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Human Locomotion Verbs in English and Spanish

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ABSTRACT

A vast amount of research has been carried out inspired by the motion event typology established by Talmy (1985, 2000), that of, *verb-framed* and *satellite-framed* languages. However, hardly any research has been devoted to either deeply analyse motion verb lexicons or to explore manner-of-motion verb granularity between languages typologically different or similar (cf. Slobin, 2003, 2006). This paper concentrates on an important subdomain of motion, i.e., human locomotion, and examines the way Spanish and English lexicalise it in verbs. The first part of the paper focuses on the semantics of human locomotion verbs with special attention to the sort of fine-grained manner information that each language encodes. In the second part, an empirical study on how Spanish and English monolinguals categorise human locomotion verbs into three motor pattern categories (Walk – Run – Jump) is reported.

KEYWORDS: motion verbs; manner-of-motion; human locomotion; English; Spanish

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I. INTRODUCTION

Talmy's (1985, 2000) motion event typology of *verb-framed* and *satellite-framed* languages has inspired a vast amount of research. This typology groups languages into those two categories[1] in terms of *where* the path of motion or 'core' of the event is lexicalised in the sentence. English and Spanish are prototypical examples of those two categories. On one hand, English as a satellite-framed language expresses the direction of motion or path in satellites (e.g., *up, down*) or in prepositional phrases (e.g., *into/out of the house*), leaving the verb slot free to encode manner-of-motion. On the other, Spanish as a verb-framed language typically expresses path of motion in the main verb while relegating the expression of manner to adjunts (e.g., *entrar/salir corriendo* 'enter/exit by running').

It has been long observed that manner-of-motion verbs are less frequently used, and that manner information is described in much less detail in verb-framed languages (Slobin 1996, 1997, 2006). It seems that languages belonging to this typological group only allow the use of a manner verb as main verb when describing activities (cf. Vendler, 1967) or atelic motion events, that is, when the Figure does not change location or crosses a boundary (Aske, 1989; Slobin & Hoiting, 1994). However, other factors might also explain the general avoidance in the use of manner in verb-framed languages: e.g., an extra processing load (Slobin, 2004, 2006) and lexical availability (Ibarretxe-Antuñano, 2006b; Kopecka, 2006; Slobin, 2004, 2006). When a speaker of a verb-framed language wants to convey manner-of-motion information in telic events, s/he resorts to adjunts of diverse morphosyntactic nature: adverbials, prepositional phrases, subordinate clauses, etc. Despite the availability of those lexical resources, they are not always used as they involve both a cognitive effort in the coding in the message and an extra processing load for the hearer (Slobin, 2006: 67). Thus, verb-framed languages mostly seem to express manner when it cannot be directly inferred from the context of the utterance and it is relevant for the communicative event (Papafragou, Massey & Gleitman, 2006; Pourcel & Kopecka, submitted).

Slobin (1997: 459) pointed out that languages seem to have a two-level or 'two-tiered' lexicon of manner-of-motion verbs[2]: (1) a general one, or superordinate level, represented by everyday verbs such as *walk, run, jump, fly,* etc.; and (2) a more specific and expressive level consisting of different ways of walking, such as *stroll, wander,* or *shuffle*; different ways of running such as *sprint* or *jog*, etc. Satellite-framed languages, such as English, possess a very extensive and elaborated second level. In contrast, in verb-framed languages such as Spanish, manner-of-motion verb lexicon is not as extensive and consists mainly of general manner-of-motion verbs. Though a definitive count has not been undertaken, Slobin (2006: 71) has recently estimated around several hundred manner-of-motion verbs for English and less than one hundred for Spanish.

With a few exceptions, hardly any research has been devoted to explore manner-of-motion verb granularity in languages typologically similar or different. Slobin (2004, 2006), using data from novels and from elicited narratives, provides interesting insights both between and within typological groups. Two works that compare and contrast languages from satellite- and verb-framed groups in terms of manner verbs are Özçalişkan's research on English and Turkish, and Cifuentes-Férez (2006) on English and Spanish. Özçalişkan (2004:

81) provides a summary table illustrating the distribution of some English and Turkish verbs by specific manner categories, such as ways of walking, ways of running, ways of flying, etc. She concludes, for each manner category, that English speakers used a greater variety of manner verbs than Turkish. Much in the same vein, Cifuentes-Férez (2006: 61) concludes that English carves up manner in a more fine-grained way than Spanish; for example, she points out that Spanish does not have as many verbs encoding information about the Figure's physical and psychological state as English, e.g., whether the Figure is tired as in *traipse*, relaxed as in *amble* or *stroll* (Spanish 'pasear'), injured as in *limp* (Spanish 'cojear') or *hobble*. Within the satellite-framed group, Kopecka (2006) examines the sort of fine-grained semantic notions lexicalised in English and Polish walking verbs. Unlike Slobin (2004, 2006), Özçalişkan (2004), and Cifuentes-Férez (2006) whose data come from written and oral productions, Kopecka used monolingual and bilingual dictionaries as source of data.

