

Cross-linguistic regularities in perception verb colexification

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Previous typological studies of perception verbs have suggested there are regularities in how sensory meanings are packaged into words, pointing to our shared biology—in particular, a biological hierarchy of the five senses—as a universal constraint on the lexical expression of sensory meanings (Evans & Wilkins 2001; Viberg 1984, 2015). This intriguing idea has yet to be tested quantitatively with a balanced set of languages. Drawing on a genealogically and geographically stratified sample of perception verb lexicons in 100 languages, we investigated whether there are regularities in how sensory meanings map onto words and whether any observed regularities are consistent with the proposed sensory hierarchy.

We focus on two interrelated aspects of form to meaning mappings. First, we ask whether some sensory meanings are more likely than others to be lexically differentiated in perception verbs, that is, to not combine with other sensory meanings in verbs. It has been proposed sensory meanings at the top of the hierarchy are more likely to be encoded in dedicated perception verbs than those beneath them (Viberg 2015). Our study confirms a strong typological bias for visual meanings to be lexically differentiated from all non-visual sensory meanings in perception verbs. We do not, however, find evidence for rates of lexical differentiation to reflect the proposed sensory hierarchy.

Second, we ask whether some combinations of sensory meanings are more likely to be colexified, that is, to be co-expressed in a word, than others. It has been claimed there are cross-linguistic asymmetries in this regard, reflecting ‘natural semantic relations’ between certain sense modalities (Viberg 1984; Evans & Wilkins 2001). In particular, it has been claimed that: (1) semantic associations are more prevalent between FEEL-TASTE and HEAR-SMELL compared to inverse pairings, reflecting the presence or absence of bodily contact between the perceiver and the stimulus; and (2) TASTE and SMELL are strongly associated, reflecting, perhaps, their close perceptual and neural integration (see e.g., Winter 2019). Consistent with previous generalisations, we find FEEL-TASTE and HEAR-SMELL are indeed more frequently co-expressed in verbs than HEAR-TASTE and FEEL-SMELL. Although not previously discussed, we also find HEAR-FEEL are recurrently colexified across languages. Unexpectedly, TASTE and SMELL are *rarely* co-expressed in verbs, indicating a universal bias against the colexification of these sensory meanings, despite their close biological connections.

We propose two independent, domain general constraints interact to produce this set of patterns: conceptual similarity (i.e., similar concepts tend to share a common label; e.g., Xu et al. 2020) and communicative need (i.e., meanings that need to be distinguished in communication tend not to share a common label). This account aligns with the view that communicative pressures shape the lexical expression of semantic domains (e.g., Brochagen & Boleda 2022, Karjus et al. 2021, Kemp & Regier 2012). Overall, our results challenge the idea that the lexical expression of sensory categories is shaped primarily by our human biology.

References

- Brochhagen, T. & Boleda, G. 2022. ‘When Do Languages Use the Same Word for Different Meanings? The Goldilocks Principle in Colexification’. *Cognition* 226: 105179.
- Karjus, A., Blythe, R. A., Kirby, S., Wang, T., & Smith, K. 2021. ‘Conceptual similarity and communicative need shape colexification: An experimental study’. *Cognitive Science* 45.9 (2021): e13035
- Kemp, C. & Regier, T. 2012. ‘Kinship categories across languages reflect general communicative principles’. *Science* 336 (6084): 1049–54.
- Viberg, Å. 1984. ‘The verbs of perception: A typological study’. In *Explanations for Language Universals*, edited by B. Butterworth, B. Comrie, & Ö. Dahl. Berlin, Boston: De Gruyter Mouton.
- Viberg, Å. 2015. ‘Sensation, perception and cognition: Swedish in a typological-contrastive perspective’. Special Issue. Edited by R. Caballero & C. Paradis. *Functions of Language* 22 (1): 96–131.
- Winter, B. 2019. *Sensory Linguistics: Language, Perception and Metaphor*. Amsterdam: John Benjamins Publishing Company.
- Xu, Y., Duong, K., Malt, B. C., Jiang, S., & Srinivasan, M. 2020. ‘Conceptual relations predict colexification across languages’. *Cognition* 201: 104280