32 (95% CIs for was 0.48-0.64 for the former, and 0.27-0.37 for the latter). Similarly, the D value for the L1 Danish group was 0.57 whereas the D value for the L2 Danish group was 0.24 ((95% CIs for was 0.48-0.67 for the former, and 0.18-0.30 for the latter). A Kruskal Wallis one-way analysis of variance by ranks test conducted on this data again revealed a significant difference between the groups (X2 (3) = 47.3401; p = 0.000). The results of the post-hoc analysis using Mann-Whitney tests with Bonferroni corrections showed significant differences between each L1 NS group and its corresponding L2 learner group, i.e., between L1 Spanish and L2 Spanish (p = 0.000; Z = 4.405; r = 0.559) and between L1 Danish and L2 Danish (p = 0.000; Z = 5.05; r = 0.641). No significant differences were found between the two NS groups (p = 0.953; Z = -0.063; r = -0.008) and between the two learner groups even though the significance level is borderline (p = 0.061; Z = 2.577; r = 0.327). In other words, the two NS groups were significantly more consistent when describing the video clips than the two learner groups.

4.2. Different force dynamics and same intentionality in Group B

Results from the previous study revealed that the distribution of force dynamics was not exactly the same in Danish and Spanish. NSs in these languages are aware of the different degrees of force in dropping and throwing but the subtle differences and boundaries among these events seem to be problematic for the L2 learners As a follow-up study, we decided to select another group of videos (Group B in Table 1 above)

where placement events were all intentional but performed with a 'special' degree of force dynamics that is neither dropping nor throwing. All these videos describe placement events where the Figure and the Ground maintain a relationship of support. These videos could be problematic for both groups of learners but for different reasons. Danish learners of Spanish might find it difficult to notice and describe the different degree of force dynamics. Spanish can use different lexical items to indicate how gentle the object is placed on a surface. The neutral verb is always *poner* 'put' but the verb *dejar*, which means 'allow, let' in general but 'leave on a place' in this context, underlines the gentle character of this action (see Soares da Silva, 2006). Spanish learners of Danish, on the other hand, might find it difficult to ignore the force dynamic and intentionality information that is typical in their native language, and to pay attention to the positional information of the Figure object (*lægge* 'put horizontally', *sætte/stille* 'put vertically') that Danish requires for this type of placement events.

Table 4 summarises the verbs used in these scenes by Danish and Spanish native and learner speakers. Verbs with more than 50% usage are in bold.

Just by looking at the type of verbs native speakers use, it becomes clear that the focus of attention in each language is different. Unlike the previous study where all speakers paid attention to force dynamics and intentionality (in different degrees), here preferences are quite different. Danish NSs focused on the positional characteristics of the Figure, and as such, they mainly used the verbs *sætte* 'set' and *stille* 'set' to describe the vertical placement and *lægge* 'lay' to describe horizontal placement. Other verb

types such as *putte* 'put, put in' and *placere* 'place' were also used but less frequently. Spanish NSs, on the other hand, avoided any reference to positional information and focused on the degree of force dynamics. The verb *dejar* 'leave (on a place)' was the preferred verb option across the five videos. The other four verbs were only used occasionally. One of them is the general verb *poner* 'put' but the other three reflect the foregrounded semantic notion crucial for Spanish speakers: force dynamics. Thus, the verb *depositar* means 'put, place on a surface', *posar* 'put, place gently' and *colocar* 'place something'. These data reveal that the semantic information for these two groups of native speakers in this type of placement events is totally different. In fact, in a previous study on Spanish and Danish placement events, Cadierno et al. (forthcoming) showed that these scenes are categorized differently by speakers of Danish and Spanish. This was shown by means of a hierarchical agglomerative cluster analysis with Euclidian distance and Ward linkage. Hierarchical agglomerative cluster analysis is a multivariate statistical procedure consisting of a bottom-up approach where each observation starts in its own cluster, and clusters are successively subsumed as members of larger, more inclusive clusters at higher levels of similarity until all clusters are merged into a single cluster that contain all the observations (Aldenderfer & Blashfield, 1984: 7).[3] The cluster analysis performed on the L1 Spanish and L1 Danish data showed that all these videos formed a single cluster in Spanish but they belonged to three different clusters in Danish. Figure 3 shows the relevant clusters from this study.

