

## Disappearing causative overgeneralization errors across five languages: The role of semantics.

Ramya Maitreyee & Ben Ambridge (University of Liverpool), Bhuvana Narasimhan (University of Colorado Boulder), Rukmini Nair (Indian Institute of Technology Delhi), Dipti Sharma (International Institute of Information Technology Hyderabad) & Soumitra Samanta (University of Liverpool)

ramya.maitreyee@liverpool.ac.uk

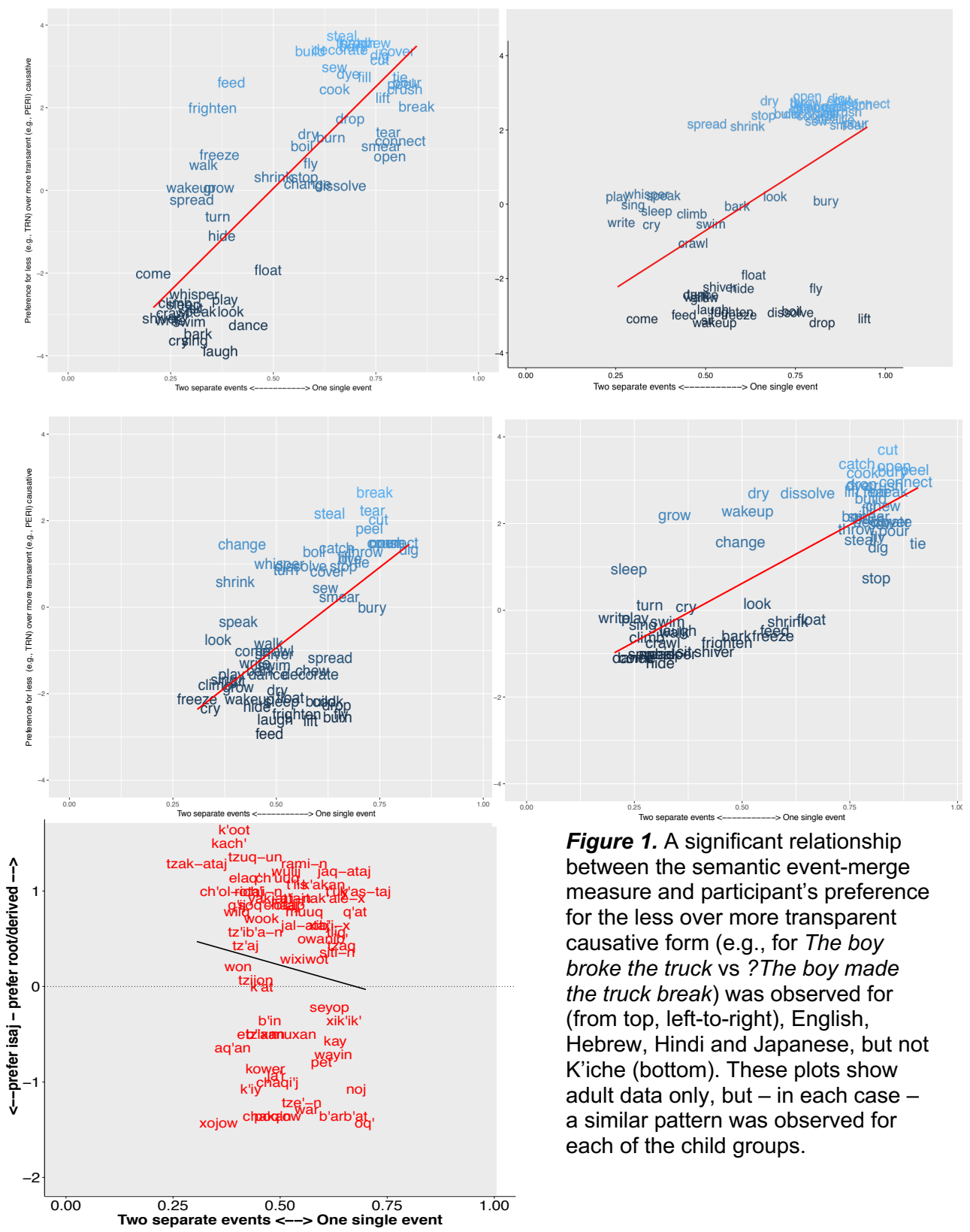
An important challenge in language acquisition research is understanding how children learn to avoid overgeneralization errors while maintaining productive use of grammatical constructions. Consistent with the CUNY 2019 theme of *Variation*, we investigated how learners of five languages (English, Hebrew, Hindi, Japanese and K'iche' Mayan) accomplish this feat, focussing on the domain of causation. For example, English children must learn that while some verbs can appear in the transitive-causative construction (*The man broke the vase*), others cannot (*\*The clown laughed the man*), and instead mark causation using the *periphrastic-causative* construction with *make* (*The clown made the man laugh*). Many other languages similarly have two causative structures, which particular verbs prefer to a greater or lesser degree: (1) a *more-transparent* (morpho-syntactically regular) structure with an overt causative marker (e.g., English *make*; Hindi *aa-*; Japanese *-ase*, K'iche' *-isa-j*, Hebrew *hi'fil* binyan), and (2) a *less-transparent* (morpho-syntactically irregular) structure that marks causation more idiosyncratically (e.g., English transitive causative; Hindi/Japanese/K'iche'/Hebrew morpho-syntactically irregular causative verbs).

