

Where does the conceptual spacetime asymmetry come from?

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Abstract

Why do people use space to think about time more than vice versa? On one account, a spacetime asymmetry in language gives rise to the spacetime asymmetry in thought. If so, children should learn that polysemous words like long and short have primarily spatial meanings on the basis of language statistics. Yet usage statistics from which children could infer the primacy of space are not obviously available in adult-to-child speech: Instead, caregivers use long and short more often in temporal senses than spatial senses (Casasanto & Ksa, 2019). Here we corroborate this result using word2vec, a vector space model that reflects the co-occurrence structure of words. We show that the spacetime asymmetry is also not available in this semantic space: more words surrounding long and short are temporal than spatial. Rather than emerging from language, the spacetime asymmetry may reflect perceptual or conceptual asymmetries that precede the acquisition of spatio-temporal language.