---

[3] A measure of dissimilarity between sets of observations is required in order to decide which clusters should be combined. In hierarchical clustering methods this is accomplished by using a given metric (a measure of distance between pairs of observations), and a linkage rule, which defines how the distance between two clusters is measured. In our analysis we used Euclidean distance, which is the most frequently used distance measure and it is defined as the square root of the sum of squared distances of a pair of items, and the Ward linkage, which is a linking method that optimizes the minimum variance within clusters, and it is assessed by calculating the total sum of the squared deviations from the mean of a cluster. For a more in-depth description of cluster methods in general and hierarchical agglomerative clustering in particular, the interested reader can consult Aldenderfer & Blashfield (1984).

If we compare the NSs' and learners' descriptions of the same clips, the choice of verbs looks different, especially in the case of Danish learners of Spanish. These learners needed to move from two semantic categories present in their L1—*lægge* for horizontally placed objects and *sætte* / *stille* for vertically placed objects—to one single category in their L2—*dejar* 'leave (on a place)'. However, learners predominantly used the general verb *poner* 'put'. This verb is not inappropriate but it does not coincide with the Spanish NS's choice, which provides the extra force dynamic information so crucial for native speakers. As in the study reported in the previous section, learners used a wide variety of verb types not used by Spanish NSs such as *ponerse* 'put on' or neologisms such as *placear* (probably a borrowing from Danish *placere* 'place'). In the case of Spanish learners of Danish, these needed to move from one single category in Spanish, *dejar* 'leave (on a place)', to two categories that focus on different semantic information (no force dynamics but position of the Figure object): *lægge* for horizontally placed objects, and *sætte* / *stille* for vertically placed objects. Results were a bit different from the other group of learners. It seems that Spanish learners were aware of the different positional placement verbs in Danish, and as a result they used them for the appropriate scenes. For example, most learners correctly used the verb *lægge* 'lay' for the scene 007 PUT BOOK ON FLOOR or the pair *sætte* / *stille* 'set' for the scene 001 PUT CUP ON TABLE. There are, however, some learners that also used these same verbs inappropriately for scenes that do not correspond to their positional

orientation: *lægge* 'lay' for scene 006 PUT BOX UP ON SHELF, and *sætte / stille* 'set' for the scene 003 PUT BANANA ON TABLE WITH LONG TONGS.

5. Discussion

The main goal of this study was to examine the role of force dynamics and intentionality in the description of placement events by two groups of native speakers of typologically and genetically different languages, Danish and Spanish, and by two groups of intermediate adult learners, Danish learners of L2 Spanish and Spanish learners of L2 Danish.

We addressed two research questions: (i) Are there cross-linguistic differences with respect to force dynamics and intentionality in the verbalization of placement event verbs between Spanish and Danish?, and (ii) If so, what are the implications for Spanish and Danish L2 learners whose L1 and L2 do not share the same force dynamic patterns?

Regarding the first research question, data revealed that both Danish and Spanish native speakers are aware of the differences between accidental dropping, intentional dropping, and intentional throwing. Therefore, we find a similar distribution of high-token categories in these languages. Three categories in Danish: *tabe* 'drop, lose', *smide* 'throw', and *kaste* 'throw away violently', and three in Spanish: *caerse*+dat 'fall CL+dat', *dejar caer* 'let fall', and *tirar* 'throw'. However, there are differences in their type-token frequency as well as in the boundaries across categories. Spanish speakers are more consistent in the choice of verb (more tokens per verb type) and more categorical in their differentiation between accidental dropping vs. intentional dropping vs. throwing (specific verbs and constructions for each category not applicable to

others). The importance of force dynamics in the conceptualization of placement events for Spanish speakers becomes more evident in the second study. Given a situation where all placement events are intentional and describe a support relationship between Figure and Ground, Danish and Spanish speakers direct their attention to totally different pieces of information. Danish native speakers pay attention to the positional information of the placement events and consistently use *lægge* for horizontally placed objects, and *sætte / stille* for vertically placed objects. Spanish native speakers, on the other hand, focus on how gently the Figure object is placed on a surface and unanimously choose the verb *dejar* 'leave (on a place)'.