This paper is an attempt to explore manner granularity in the motion verb lexicon of two typologically different languages: English and Spanish. We begin to bridge the gap in the existing literature by examining an important subdomain of motion, namely human locomotion. My research into human locomotion verbs consists of two parts: a contrastive semantic analysis of English and Spanish verbs, and an experimental investigation on the categorisation of those verbs into three superordinate categories (Walk, Run and Jump), which correspond to distinct motor patterns.

II. THE SEMANTICS OF ENGLISH AND SPANISH HUMAN LOCOMOTION VERBS

II.1. The semantics of motion

A motion event is analysed as having four basic components: Figure, Ground, Motion and Path. As Talmy (2000: 25-26) defines it:

> The basic Motion event consists of one object (the ***Figure***) moving or located with respect to another object (the reference object or ***Ground***) […] The Figure is a moving or conceptually movable object whose path or site is at issue; the Ground is a reference frame, or a reference object stationary within a reference frame, with respect to which the Figure's path or site is characterized.

The Motion component "refers to the presence per se in the event of motion" and the Path is the course or trajectory followed by the Figure. A motion event can be linked to an external event (or Co-event) which usually expresses manner-of-motion. Manner refers to the way a Figure moves which is intrinsically linked to the entity's properties.

Further research on motion event typology has focussed on the manner component alone and has subdivided it into different fine-grained manner categories in attempt to capture

semantic differences among languages. Ibarretxe-Antuñano (2006a), Özçaliskan, (2004) and Slobin (2000) have made use of the following manner categories3:

- **'Motor pattern' (mp)**: basic locomotive abilities
    - Ways of walking (mp-walk)
    - Ways of running (mp-run)
    - Ways of jumping (mp-jump)
- **'Forced motion'**: motion requires an effort to be performed; e.g. *drag, trudge*
- **'Furtive motion'**: hidden purpose or secretive motion; e.g. *crawl, creep, sneak*
- **'Obstructed motion'**: there is some impediment or obstacle; e.g. *stumble, trip*
- **'Smooth motion'**: motion flows, no obstacle; e.g. *glide, slide*
- **'Leisurely motion'**: motion for pleasure; e. g. *hike, trek*
- **'No aim in motion'**: no special purpose; e.g. *roam, saunter*
- **'Joyful, playful motion'**: e.g. *scamper, frolic*
- **'Violent motion'**: e.g. *charge, dash*
- **'Unsteady motion'**: unbalanced motion; e.g. *totter, stagger*
- **'Rate'**: speed of motion; e.g., *hurry, dash, zoom*
- **'State of Figure'**: physical or psychological state; e.g. *limp, traipse, stroll, swagger*
- **'Length of Steps'**: information about the steps the Figure takes; e.g. *stride* (long steps), *scurry* (small short steps)
- **'Shape of Legs'**: information about the Figure's legs; e.g. *goosestep*
- **'Use of Figure's Hands'**: whether the Figure's hands are also involved in the motion; e.g., *crawl, climb, vault*

These manner categories are not mutually exclusive, i.e., verbs generally denote more than one fine-grained manner feature. For example, *jog* can be analysed as motor pattern-run, slow rate of motion and regular steps; *stagger* as motor pattern-walk and unsteady motion, and so on.

Furthermore, these semantic components can be overtly expressed in language in a complementary or in a conflated way (cf. Sinha & Kuteva, 1995; Zlatev, 2003). In the former, different form-classes express different semantic components. For example, in the sentence *the children frolicked into the room*, the noun expresses the Figure, the verb encodes manner (motor pattern-walk, playful motion), and the preposition the path of motion. In the latter, i.e., conflation, more than one semantic component is lexicalised by a single form-class as in the verb *to soar* expressing both manner (motor pattern-fly, fast rate) and path of motion (upwards).

II.2. Research questions and methodology

In this first part of the paper, we address the following research questions:

- Which general semantic components are conflated in Spanish and English human locomotion verbs?
- Which fine-grained manner-of-motion features are usually encoded or lexicalised?
- Which motor pattern category (Walk, Run or Jump) exhibits finer manner distinctions (i.e., greater variety of verbs)?

In order to answer those questions, we carried out a semantic analysis of 56 Spanish and 110 English human locomotion verbs taken from monolingual dictionaries, thesauri and some motion verb lists available for English, (concretely those of Levin (1993) and Snell-Hornby (1983)). For the analysis, all the semantic components for motion event descriptions identified by Talmy (1985, 1991, 2000) as well as the fine-grained manner categories proposed by Ibarretxe-Antuñano (2006), Özçaliskan (2004) and Slobin (2000) were taken into account.

II.3. Results

Verbs from both languages were grouped in terms of the semantic components they expressed. In section II.3.1., motion verbs that conflate motion and other two semantic components are classified. Section II.3.2. includes verbs conflating motion and manner-of-motion only; special attention to fine-grained manner categories is given.

II.3.1. Conflation of motion + two other semantic components

As human locomotion verbs inherently encode the motion component, we deliberately avoided its constant repetition throughout the analysis of our verbs.

FIGURE + MANNER-OF-MOTION

Both in Spanish and English we come across some verbs conflating information about the figure and about manner-of-motion. For example, Spanish *desfilar* (in the sense of soldiers walking in line), and English *to march, to troop,* and *to parade*, whose figures are a group of people walking with regular steps. Unlike Spanish, English possesses some verbs which imply a person of certain age, such as an infant in *to toddle* or an aged person in *to dodder*, both of them walking unsteadily.

