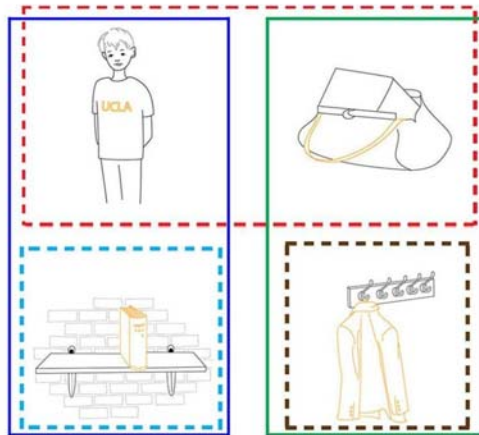


Spatial categories across languages

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The spatial categories of our native language seem natural to us – but other languages sometimes partition the spatial world differently (Levinson & Meira, 2003). For example the four spatial relations shown below are all instances of a single spatial category in English: the letters are *on* the shirt, the strap is *on* the bag, the book is *on* the shelf, and the coat is *on* the hook. But these spatial relations fall in different categories in Dutch (solid outlines), and in Yéli-Dnye (dashed outlines).



Some spatial categories appear to be genuinely natural to humans, in that they are expressed linguistically in one or more languages – while other spatial categories are less natural, in that they do not appear in any language yet studied. Why is this? What makes a spatial category natural?

Recently, we identified a possible answer to this question (Khetarpal et al., 2009). We proposed that there is a universal similarity space of spatial meanings, and that languages reflect near-optimal partitions of this space. We obtained an approximation to a universal similarity space by asking speakers of English and Dutch to sort spatial scenes such as those above into piles based on the similarity of the spatial relation portrayed, and taking the frequency with which two scenes were sorted into the same pile as an index of their similarity. Given these similarities, we took an optimal categorical partition of the corresponding space to be one in which similarity is maximized within categories and minimized across categories (Garner, 1974). We found that the spatial systems of 9 unrelated and dissimilar languages were all near-optimal when assessed in this space. This account suggests why certain patterns of spatial naming appear in the world's languages and others do not. It also suggests which kinds of spatial categories may be particularly easy or difficult to learn – a suggestion we intend to test empirically in the near future.

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Levinson, S. C. & Meira, S. (2003). Natural concepts in the spatial topological domain—adpositional meanings in crosslinguistic perspective: An exercise in semantic typology. *Language*, 79, 485-516.