As far as the second question is concerned, we generally find that both groups of learners employed a larger number of verb types than their corresponding groups of native speakers.[4] In general, learners of Danish and Spanish are aware of some of the lexical items involved in the description of accidental/intentional dropping and throwing in their corresponding L2 and therefore, NSs and learners share some verbs in the description of the placement scenes that were analysed (e.g., *tirar* 'throw', *tabe* 'drop'). However, neither their frequency nor their distribution across categories corresponds to that of the native speakers. L2 Spanish learners, for example, used a high-force dynamic verb such as *lanzar* 'throw away violently' for both intentional dropping and throwing. Therefore, learners have not yet mastered the semantic categories of their second languages; that is, they have not yet reconstructed the meanings of the L2 verbs. This shows up very clearly in the results of the second study. L2 Spanish learners have to move from their two positional placement verb categories in Danish to a single

---

[4] An anonymous reviewer of this paper has raised the question as to whether the difference between the NS groups and the corresponding learner groups is due to the learners not knowing the target verbs. The results of the study indicate that learners generally knew the verb forms but they did not fully command the meanings of the verbs that they used.

positional-neutral and force-dynamic specific verb in Spanish. Learners predominantly used the general verb *poner* 'put'. This verb would be appropriate in this context but it is not the preferred native speakers' choice. In the case of L2 Danish learners, on the other hand, they have to move from their single force dynamic placement verb category in Spanish to the two force-dynamic neutral and positional-marked verb categories in Danish. If we look at the verbs that were most predominantly used in each scene by the L2 Danish learner group, we can see that in the majority of the cases, these were the same verbs that were also most frequently employed by the Danish NSs, the exception being scene numbered 006 where Danish NSs predominantly used the vertical placement verbs *sætte* and *stille* whereas learners employed the horizontal placement verb *lægge* in 57.1% of the cases. The inappropriate use of the verb *lægge* for this scene together with the use of this same verb by some learners for scenes that are predominantly described by the vertical placement verbs *sætte* and *stille* in L1 Danish (scenes 001 and 002) and the use of the vertical verb *sætte* by some learners for scenes that are predominantly described by the horizontal verb *lægge* in L1 Danish (scenes 003 and 007) suggest that this group of learners also had difficulties in reconstructing the meanings of the L2 Danish placement verbs.

In sum, both groups of learners at these intermediate levels of L2 proficiency had difficulties in reconstructing the L2 semantic space of force dynamics and intentionality in placement events. That is, learning difficulties were not only present when learners start off with a less complex system and need to acquire a more complex one (Spanish learners of L2 Danish in the second study) but also when they start off with a more complex system and need to move to a less complex one (Danish leaners of L2 Spanish in the second study), as well as when they need to move to a system as

complex as their native one (Spanish and Danish learners in the first study). This result is different both from old claims made in the literature by Stockwell, Bowen and Martin's (1965) who hypothesized greater acquisitional difficulty in cases of splits as opposed to coalesced forms, and from previous research in the L2 expression of placement events where learning difficulties in speech had only been found for learners moving from a less to more complex system (Viberg, 1998; Gullberg, 2009, 2011). One possible explanation for the discrepancy in results may be the nature of the research designs employed in the studies.

Whereas previous research has examined the issue of learning directionality in separate studies involving different language pairs, the present study includes a bidirectional design that allows us to make a direct comparison of the type of transition involved in L2 learning by keeping constant both the source and target languages that are investigated and the learners' level of L2 proficiency.

6. Conclusions

The results of the present study show that there are cross-linguistic differences in the way Danish and Spanish NSs deal with the semantic components of force dynamics and intentionality in the categorization and description of placement events. These two semantic components are important in both languages, but their distribution in the categorization of placement events as well as their focus on subtle differences in the degree of force dynamics are different. Results also reveal that both L2 Danish and Spanish intermediate learners have difficulties in reconstructing their L2 verb meanings. They know some of the basic L2 placement verbs but their choice and usage differs

from that of the native speakers. These learning difficulties appear regardless of the complex system they have to go to or come from. Therefore, both groups face difficulties in learning alternative ways of thinking for speaking (Cadierno, 2004, 2008) or learning to re-think for speaking (Robinson & Ellis, 2008) as they fail to make target language semantic distinctions and they fail to use the appropriate L2 verbs to express those distinctions.

There are nevertheless several areas that need to be addressed in future studies. The sample size of the study should be larger and include not only learners of different levels of proficiency but also speakers of different varieties of these languages. It is a very well-known phenomenon in Spanish dialectology that the use of pronominal verbs and *se* constructions vary from dialect to dialect (see, e.g., Gómez Torrego, 1992; Maldonado, 1999; Sánchez López, 2002), and this is crucial for the study of intentionality and force dynamics. The elicitation stimuli should also be expanded. Specific and variable-controlled stimuli should be developed in order to capture all the subtle differences described in this analysis. Finally, it would be very interesting to compare and contrast speakers and learners of typologically and genetically similar languages. It has been shown that the closer a second language is to the native language of the learner does not necessarily mean an easier and more successful acquisition process (Hijazo-Gascón, forthcoming); therefore, bidirectional studies in closely-related languages are a largely unexplored area for further research.