GROUND + MANNER-OF-MOTION

English seems to have a larger number of verbs implying certain grounds together with manner-of-motion: relaxed or leisurely walking in the countryside (*to hike, to ramble*), over hills, mountains or forests (*to trek*), along a road or promenade (*to promenade*, old fashioned). In our Spanish set of verbs, we found only one denominal verb categorised as walking verb, namely *callejear*, which refers to a figure's walking around streets with no clear purpose or direction.

PATH + MANNER-OF-MOTION

Both the English and the Spanish lexicon have verbs encoding the direction of motion in addition to some sort of manner information:

- **Path (away from the Ground) + Manner (mp-walk or mp-run, Furtive motion, ± Steps).** Both languages possess some verbs denoting furtive motion away from the ground, such as the Spanish verbs *fugarse*, *huir*, meaning *to flee, to slink* in English. Furthermore, English has verbs which also lexicalise details about the steps the figure takes when running away, e.g., *to scuttle* and *to scurry* meaning "to run with short quick steps, especially to escape from something" [LLA: 1008].

- **Path (towards the Ground) + Manner (mp-run, Rate-fast, ± Violent motion)**. These semantic features are conflated into verbs such as Spanish *precipitarse* (to run towards X), *abalanzarse* and *lanzarse* (to hurl oneself towards X in a violent way) and English *to charge*, which also encodes a violent manner of motion.

- **Path (back) + Manner (mp-walk).** We find two verbs in Spanish which are rarely used in everyday language: *contramarchar* (to march back, in a military setting) and *desandar* (to walk back, following the same way). In our English set of verbs, we did not find any verb expressing backward motion while walking.

- **Path (after the Ground) + Manner (mp-walk, Furtive motion):** both languages can conflate those semantic features in verbs such as *rastrear*, *acechar* meaning *to track* or *to stalk*[4] in English.

- **Path (around the Ground) + Manner (mp-walk):** those semantic features are encoded in verbs such as Spanish *recorrer* and *rondar* (in the sense of walking around a place), and English *to rove*, which usually refers to walking over a large area.

Once we have dealt with the types of conflations of general motion components found in our corpus of English and Spanish human motion verbs, we narrow down our focus to verbs which express finer manner-of-motion distinctions.

II.3.2. Fine-grained manner-of-motion

We present our analysis of manner-of-motion verbs in three blocks: walking verbs, running verbs and jumping verbs. These three categories refer to basic human motor patterns. Within each motor pattern, we will firstly describe the sort of fine-grained manner details which can be expressed both in English and Spanish verbs, then the ones which are more often exploited in any of the two languages and, finally, we will deal with seemingly language-specific manner details, i.e., manner information which seems to be lexicalised only in one language.

MOTOR PATTERN - WALK

We find out greater verb granularity concerning ways of walking than ways of running or jumping; English and Spanish have a larger number of verbs specifying different ways of walking. This seems to be quite an obvious finding as walking is the default way of human locomotion.

Among the specific manner details that can be expressed in both verb lexicons, we found the following ones:

- **No aim in motion**: Spanish *ambular, deambular, vagar, merodear, errar,…;* English *to roam, to wander, to meander*.

- **Physical State of the Figure**. The Spanish verbs *renquear* and *cojear*, which are equivalents to English *to limp* and *to hobble* denote that the figure's feet or legs are injured or in pain.

- **Information about Steps, Legs or Hands**:

  - Steps the Figure takes:
    - Small steps: *anadear* ('to waddle, small steps') in Spanish, *to inch* and *to edge* in English.
    - Large steps: *zancajear* ('to walk with large steps'), and *to stride.*
    - Heavy steps: *to plod* which also denotes forced motion and slow rate; *to tramp, to stomp, to trample, to clump.*
  - Shape of the legs: *zanquear* ('to walk bowlegged')
  - Use of the Figure's hands to walk on all fours: Spanish *gatear* and its English equivalent *to crawl*.

- **Unsteady motion:** as in Spanish *tambalearse* and its English counterparts *to stagger* and *to totter*.

English human locomotion verb lexicon is much more varied, i.e., it has more verbs than the Spanish one in terms of the following manner categories: Forced motion, Furtive motion and Psychological state of the Figure.

- **Forced motion.** English has some verbs denoting the bigger effort a Figure makes to be able to walk, such as *to shuffle, to trudge, to lumber,* and *to shamble*. Besides *to shuffle* and *to shamble* provide more information: the Figure does not lift his or her feet from the ground.

- **Furtive motion**. As we saw in the previous section, Spanish tends to encode the fine-grained manner detail of furtive motion (i.e., to move trying not to be noticed) together with direction or path as in *acechar* (meaning *to track* or *to stalk* after something or

someone). English, though having some verbs conflating furtive motion and path, has a number of verbs which encode only furtive motion. For instance, *to creep, to sneak, to tiptoe* (to walk on your toes), *to prowl,* and *to sidle*.

