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A developmental shift from similar to language-specific strategies in verb acquisition: A comparison of English, Spanish, and Japanese

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ABSTRACT

The world's languages draw on a common set of event components for their verb systems. Yet, these components are differentially distributed across languages. At what age do children begin to use language-specific patterns to narrow possible verb meanings? English-, Japanese-, and Spanish-speaking adults, toddlers, and preschoolers were shown videos of an animated star performing a novel manner along a novel path paired with a language-appropriate nonsense verb. They were then asked to extend that verb to either the same manner or the same path as in training. Across languages, toddlers (2- and 2.5-year-olds) revealed a significant preference for interpreting the verb as a path verb. In preschool (3- and 5-year-olds) and adulthood, the participants displayed language-specific patterns of verb construal. These findings illuminate the way in which verb construal comes to reflect the properties of the input language.

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1. Introduction

Although relational terms such as verbs, adverbs, and prepositions are integral to language, they are harder to learn than object labels (Bornstein et al., 2004; Gentner, 1982; Golinkoff & Hirsh-Pasek, 2008; Waxman & Lidz, 2006). Verbs in particular are difficult to learn because any event includes a multitude of relations (Gentner, 2003). For example, the same event can be construed as an instance of *swaggering, stepping, entering, coming, advancing,* and *smiling.* Further, languages vary in terms of which components of an event are labeled (Gentner, 2006; Langacker, 1987; Talmy, 1985). For example, Turkish requires that the speakers use verb morphology to indicate whether they witnessed an event by themselves or heard about it from another source (Aksu-Koc & Slobin, 1986), but languages like French and English do not. The existence of such language-specific patterns of verb use requires that speakers attend to and encode different attributes of events. In this paper, we compare verb acquisition in children learning English, Japanese, and Spanish to uncover how early relational concepts and language interact to help narrow possible verb meanings in language-specific ways. We hypothesize that children will initially show common, possibly universal verb construal, only later demonstrating language-specific tendencies.

There is a core set of possible referents within events that are often encoded across languages (Jackendoff, 1983; Langacker, 1991; Maguire & Dove, 2008; Slobin, 2001; Talmy, 1985). The fact that these are "packaged" differently in different languages offers an ideal testing



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ground for questions of how language and early relational concepts interact. Two of the best-researched early relational components that languages differentially encode are path and manner (Talmy, 1985). "Path" refers to the course followed by a figure with respect to a ground object. Thus, the verb "circling" might be used in English to describe how a dog moves around a fire hydrant. "Manner" refers to the way in which the figure moves. For example, one might say, "The dog walked (or ran or scurried) around the fire hydrant." Talmy (1991, 2000) categorized the world's languages based on the differences between these typologies. In "satellite-framed languages" (S-languages) such as English, German, and Russian, manner is often encoded in the verb, whereas path is commonly encoded in a satellite position such as a prepositional or adverbial phrase (e.g., fly away). Conversely, according to Talmy, in Spanish, Japanese, Greek and other "verb-framed languages" (V-languages), path is most often mentioned in the verb and manner can be omitted. When manner is encoded, it often appears outside of the verb in prepositional or adverbial positions (e.g., leave flyingly). While these characterizations of languages are statistical rather than absolute tendencies (Slobin, 2006), sensitivity to the typology of one's language could help limit the number of possible referents for a novel verb.

1.1. Cross-linguistic typology for path and manner

Early interpretations of Talmy's original classification of path and manner differences across languages placed S-languages and V-languages in stark contrast to one another, with verbs in S-languages encoding manner and verbs in V-languages encoding path. However, Slobin (2006) and others (Beavers, 2008; Matsumoto, 1996; Naigles & Terrazas, 1998) noted that the difference between S-languages and V-languages is not a straightforward dichotomy. Rather speakers of S-languages show a strong bias towards manner verbs, while speakers of most of the commonly researched V-languages, such as Spanish, French, Greek, and Turkish are equally likely to label the path or the manner of the motion using verbs. Thus, this difference in path and manner encoding may be best thought of as a continuum, with manner-biased S-languages, like English and Russian, at one end of that continuum, and many of the well-researched V-languages actually falling closer to the middle. To date, research on adult action verb production supports this claim. Speakers of S-languages, such as English and German, use more manner verbs than do speakers of most V-languages, such as Greek (Papafragou, Massey, & Gleitman, 2006), Turkish (Slobin, 2003), and Spanish (Naigles, Eisenberg, Kako, Highter, & McGraw, 1998; Naigles & Terrazas, 1998; Slobin, 2003). These languages use path and manner verbs with approximately equal frequency.

The manner bias in S-languages, marking the far end of the continuum, can be quite striking. For example, Naigles et al. (1998) reported that in describing 10 short video clips of events, Spanish-speaking adults were nearly equal in their use of path and manner verbs, producing an average of 3.83 path verbs and 4.58 manner verbs. English-speaking adults, on the other hand, produced a mean of 0.58 path verbs and 9.08 manner verbs! Thus English speakers produce more than 15 times as many manner verbs as path verbs. Across at least 11 languages (Slobin, 2006), adult production shows a similar pattern of a strong manner preference in S-languages and a near equal distribution of path and manner verbs in V-languages.

A manner/path asymmetry is also reflected in verb number. For example, English has been estimated to have several hundred manner verbs compared to Spanish's approximately 75 (Slobin, 2006). Thus, speakers of English have many verb options to choose between to encode finer manner distinctions than in V-languages. The dramatic differences in the way languages encode events raises the question this paper addresses: Is there a developmental shift from a more universal to a more language-specific construal of novel verbs?

1.2. The development of language-specific typologies

Children appear to be sensitive to path and manner movements from a young age. In fact, Pulverman and Golinkoff (2004; Pulverman, Song, Pruden, Golinkoff, & Hirsh-Pasek, submitted for publication) found that by 7 months infants could distinguish between changes in manner even if a path remained constant and changes in path even if a manner remained constant. Interestingly, at 14- to 17-months, English- and Spanish-speaking infants were equally likely to notice path and manner changes in dynamic, non-linguistic stimuli (Golinkoff & Hirsh-Pasek, 2008; Pulverman, Golinkoff, Hirsh-Pasek, & Sootsman Buresh, 2008). Closer investigation revealed that there are subtle relationships between non-linguistic attention to path and manner changes and language development. Namely, even though no language was present in the task, English-speaking 14- to 17-month-olds who had high vocabularies based on parental report were more sensitive to changes in manner than their lower vocabulary peers (Pulverman, 2005; Pulverman, Sootsman, Golinkoff, & Hirsh-Pasek, 2003). In contrast, high vocabulary Spanish speakers were less sensitive to manner changes than their lower vocabulary counterparts. Thus attending to manner to a degree appropriate for one's language may aid in early language acquisition.

The preference for producing manner verbs in S-languages compared to the near equal use of path and manner verbs in many V-languages begins at a very young age. Using elicited speech samples, Özçaliskan and Slobin (1999) reported the number of path and manner verbs in English, Turkish, and Spanish produced by children between the ages of 3 and 11 and adulthood. By the age of 3, for every path verb used, 8.25 manner verbs were used for English speakers. Turkish and Spanish speakers, on the other hand, used nearly equal numbers of path and manner verbs throughout the lifespan, similar to the Spanish adults studied by Naigles et al. (1998). Parallel developmental results were reported between English and French (Hickman, 2006) and English and Greek (Papafragou et al., 2006). Thus, at a young age, children are producing language-specific verb patterns. Such findings raise two related questions. First, when do children notice the statistical patterns in verb encoding in their native language,

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