All in all, we hope that the results in this paper set up the first steps for a wider bidirectional study of the acquisition of placement events.

References

Aldenderfer, M. S. & Blashfield, R. K. (1984). *Cluster analysis*. Beverly Hills, CA: Sage.

Ameka, F. K. & Levinson, S. C. (Eds.). (2007). The typology and semantics of locative predication: Posturals, positionals and other beasts [Special Issue]. *Linguistics*, *45* (5).

Andics, A. (2012). The semantic role of agentive control in Hungarian placement events. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 183-200). Amsterdam/Philadelphia: John Benjamins.

Bowerman, M., Gullberg, M., Majid, A. & Narasimhan, B. (2004). Put project: the cross-linguistic encoding of placement events. In A. Majid (Ed.), *Field Manual Volume 9* (pp. 10-24). Nijmegen: Max Planck Institute for Psycholinguistics.

Brown, A. & Gullberg, M. (2012). Multicompetence and native speaker variation in clausal packaging in Japanese. *Second Language Research*, *28*, 415-442.

Cadierno, T. (2004). Expressing motion events in a second language. In M. Achard & S. Neimeier (Eds.), *Cognitive linguistics, second language acquisition and foreign language teaching* (pp. 13-49). Berlin/New York: Mouton de Gruyter.

Cadierno, T. (2008). Learning to talk about motion in a foreign language. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 237-275). New York/London: Routledge.

Cadierno, T., Ibarretxe-Antuñano, I. & Hijazo-Gascón, A. (Forthcoming). Semantic categorization of placement verbs in L1 and L2 Danish and Spanish. *Language Learning*.

Gómez Torrego, L. (1992). *Valores gramaticales del* se. Madrid: Arco Libros.

Gullberg, M. (2009). Reconstructing verb meaning in a second language: How English speakers of L2 Dutch talk and gesture about placement. *International Review of Cognitive Linguistics*, *7*, 222-245.

Gullberg, M. (2011). Language-specific encoding of placement events in gestures. In J. Bohnemeyer & E. Pederson (Eds.), *Event representation in language and cognition* (pp. 166-188). Cambridge, Mass.: Cambridge University Press.

Filipović, L. (2013). Constructing causation in language and memory: Implications for access to justice in multilingual interactions. *International Journal of Speech, Language and the Law*, *20*, 1-19.

Hijazo-Gascón, A. (Forthcoming). Acquisition of motion events in L2 Spanish by German, French and Italian speakers. *Language Learning Journal*.

Hijazo-Gascón, A. & Ibarretxe-Antuñano, I. (2013). Las lenguas románicas y la tipología de los eventos de movimiento. *Romanische Forschungen*, *125*(4), 467-494.

Ibarretxe-Antuñano, I. (2012). Placement and removal events in Basque and Spanish. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 123-143). Amsterdam/Philadelphia: John Benjamins.

Ijaz, H. (1986). Linguistic and cognitive determinants of lexical acquisition in a second language. *Language Learning*, *36*, 401-451.

Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: The MIT Press.

Jarvis, S. & Pavlenko, A. (2007). *Crosslinguistic Influence in Language and Cognition*. New York: Routledge.

Kopecka, A. (2012). Semantic granularity of placement and removal expressions in Polish. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 327-346). Amsterdam/Philadelphia: John Benjamins.

Kopecka, A. & Narasimhan, B. (Eds.). (2012). *Events of putting and taking: A crosslinguistic perspective*. Amsterdam: John Benjamins.

Levinson, S. C. & Brown, P. (2012). Put and take in Yéli Dnye, the Papuan language of Rossel Island. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 273-295). Amsterdam/Philadelphia: John Benjamins..

Malt, B. & Sloman, S. A. (2013). Linguistic diversity and object naming by non-native speakers of English. *Bilingualism: Language and Cognition*, *6* (1), 47-67.

Maldonado, R. 1999. *A media voz. Problemas conceptuales del clítico* se. México: UNAM.

Narasimhan, B. (2012). Putting and taking in Tamil and Hindi. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 201-230). Amsterdam/Philadelphia: John Benjamins.

Narasimhan, B., Kopecka, A., Bowerman, M., Gullberg, M. & Majid, A. (2012). Putting and taking events: A crosslinguistic perspective. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 1-18). Amsterdam/Philadelphia: John Benjamins.