- **Psychological state of the Figure**. In our list of Spanish human locomotion verbs, we just picked up one verb encoding the figure's mental state: *contonearse;* this verb means to walk swaying one's hips in a showing off fashion [DUE, DRAE]. Contrary to Spanish, English has a large number of verbs denoting different mental states:

  - **Proud attitude**: *to strut, to stalk*
  - **Tiredness or boredom**: *to traipse*
  - **Angry attitude**: *to march, to stomp*
  - **Relaxed activity**[5]: to mosey, to amble, to saunter.

One of the peculiarities of the Spanish motion verb lexicon is the existence of verbs denoting a noisy way of walking related to the sort of shoes a person is wearing: *zapatear* ('to walk tapping shoes'), *taconear* ('to walk tapping one's heels') and *chancletear* ('to walk tapping one's flip-flops'). These verbs are deeply rooted in Spanish culture: flamenco dancers (wearing heels) tapping on the floor or *tablaos flamencos*, Spanish women's habit of wearing high heels, frequent use of flip-flops during the long Spanish summer, especially at the beach or swimming pool. In sum, cultural aspects might explain why English does not seem to exploit this kind of information in their human motion verb lexicon.

Finally, also in the Spanish verb lexicon, we came across a couple of interesting verbs (though very infrequent), such as *noctambular* ('to walk at night with no specific aim' [DUE; DRAE]) and *zaparrastrar* (it refers to the dragging of clothes while a person is walking). It seems that English does not have any verb lexicalising that sort of manner information.

MOTOR PATTERN – RUN

Both languages seem to have less running verbs than walking verbs. However, we found out some cross-linguistic differences: English running verbs outnumber Spanish ones. For example, English running verbs include a large amount of verbs denoting fast rate or speed: *to sprint, to race, to speed, to bolt, to dash, to whiz, to streak, to dart, to zoom, to hurry*, etc. Furthermore, there are some verbs which encode some other fine-grained manner features:

- Rate-fast + Violent motion: *to hurtle*
- Rate-slow and regular: *to jog*
- Rate-fast + Steps-short/small steps: *to scurry*

In contrast, Spanish has few running verbs; they simply encode an increase in speed, such as *acelerar* ('to speed up'), *aligerar* and *apresurarse* ('to hurry up'), a decrease in speed as in *desacelerar* ('to speed down'), or a faster rate than walking, as in *corretear* ('to scamper'), which also encodes leisurely or playful motion.

MOTOR PATTERN – JUMP

Both English and Spanish verb lexicons are less elaborated or varied with respect to this motor pattern. In English, we came across four jumping verbs: *to vault* (to jump using your hands or a pole), *to hop* (to jump on one leg), *to leap* (to make a large jump from one place to another) and *to skip* (to move along with a little jump between steps). In contrast, Spanish does not capture those fine-grained manner differences in their lexicon and has just two jumping verbs: *saltar* and *brincar*. These verbs are rather general in meaning (i.e., belong to a more schematic, less specific level) and can be used in roughly the same contexts where English would distinguish among *to vault, to hop, to leap* and *to skip.*

II.4. Conclusion

In this section, both cross-linguistic similarities and differences between the semantics of English and Spanish human locomotion verbs have been discussed. We found out that both Spanish and English lexicalise the same kind of general semantic information, though certain kinds of semantic information seems to be much more often exploited in one language than in the other. That is the case of English which makes finer manner distinctions than Spanish; for example, there are a greater number of English verbs encoding information about the speed of motion, the effort involved in it and even the figure's psychological state. Unlike English, Spanish verbs lexicalise information about the figure's noisy way of walking while wearing some kinds of shoes (*chancletear*, *taconear* and *zapatear*), and even about the day time when the motion takes place (*noctambular*), though the latter is a rather infrequent verb. In this paper, we are also interested in finding out which human motor pattern presents finer lexical distinctions, i.e., has a wider variety of verbs. After our semantic analysis, we can conclude that both languages follow the same tendency: there are many more walking verbs than running verbs and jumping verbs. We will further address this issue in the second part of the paper.

III. CATEGORISATION OF HUMAN LOCOMOTION VERBS

III.1. Verb taxonomies

Taxonomic hierarchies are classificatory systems that reflect the way speakers categorise the world of experience. A well-formed taxonomy offers an orderly set of categories at different levels of specificity (Cruse, 2004: 175-176). Cruse (1989, 2004) and Miller and Fellbaum (1991) provided some interesting insights into verb taxonomies, concretely, into how they seem to be organised and what kinds of semantic relations hold among their members.

Cruse (1989) remarks that the diagnostic question for noun taxonomies *Is X a kind/type of Y?* does not work for verbs as well as it does for nouns; whereas the question *Is verb X-ing a way of verb Y-ing?* seems to be more appropriate for verbs. Miller and Fellbaum (1991: 216-220), much on the same line, state that *troponymy* (from Greek *topos*, i.e., manner or fashion) or verb hyponymy is the most common semantic relation among verbs. Many

verbs indicate more precisely the manner of doing something, for example, *march, strut, traipse, amble,* and *mosey* are troponyms of *to walk*, that is, they are ways of walking, mutually inclusive or temporally co-extensive.

