

Competing cues in the acquisition of semantic roles: New evidence from the dative in English and Welsh

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A central task in acquiring a language is learning the way in which the individual components of a sentence are combined to convey meaning (the form-function mapping problem). Competing motivations approaches to this question (e.g. the competition model) have had a great deal of success at explaining not only cross-linguistic variation but also within-language developmental differences in how children and adults assign meaning (e.g. why English speakers rely on word order cues more than Italian speakers when assigning agent and patient semantic roles (Bates et al, 1984), why French children rely more on word order cues than French adults (Kail & Combier, 1983). The aim of the present study was to apply a competition model approach to the acquisition of semantic roles in dative structures to test two predictions; a) that cross-linguistic variation in cue strength is determined by the frequency with which different cues are heard in the language, and b) that cue strength should be calculated based on the behaviour of cues within a particular syntactic structure rather than calculated across the language as a whole.

We employed a novel verb forced-choice pointing paradigm to investigate 3- and 4-year old Welsh and English children's ability to assign the semantic roles of theme and recipient correctly in standard prepositional (*theme-1st*) datives (e.g. I'm [agent] glorping the duck [theme] to the teddy [recipient]) and reversed order datives (*recipient-1st* datives: I'm [agent] glorping the teddy [recipient] the duck [theme]). The cross-linguistic design allowed us to assess the role of three cues to dative interpretation: a) the presence of a local cue – the preposition (*to*) - that always precedes and thus marks the recipient role, b) the relative frequency of the two different word orders in dative sentences (*theme-1st* vs *recipient-1st* datives), and c) the overall frequency of the *theme-1st* word order in the language as a whole (sentences in which the 1st post-verbal noun is the theme/patient are the most frequent multi-noun structures in both languages).

The results demonstrated that the relative frequency of the two word orders in dative sentences straightforwardly predicted the Welsh data. The Welsh children were able to interpret the highly frequent *theme-1st* datives by age 3 years but were unable to interpret the much lower frequency *recipient-1st* datives at either age, despite the fact that Welsh *recipient-1st* datives contain a preposition (*Y bachgen rhoddodd i'r ferch y llyfr* [The boy gave **to the girl** the book]). In fact, the Welsh 4-year-olds misinterpreted *recipient-1st* datives as if they were standard *theme-1st* datives, assigning the theme role to the first post-verbal noun. However, relative frequency of use did not straightforwardly predict acquisition in English. Despite the fact that the *recipient-1st* datives are twice as frequent in the language, the two datives were acquired at the same time. The English 4-year-olds interpreted both dative types at above chance levels ($p < 0.05$). The English 3-year-olds were unable to interpret either dative type.

We draw two conclusions from the results. First, although the position of the preposition in datives is both a highly available and reliable cue to recipient identity, neither the 3- nor the 4-year-old children had learnt the significance of this cue (though they may, of course, be aware of its meaning). We conclude that the multi-functionality of prepositions may delay acquisition (e.g. *to* can be used to indicate other semantic roles such as goal). Second, to explain why, in English, the lower frequency *theme-1st* dative was acquired in tandem with the higher frequency *recipient-1st* dative, we suggest that the learning mechanism is not only learning cues to meaning from prior experience of particular dative structures but is also generalizing from prior experience across different syntactic structures.

There are two (not mutually exclusive) explanations for how this might occur, both provided by Abbot-Smith & Behrens's (2006) idea of "*construction conspiracies*". The first is that the children's extensive experience of syntactic structures in which the first noun after the verb takes a theme/patient role (e.g. the transitive), *helped* them acquire the lower frequency *theme-1st* dative earlier than might be expected (i.e. strengthened the *theme-1st* cue). The second explanation is that, because the two dative structures are used to express similar meanings, they compete with each other; *hindering* the acquisition of both (the *theme-1st* cue competes with the *recipient-1st* cue). This latter explanation may also account for why the Welsh 4-year-olds seem to perform worse with the *recipient-1st* datives than the Welsh 3-year-olds. As the Welsh children's representation of the dominant, early learnt, *theme-1st* dative becomes more robust with age, it increasingly interferes with their ability to interpret the alternative *recipient-1st* dative; an error that is only corrected when the children learn the significance of the cue to recipient identity provided by the preposition.