Nouaouri, N. (2012). The semantics of placement and removal predicates in Moroccan Arabic. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A*

crosslinguistic perspective (pp. 99-122). Amsterdam/Philadelphia: John Benjamins.

O'Connor, L. (2012). Take it up, down, and away: Encoding placement and removal in Lowland Chontal. In A. Kopecka & B. Narasimhan (Eds.), *Events of putting and taking: A crosslinguistic perspective* (pp. 297-325). Amsterdam/Philadelphia: John Benjamins.

Robinson, P. & Ellis, N. C. (2008). Conclusion: Cognitive linguistics, second language acquisition and L2 instruction –issues for research. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 489-545). New York / London: Routledge.

Ruppenhofer, J., Ellsworth, M., Petruck, M. R. L., R. Johnson, C. R. & Scheffczyk, J. (2010). *FrameNet II: Extended Theory and Practice.* https://framenet.icsi.berkeley.edu/fndrupal/the_book. Accessed 13/01/2015.

Sagi, N. & Imai, M. (2013). Evolution of verb meanings in children and L2 adult learners through reorganization of an entire semantic domain: The case of Chinese carry/hold verbs. *Scientific Studies of Reading*, *17*, 71-88.

Sánchez-López, C. (Ed.). (2002). *Las construcciones con* se. Madrid: Visor Libros.

Soares da Silva, A. (2007). Verbs of letting: Some cognitive and historical aspects. In N. Delbecque & B. Cornille (Eds.), *On Interpreting Construction Schemas. From Action and Motion to Transitivity and Causality* (pp. 171-200). Amsterdam/Philadelphia: John Benjamins.

Stockwell, R., Brown, J. & Martin, J. (1965). *The grammatical structures of English and Spanish*. Chicago: Chicago University Press.

Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and semantic description. Vol. 3: Grammatical categories and the lexicon* (pp. 36-149). Cambridge: Cambridge University Press.

Talmy, L. (1988). Force Dynamics in Language and Cognition. *Cognitive Science*, *12*, 49-100.

Talmy, L. (1991). Path to realization: A typology of event conflation. *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society*, *17*, 480-519.

Viberg, Å. (1998). Crosslinguistic perspectives on lexical acquisition: The case of language-specific semantic differentiation. In K. Haastrup & Å. Viberg (Eds.), *Perspectives on lexical acquisition in a second language* (pp. 175-208). Lund: Lund University Press.
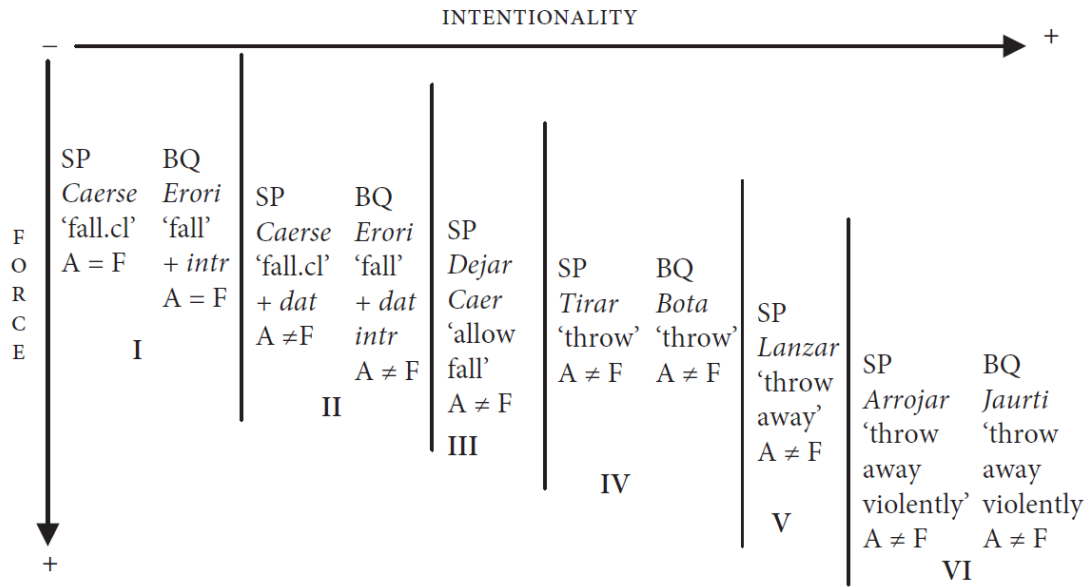
Figures and Tables