Although hyponymy is quite common among verbs, taxonomy also occurs. In Cruse's own words (1989: 138): "verbs generally seem to show hierarchical structuring to a more limited extent than nouns; however, just as hyponymy is quite common among verbs, a relation paralleling nominal taxonomy occurs, too". Both notions are extremely difficult to tell apart; a troponym is not the same as a taxonym. Whereas many verbs can be troponyms of a superordinate verb, only a subset of them are taxonyms of it. For example, *to travel*, *to walk* or *to run* are troponyms of *to move*; they all are ways of moving. However, according to Cruse, only *to walk* and *to run* are taxonyms of *to move*.

In sum, both troponymic (i.e., a verb X is a way of verb Y) and taxonomic relations (i.e., a verb X is a kind of verb Y) are to be distinguished when exploring the nature of verb lexicons, though troponymy (or verb hyponymy) seems to be the most frequent semantic relation.

III.2. Research questions

In this experimental study, we are interested in how English and Spanish native speakers categorise human locomotion verbs in terms of three superordinate categories: Walk (Spanish *Andar*), Run (Sp. *Correr*) and Jump (Sp. *Saltar*), which refer to basic motor pattern. This experiment aims at providing psycholinguistic validation to our previous findings:

- Is it truly the case that, in English and Spanish verb lexicons, the Walk category has greater number of fine-grained manner verbs than the Run and the Jump category?

Furthermore, as a secondary aim we want to test which question type (the *way-of* or the *kind-of* question) seems to be more useful when categorising verbs. Thus, the research questions addressed to this respect are:

- Is there any effect of the question type on participants' judgements?
- Is there any interaction between question type and language?

III.3. Method

III.3.1. Subjects

18 adult native English speakers and 18 adult native Spanish speakers volunteered or were paid for the participation. English participants were students at the University of Sussex (UK). Spanish speakers were students at the Universidad de Murcia (Spain). All participants ranged from 18 to 30 years of age.

III.3.2. Stimuli

Our stimuli were the same used in the semantic analysis (section II), that is, 110 human locomotion verbs for English and 56 human locomotion verbs for Spanish.

We created booklets for each language group. The instructions were given on the first page of the booklet. Each booklet was divided into 3 blocks; each block consisted of questions and rating scales for each human locomotion verb with respect to one of the superordinate categories (Walk or Run or Jump). The questions were one of the following two throughout the booklet: '*Is X-ing a kind of Y-ing?*' or '*Is X-ing a way of Y-ing?*' for the English version, and *'¿Es X un tipo de Y?*' or *'¿Es X una manera de Y?'* for the Spanish version. Half the subjects received the kind-of question and the other half the way-of question. Each question was followed by a rating scale ranging from 'Definitely a kind/way' – 'Not sure a kind/way' – 'Definitely not a kind/way'. For the English version, each booklet contained 330 questions in total, that is, 110 verbs x 3 blocks (Walk-Run-Jump). The Spanish version consisted of 168 questions in total, that is, 56 verbs x 3 blocks. Both the questions and the blocks within each booklet were randomised across subjects to avoid order effects.

III.3.3. Procedure

Participants were given the booklets and told to answer all the questions by marking an X on any point in a scale. They were told not to skip any question or look ahead in the booklet. The instructions were also given in written form on the first page of the booklet. They were run in a quiet room and no time limit was given.

III.3.4. Design

This study used a mixed design. There were three independent variables: language (English, Spanish), question (kind of, way of) and superordinate verb (Walk, Run, Jump). The language and question variables were between-subject variables, and the superordinate verb was a within variable. The dependent variable was the *goodness of a verb as a member of a superordinate verb*, defined as the score (in millimeters) a participant gave to a particular verb with regard to a superordinate verb (either Walk, Run or Jump) by marking an X on a rating scale.

This scale was 102 millimeters long. It ranged from 'Definitely a kind/way of' on the left (score 0) to 'Not sure a kind/way of' to 'Definitely not a kind/way of' on the right (score 102). We flipped the scores for clarity reasons: 0 meaning 'Definitely not a kind/way of' and 102 meaning 'Definitely a kind/way of'. Thus, the higher score a verb got, the better example of a superordinate category was.

III.4. Results

Two ANOVAs, one treating participants as the random effect and the other treating items as the random effect, were carried out. Participant analysis yielded no statistically significant

results because of the limited number of participants. Item analysis is reported here instead. All reported effects were significant at the $p < .05$ level.

III.4.1. Overall analysis

A 2 (Language: English, Spanish) by 2 (Question: kind of, way of) by 3 (Superordinate verb: Walk, Run, Jump) Analysis of Variance (ANOVA), in which all factors varied within-items revealed three significant main effects and three interactions.

The main effect of language on acceptability ratings was significant, $F(1, 164) = 4.38$, $p < .05$. This means that both language groups differed in their ratings irrespectively of question type and superordinate verb. English human locomotion verbs got higher acceptability ratings ($M = 40.70$, $SE = 1.12$) than Spanish human locomotion verbs ($M = 36.67$, $SE = 1.57$).

The effect of superordinate verb on acceptability ratings was also significant, $F(2, 328) = 94.56$, $p < .05$. On average, verbs were rated higher with respect to Walk ($M = 57.26$, $SE = 1.81$) than to Run ($M = 37.03$, $SE = 1.95$) and to Jump ($M = 21.76$, $SE = 1.56$).