How then do children learn which verbs are compatible with each of these causative types? The present pre-registered study tested the hypothesis that children use an observed correlation between verbs' semantics and their distribution (Shibatani & Pardeshi, 2002):

- **Less-direct causation** entails an event in which “both the causing and the caused event enjoy some degree of autonomy...The caused event... may have its own spatial and temporal profiles distinct from those of the causing event”, and hence requires **more transparent causative marking** (e.g., *make/-aa/-ase/isa-j/hi'fil*).
- **More-direct causation** “entails a spatio-temporal overlap of the causer's activity and the caused event, to the extent that the two relevant events are not clearly distinguishable”, and hence can be represented using **less transparent causative marking** (e.g., transitive/morpho-syntactically irregular causatives).

For each language, 20 native speaking adults rated – for each of 60 caused events – the extent to which “B's ACTION/EVENT/CHANGE and A's causing of it are two separate events, that could happen at different times and/or in different points in space” OR “merge into a single event that happens at a single time and a single point in space”. For each language, adults ( $N=48$ ) and children aged 5-6 ( $N=48$ ) and 9-10 ( $N=48$ ) completed a grammaticality judgment task rating, for each of 60 corresponding verbs, the acceptability of sentences containing more- and less-transparent causative forms on a child-friendly five-point scale.

With 715/720 participants currently tested, preliminary analyses using mixed effects models (with verb and participant as random effects), showed that – with the exception of K'iche' – within each language, the semantic event-merge measure was a significant predictor of participants' relative preference for the less- over more-transparent causative form (see Figure 1), for all age groups. Furthermore – again with the exception of K'iche' – semantic ratings provided by speakers of one language predicted the by-verb grammaticality preferences shown by speakers of all other languages, suggesting a degree of universality in the extent to which particular actions/verbs prefer more- or less-transparent causative marking. These findings suggest that, at least from age 5-6, children are able to use the inherent semantics of a given action to determine which type of causative marking applies to individual verbs, and hence to avoid overgeneralization errors.



**Figure 1.** A significant relationship between the semantic event-merge measure and participant's preference for the less over more transparent causative form (e.g., for *The boy broke the truck* vs *?The boy made the truck break*) was observed for (from top, left-to-right), English, Hebrew, Hindi and Japanese, but not K'iche (bottom). These plots show adult data only, but – in each case – a similar pattern was observed for each of the child groups.

**References**

Shibatani, M., & Pardeshi, P.(2002). The causative continuum. *Typological studies in language*, 48, 85-126.