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Sign languages reveal spatial mappings of valence and magnitude

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Abstract: Much research indicates that concepts of magnitude and valence are represented spatially, with more/less and positive/negative relations mapped to vertical and horizontal axes. While these mappings are sometimes manifested linguistically through conventional metaphors (e.g., "prices fell"), recent evidence suggests that they may be built into the very forms of words – traditionally assumed to be arbitrarily related to their meanings. Following previous research, we examined whether the directions of hand motions constituting words in two sign languages predicted the meanings of their English translation equivalents. Upward-moving signs were more positively valenced than downward-moving signs, as found previously, but were also greater in magnitude, or intensity. Additionally, rightward-moving signs (from the signer's perspective) were more positively valenced than leftward-moving signs, consistent with the bodily experience of right-handers. Our findings demonstrate systematic encoding of multiple spatial-conceptual mappings in words, adding to the growing literature showing non-arbitrary links between linguistic form and meaning.