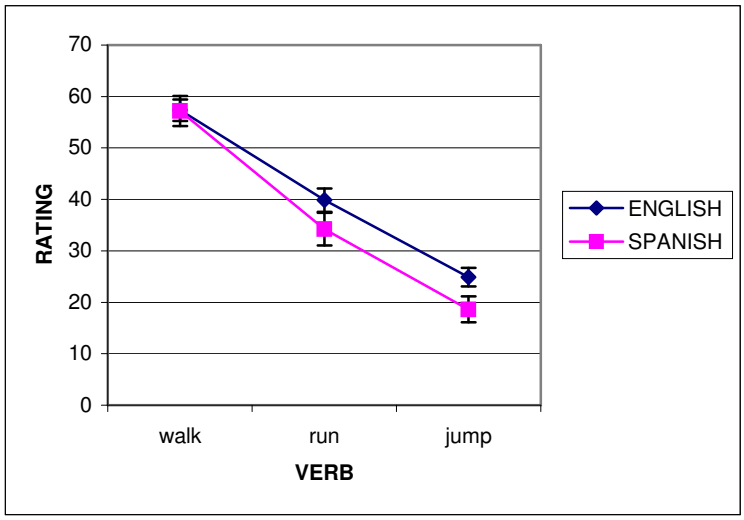

Figure 1. Superordinate verb effect in English and Spanish

The analysis revealed that the question type had a significant effect on the ratings, $F (1, 164) = 9.38$, $p < .05$. On average, the way-of question was rated higher ($M = 39.67$, $SE = .99$) than the kind-of question ($M = 37.70$, $SE = 1.03$). Further analyses of only English participants and only Spanish participants were conducted to assess this effect on each language group.

The interaction between language and question reached high significance, $F(1, 164) = 81.90$, $p < .05$, indicating that English and Spanish participants differed in their ratings in terms of the question type. Spanish participants gave higher ratings for the way-of question ($M = 40.56$, $SE = 1.61$) than for the kind of question ($M = 32.78$, $SE = 1.69$). English participants gave higher ratings for the kind-of question ($M = 42.62$, $SE = 1.21$) than for the way-of question ($M = 38.78$, $SE = 1.15$).

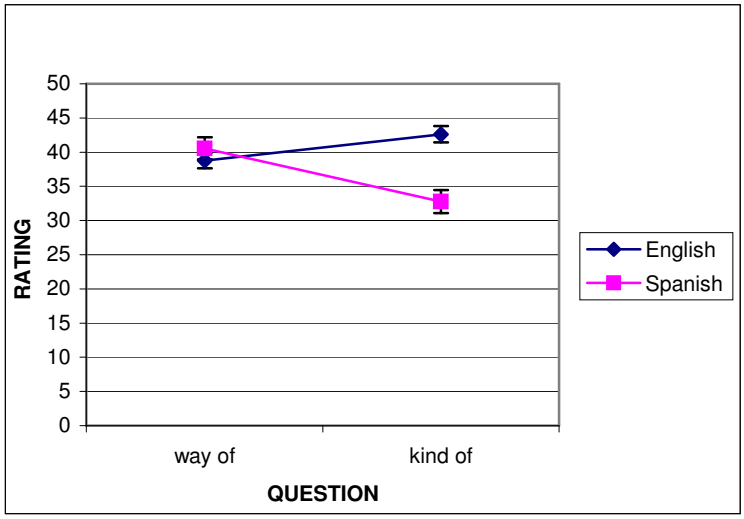

Figure 2. Interaction between language and question

III.4.2. English Results

A 2 (Question: kind of, way of) by 3 (Superordinate verb: Walk, Run, Jump) ANOVA, in which the two factors varied within-items revealed two main effects (Figure 3 is included below for the ease of illustration).

This analysis also revealed a main effect of superordinate verb, $F(2, 218) = 52.75$, $p > .05$. Human locomotion verbs were rated higher with regard to Walk ($M = 57.35$, $SE = 2.18$) than to Run ($M = 39.88$, $SE = 2.24$) than to Jump ($M = 24.89$, $SE = 1.84$). Three t-test showed that the ratings differed significantly between the superordinate verbs Walk and Run ($t(109) = 4.87$, $p < .05$), Walk and Jump ($t(109) = 10.74$, $p > .05$), and Run and Jump ($t(109) = 5.04$, $p < .05$).

The results also showed that the type of question asked had a significant effect on the acceptability ratings, $F(1, 109) = 28.65$, $p < .05$. The kind-of questions were rated higher ($M = 42.62$, $SE = 1.09$) than the way-of questions ($M = 38.78$, $SE = 1.08$)