INTENTIONALITY

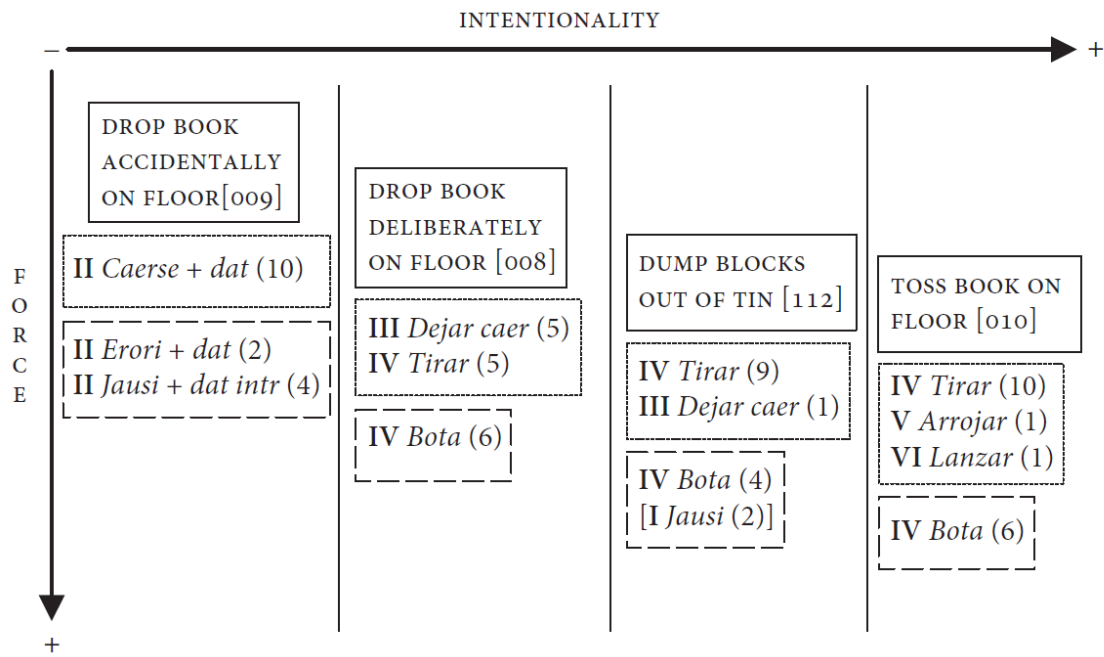Figure 1: Agency, intentionality and force dynamics continuum in Basque and Spanish placement events

INTENTIONALITY

− ⟶ +

FORCE ↓ +

DROP BOOK ACCIDENTALLY ON FLOOR [009]
II *Caerse + dat* (10)
II *Erori + dat* (2)
II *Jausi + dat intr* (4)

DROP BOOK DELIBERATELY ON FLOOR [008]
III *Dejar caer* (5)
IV *Tirar* (5)
IV *Bota* (6)

DUMP BLOCKS OUT OF TIN [112]
IV *Tirar* (9)
III *Dejar caer* (1)
IV *Bota* (4)
[I *Jausi* (2)]

TOSS BOOK ON FLOOR [010]
IV *Tirar* (10)
V *Arrojar* (1)
VI *Lanzar* (1)
IV *Bota* (6)

