Speakers' preference for more versus less-transparent causatives: Computational modeling, grammaticality judgment and production data from English, Hebrew, Hindi, Japanese, K'iche' Mayan and Balinese.

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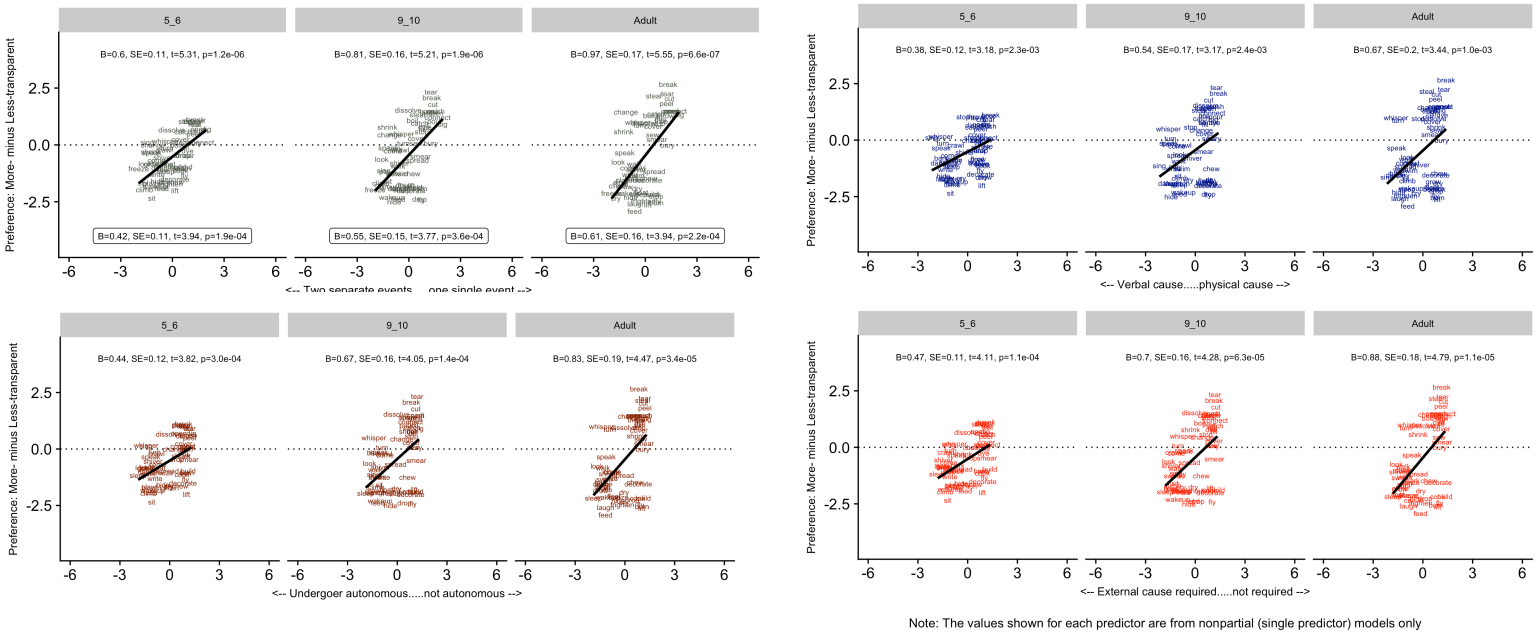
Many languages have more- and less-transparently marked causatives that indicate, respectively, indirect and direct causation (Hall, 1965; Bar-Asher Siegal, Bassel & Hagmayer, 2021).

Language Root: break	MORE TRANSPARENT "Morphological", regular, predictable, indirect	LESS TRANSPARENT "Lexical", irregular semi-(un)predictable, direct
K'iche' paax	-isa-j *Le achi x-0-u-**paax-isa-j** le qumub'al	zero marking Le achi x-0-u-**pax-ii-j** le qumub'al
Japanese koware	-(s)ase *Dareka ga torakku o **koware-sase-ru**	"lexical" Dareka ga torakku o **kowas-u**
Hindi TUT	-aa *kisi-ne Trak-ko **TUT-aa**	Vowel change kisi-ne Trak-ko **toD**
English break	Periphrastic ?Someone **made** the truck **break**	Transitive Someone broke the truck
Hebrew sh.b/v.r	Hif'il binyan *Mishehu **hishbir** et ha-masa'it	Pa'al / pi'el mishehu **shavar** et ha-masa'it

But what exactly counts as (in)direct causation, and how well does this predict speakers' preference the less(/more) transparent causative?

For each language, 20 adults rated each of 60 causal animations (with the causer hidden) for each of four semantic properties. **(a) Event Merge:** (b) **Autonomy** of the causee; (c) Extent caused event **Requires** a causer, and (d) Extent causation is **Directive** vs physical.

Ratings used (controlling for frequency) to predict speakers' preference for the more- versus less-direct causative form across 60 corresponding verbs (N=48 per age group per study) in **(a) Continuous grammaticality judgments (adults, children aged 5-6 and 9-10),** (b) 2. Binary grammaticality judgments (4-5), (c) Elicited Production (4-5 and 5-6). Hindi only shown:



Note: The values shown for each predictor are from nonpartial (single predictor) models only

Discriminative learning models trained to map from verb→causative type on the basis of (a) corpus co-currence frequencies and (b) these semantic ratings achieve significant correlations with (a) these continuous judgments (*r*=0.75 in most cases) https://www.sciencedirect.com/science/article/pii/S0010027720301293#s9915 (b) binary grammaticality judgment data from children aged 4;0-5;0 (r=0.5-0.6), and (c) elicited-production data from children aged 4;0-5;0 and 5;6-6;6 (*r*=0.75-0.85): https://osf.io/7v8m5/ (submitted to Open Research Europe).