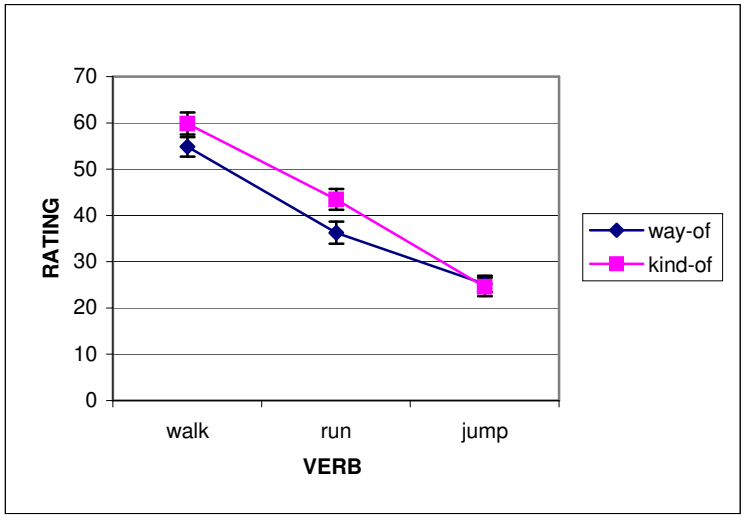

Figure 3. English data: effects of the question type and of superordinate verb

III.4.3. Spanish results

A 2 (Question: kind of, way of) by 3 (Superordinate verb: Walk, Run, Jump) ANOVA, in which question and superordinate verb varied within-items revealed significant effects of question and of superordinate verb.

There was a main effect of superordinate verb, $F(2, 110) = 53.45$, $p > .05$. Human locomotion verbs were rated higher with regard to Walk ($M = 57.12$, $SE = 2.89$) than to Run ($M = 34.2$, $SE = 3.24$) than to Jump ($M = 18.63$, $SE = 2.45$). Three t-test showed that the ratings differed significantly between the superordinate verbs Walk and Run ($t(55) = 5.87$, $p < .05$), Walk and Jump ($t(55) = 11.07$, $p > .05$), and Run and Jump ($t(55) = 4.02$, $p < .05$). Figure 4 is included here for the ease of illustration.

Furthermore, the results showed that the type of question asked had a significant effect on the acceptability ratings, $F(1, 55) = 48.40$, $p < .05$. The way-of questions were rated higher ($M = 40.56$, $SE = 1.8$) than the kind-of questions ($M = 32.79$, $SE = 1.98$)

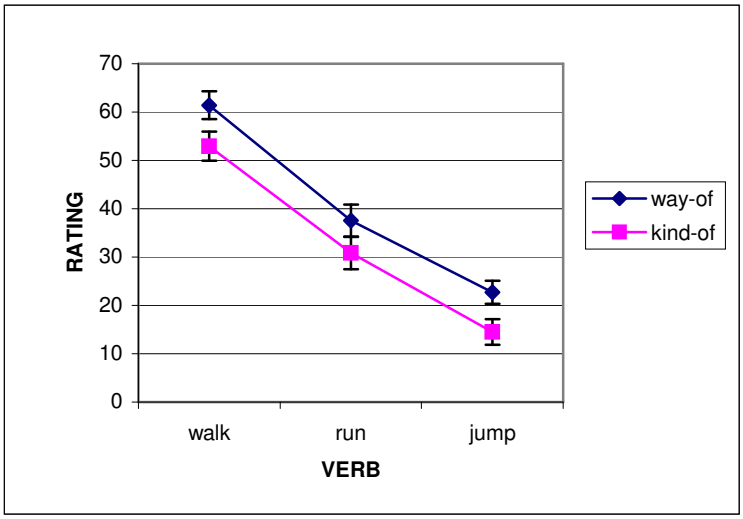

Figure 4. Spanish data: effects of the question type and of superordinate verb

III.5. Discussion and conclusion

In the overall analysis, our results showed a main effect of language on acceptability ratings, namely, English human locomotion verbs got higher ratings than Spanish human locomotion verbs. In spite of this language effect, both languages showed a similar pattern when rating verbs in terms of the three superordinate categories: human locomotion verbs received the highest ratings with respect to Walk, then to Run, and the lowest ones with respect to Jump. These results can be interpreted as if the category Walk includes the greatest number of human locomotion verbs, whereas Run comprises fewer verbs than Walk, and Jump is the category with less verbs. This might be explained by the fact that walking is the default way of moving for humans; walking is a more basic daily activity than jumping or running; people might run to catch the bus or metro, or jump over an obstacle, but they most of the time walk from a place to another.

At the beginning of this study, we also posed the question of whether there are any effects of the question type on participant's ratings; in other words, whether one question works better than the other when ratings verbs with respect to superordinate verb categories. Following Cruse (1989, 2004) and Miller & Fellbaum (1991), we were inclined to predict that the way-of question would work better, i.e., higher ratings, than the kind-of question, as troponymy is the most frequent semantic relation among verbs. However, our results confirmed our predictions only partially. On average, Spanish participants gave higher ratings for the way-of question than for the kind-of question, whereas English participants gave higher ratings for the kind-of question. If we look at Figure 2, it can be observed that verbs from both languages got similar ratings for the way-of question, but differed significantly in the rating when the kind-of question was used: Spanish ratings for kind-of were much lower than those for the way-of question, and English ratings for kind-of were higher than those for way-of.