Figure 2: Intentionality and force dynamics in PUT task in Spanish and Basque. The number in ( ) indicates the number of speakers that used that construction.
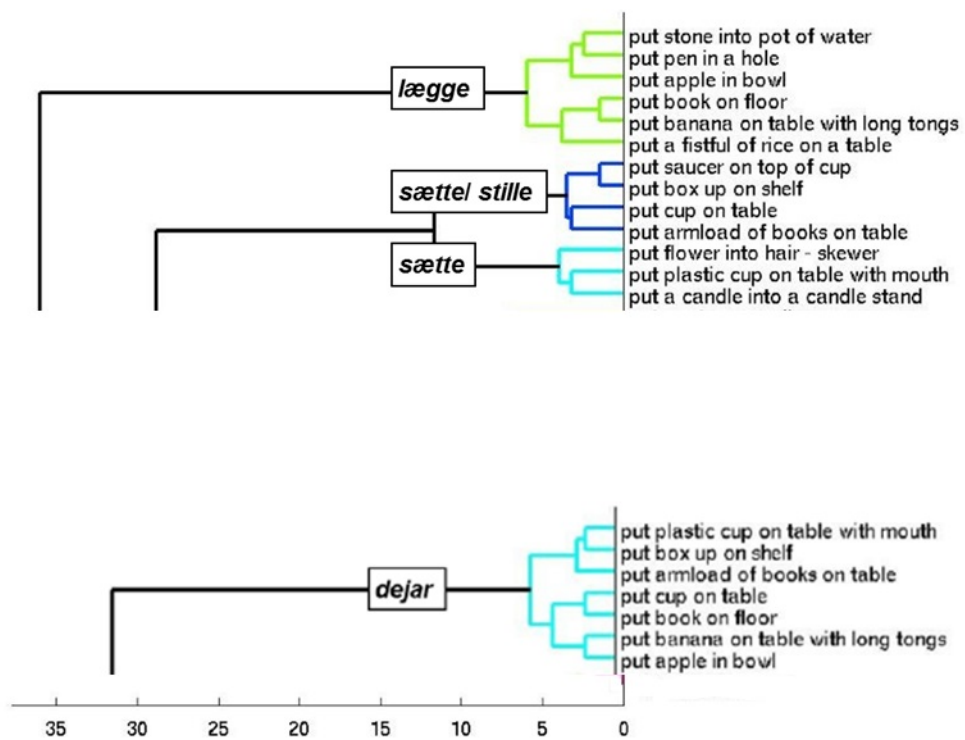
Figure 3: Cluster analysis for Group B videos in Danish and Spanish NSs. Adapted from Cadierno et al. (forthcoming)

Group A	009 DROP BOOK ACCIDENTALLY ON FLOOR 010 TOSS BOOK ON FLOOR	008 DROP BOOK DELIBERATELY ON FLOOR
Group B	001 PUT CUP ON TABLE 003 PUT BANANA ON TABLE WITH LONG TONGS 007 PUT BOOK ON FLOOR	002 PUT PLASTIC CUP ON TABLE WITH MOUTH 006 PUT BOX UP ON SHELF

Table 1: Subset of placement video-clips. Adapted from Bowerman et al. (2004)

SCENES	L1 SPANISH	L1 DANISH
009 DROP BOOK ACCIDENTALLY ON FLOOR	*Caerse*+dat 'fall CL+dat' (10)	*Tabe* 'drop, lose' (13) *Spilde* 'spill' (1)
008 DROP BOOK DELIBERATELY ON FLOOR	*Dejar caer* 'let fall' (5) *Tirar* 'throw' (5)	*Smide* 'throw' (7) *Tabe* 'drop, lose' (3) *Lade falde* 'let fall' (1) *Lægge* 'lay' (1) *Give* 'give' (1) *Kaste* 'throw away violently' (1)
010 TOSS BOOK ON FLOOR	*Tirar* 'throw' (8) *Lanzar* 'throw away' (1) *Arrojar* 'throw away violently' (1)	*Smide* 'throw' (8) *Kaste* 'throw away violently' (6)
Total number of verb types	5	7

Table 2: Verb types used by Spanish and Danish native speakers. Numbers in ( ) indicate tokens

SCENES	L2 SPANISH	L2 DANISH
009 DROP BOOK ACCIDENTALLY ON FLOOR	*Caerse*+dat 'fall CL+dat' (5) *Perder* 'lose' (2) *Estar* 'be' (1) *Llevar* 'carry' (1) *Pedir* 'ask' (1) *Tener* 'have' (1)	*Falde* 'fall' (6) *Bære* 'carry' (2) *Gå* 'walk' (2) *Tabe* 'drop, lose' (2) *Blive* 'stay' (1) *Slå* 'hit' (1)
008 DROP BOOK DELIBERATELY ON FLOOR	*Caer* 'fall' (2) *Estar* 'be (stative)' (2) *Perder* 'lose' (2) *Caerse* 'fall+refl.pron' (1) *Dejar caer* 'let fall' (1) *Lanzar* 'throw away' (1) *Quitar* 'remove' (1) *Tirar* 'throw' (1) *Tocar* 'touch' (1)	*Falde* 'fall' (2) *Droppe* 'drop' (1) *Dumpe* 'drop' (1) *Gå* 'walk' (1) *Have* 'have' (1) *Kaste* 'throw away violently' (1) *Lægge* 'lay' (1) *Tabe* 'drop' (1) *Tage* 'take' (1) *Sætte* 'set' (1) *Slå* 'hit' (1)
010 TOSS BOOK ON FLOOR	*Perder* 'lose' (2) *Irse* 'go away' (1) *Lanzar* 'throw away' (1) *Quitar* 'remove' (1) *Saltar* 'jump' (1) *Tener* 'have' (1)	*Putte* 'put, put in' (3) *Lægge* 'lay' (3) *Falde* 'fall' (1) *Have* 'have' (1) *Ligge* 'lie' (1) *Smide* 'throw' (1)