The question we need to address now is *why* both languages differed dramatically on the kind-of question. We propose two plausible explanations: (a) the wording of the kind-of question in Spanish; and (b) the nature of the English and the Spanish motion verb lexicon. One of our Spanish participants remarked that the question *¿Es X un tipo de Y?* sounded quite odd to her. Thus, the wording of the kind-of question in Spanish might have been responsible for Spanish participants favouring the way-of question instead. The other plausible explanation might be sought in the nature of English and Spanish motion verb lexicon. Since the way-of question asks for troponymy, and the kind-of question does it for taxonomic relations, we could hypothesise that the English motion verb lexicon might respond better to taxonomic or hierarchical relations than Spanish motion verb lexicon.

Going back to Cruse (1989, 2004) and Miller & Fellbaum (1991), our results suggest English human locomotion verb lexicon is well suited for taxonomic relations as the kind-of question got higher ratings than the way-of question. However, our English results cannot be taken to deny the existence of troponymic relations among those verbs. And the reverse is true for Spanish; though it seems that Spanish human locomotion verb lexicon responds better to troponymic relations than to taxonymic relations, it cannot be concluded that there are not taxonomic relations in that part of the lexicon. Therefore, our results remain inconclusive with regard to which type of question is most suitable for verbs.

IV. CONCLUDING REMARKS

In the first part of the paper, both cross-linguistic similarities and differences in the semantics of English and Spanish human locomotion verbs were described. Among the similarities between English and Spanish, it was pointed out that both languages followed the same tendency: greater variety of walking verbs over running and jumping verbs. This finding was further attested by the experimental investigation reported in the second part of the paper.

On the whole, our research suggests that human locomotion verbs refer mainly to ways or kinds of walking. Although English carves up the domain of manner in a more fine-

grained way than Spanish, as shown in the first part of the paper, both languages seems to organise their motion verb lexicon in a similar way: putting more eggs into the Walk basket than into any other way of human locomotion. The reason might be that walking is a more basic daily activity; people might run or jump sometimes during the day, but most of the time they walk from a place to another. Thus, it could be hypothesised that most of the world's languages are more likely to posses a more extensive manner verb lexicon for walking activities than for running or jumping activities.

V. FUTURE DIRECTIONS

Our research has provided evidence for higher manner granularity of walking verbs in both English and Spanish. It would be interesting to explore a vast amount of other languages to test our hypothesis on higher manner granularity of the Walk category over Run and Jump. This could be tested by using at least two methodologies: (a) the one we followed in this paper, i.e., taking a full list of verbs and give them to participants so they rate or categorize them; or/and (b) by asking participants to list verbs of walking, running or jumping. This second methodology, called Production Method or Free Listing, might be easier and quicker for participants to do as they are not given hundreds of verbs to rate in terms of different categories, but they would be told to list verbs during 1 minute time-limit. Categorisation research during the 70s (cf. Battig & Montague, 1969; Freedman & Loftus, 1971; Rosch, 1973, 1975) showed that participants list the best examples or prototypical members of a category in the first place. Furthermore, it was found out that (a) the items which were listed first are more entrenched and more frequently used than the ones listed later or even no listed at all, and (b) the mean number of listed items is correlated with the total number of items in the category. Therefore, participants would list more items for wider categories (e.g., Walk) than for narrower ones (e.g., Run).

With respect to the issue of manner granularity in English and Spanish, other subdomains of motion should be considered, for example, 'non-human locomotion', 'motion by using a vehicle', 'motion in water' and 'motion on air'. It might not always be the case that English has a richer manner lexicon than Spanish for an specific subdomain of motion.

Finally, path of motion on its own can be of special research interest. In the same way as we examined what sort of manner information is expressed in motion verbs, a careful analysis of the kinds of paths which can be lexicalised in English and Spanish motion verbs could be also carried out (cf. Berthele, 2004; Wälchli, 2001).

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NOTES

[1] In order to account for a large amount of other languages which do not nicely fit in this binary typology, various scholars (e.g., Slobin & Hoiting, 1994; Slobin, 2004; Zlatev & Yangklang, 2004) have proposed a third category: *equipollently-framed languages*, i.e., languages that express path and manner by equivalent grammatical forms. For a detailed explanation, see Slobin (2004: 249).

[2]This does not seem to be only specific of motion verbs but also of verbs from other semantic fields, such as verbs of seeing (with *see* and *look* at the superordinate level and *stare*, *gaze*, *glance*, *gape*, etc. at the specific level); verbs of laughing or smiling (with *guffaw, smirk, grin*, etc. at the second level), verbs of saying, verbs of hearing, etc. However, research is needed to test whether languages have these two levels for most semantic fields or just for some of them.

[3]Only the manner categories relevant for the description of human locomotion are listed here. A few of them ('Joyful, playful motion', 'Violent motion', 'Length of Steps', 'Shape of Legs' and 'Use of the Figure's Hands') are additions made by the author of this paper.

[4]*To stalk* has two meanings: (1) "to follow an animal or person as closely as possible without being seen or heard, usually in order to catch or kill them", and (2) "to walk in an angry or proud way", which does not encode any kind of path information but just manner-of-motion. [CALD]

[5]The Spanish verb *pasear* (to walk in a relaxed way, [DUE; DRAE]) also encodes this kind of information.

[6]*To hop,* applied to human beings, denotes "to jump on one foot or to move about in this way" [CALD]; however, if a small animal (such as a rabbit), bird or insect hops, "it moves by jumping on all or two of its feet at the same time" [CALD].

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