	Tirar 'throw'.(1)	*Tabe* 'drop' (1)
		Tage 'take' (1)
		Trække 'pull' (1)
Total number of categories	12	17

Table 3: Verb types used by L2 speakers. Numbers in ( ) indicate tokens

SCENES	L1 SPANISH	L2 SPANISH	L1 DANISH	L2 DANISH
001 put cup on table	**dejar** 70% *poner* 10% *depositar* 10% *posar* 10%	**poner** 71.4% *ponerse* 14.3% *placear* 14.3%	**sætte** 57.1% *stille* 42.9%	*sætte* 42.9% *stille* 28.5% *lægge* 21.4% *tage* 7.1%
002 put plastic cup on table with mouth	**dejar** 90% *colocar* 10%	**poner** 71.4% *ponerse* 7.1% *placear* 14.3% *caer* 7.1%	**sætte** 76.9% *stille* 7.7% *putte* 7.7% *placere* 7.7%	*sætte* 35.7% *stille* 28.6% *lægge* 14.3% *placere* 7.1% *putte* 7.1% *tage* 7.1%
003 put banana on table with long tongs	**dejar** 70% *poner* 20% *depositar* 10%	**poner** 69.2% *ponerse* 15.4% *placear* 15.4%	**lægge** 92.9% *placere* 7.1%	**lægge** 50% *placere* 7.1% *putte* 14.3% *sætte* 21.4% *tage* 7%
006 put box up on shelf	**dejar** 80% *poner* 10% *colocar* 10%	**poner** 64.3% *ponerse* 14.3% *placear* 7.1% *tomar* 7.1% *ticar* 7.1%	**sætte** 42.9% **stille** 42.9% *placere* 14.3%	**lægge**: 57.1% *sætte* 35.7% *tage* 7.1%
007 put book	**dejar** 70%	**poner** 53.8%	**lægge** 100%	**lægge** 64.3%

on floor	*depositar* 20%	*ponerse* 15.4%		*placere*: 7.1%
	posar 10%	*placear* 15.4%		*putte* 7.1%
		dejar 7.7%		*sætte* 21.4%
		caer 7.7%		

Table 4: Verb types and frequency by Spanish and Danish speakers and learners

The role of force dynamics and intentionality in the reconstruction of L2 verb meanings: a Danish-Spanish bidirectional study

Iraide Ibarretxe-Antuñano, Teresa Cadierno & Alberto Hijazo-Gascón

Biographical notes

Iraide Ibarretxe-Antuñano (PhD, University of Edinburgh, UK, 1999) is Associate Professor in Linguistics at the University of Zaragoza. Her work focuses on topics related to semantic typology (lexicalisation, polysemy), ideophones and sound symbolism, and the relationship between metaphor, embodiment and culture. Her most recent publications include the books *Cognitive Linguistics and Translation* (Mouton de Gruyter, 2012, with A. Rojo), *Lingüística Cognitiva* (Anthropos, 2012, with J. Valenzuela), and *Sound symbolism and motion in Basque* (Lincom Europa, 2006).

Teresa Cadierno (PhD, University of Illinois at Urbana-Champaign, USA, 1992) is Professor of Second Language Acquisition at the Department of Language and Communication at the University of Southern Denmark. Her most recent research investigates second language acquisition from the theoretical perspective of usage-based / cognitive linguistics, with special focus on examining L2 learning as the process of learning to re-think for speaking, and the acquisition of L2 constructions for the expression of motion events by foreign language learners. She has published the book *Linguistic relativity in second language acquisition: Thinking for speaking* (Multilingual Matters, 2010, with Z-H. Han) and articles in specialized journals such as *Applied Linguistics*, *The Modern Language Journal* and *Studies in Second Language Acquisition*.

Alberto Hijazo-Gascón (PhD, University of Zaragoza, Spain, 2011) is Lecturer in Intercultural Communication with Spanish at the University of East Anglia (United Kingdom). His research focuses on semantic typology (especially in Romance languages) and second language acquisition. He has published in specialised journals such as *Romanische Forschungen*, *Hispania* and *Language Learning*.