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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

<https://escholarship.org/uc/item/33s0b58p>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 28(28)

ISSN

1069-7977

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Publication Date

2006

Peer reviewed

Tight and Loose: A conceptual asymmetry

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Introduction

If we are to uncover the role of language in shaping nonlinguistic thought, it will be important to have a thorough understanding of the relevant nonlinguistic conceptual space. The goal of the current study is to advance our understanding of certain spatial concepts that have received attention within language-and-thought arena.

The concepts of interest relate to English and Korean terms for the spatial relations *tight containment*, *loose containment*, *tight support*, and *loose support* (e.g., Choi & Bowerman, 1991). Prior research has suggested that infants are sensitive to both the support-containment distinction (Casasola & Cohen, 2002; Casasola, Cohen, & Chiarello, 2003; McDonough, Choi, & Mandler, 2003) and the tight-loose distinction (Casasola & Cohen, 2002; Hespos & Spelke, 2004; McDonough et al, 2003), but that adults show language-specific patterns of sensitivity: Korean speakers, whose language requires mention of fit, appear to maintain sensitivity to fit while English speakers' sensitivity declines (Hespos & Spelke, 2004; McDonough, et al, 2003).

Although generally compelling, this research has assumed that tight and loose spatial relations draw attention to the overarching concept *fit* with equal force. We suggest that there is reason to question this assumption, and propose that tight relations may draw attention to fit to a greater degree.

Experiment 1

The goal of Experiment 1 was to ascertain whether participants attend to fit more when a tight rather than a loose relation is highlighted by (in this case) its serving as the base of a comparison. Participants completed four trials. Following Hespos and Spelke's (2004) paradigm, each trial included a base scene, which depicted one of the four relevant spatial relations (e.g., Loose On). Next, participants rated the similarity of the base scene to two test scenes, one that matched in terms of fit (e.g., Loose In) and one that did not (e.g., Tight In). Each trial included a different base scene, but the test scenes remained the same across trials.

We considered the relation between the two similarity ratings for any given trial to be an index of participants' attention to fit during that trial. If participants respond asymmetrically to *tight* and *loose*, we expect attention to fit to vary according to whether a tight or a loose relation appears in the base scene.

As predicted, participants attended to fit in the trials that included a tight relation in the base scene, but not in trials that included a loose relation as the base. This result held up across analyses based on the full data set as well as on the subset of the data consisting of each participant's first trial only (such that base scene was a between-subjects

variable). There was one exception to this pattern: One analysis revealed attention to fit during the trial that included a Loose In base relation. This result is intriguing in that attention to fit in this trial may have been influenced by the prior completion of trials with tight relations in the base scene. We pursued this possibility in Experiment 2.

Experiment 2

The goal of Experiment 2 was to ascertain whether participants carried attention to fit from tight-base trials over to a subsequent loose-base trial. The procedure of Experiment 2 was identical to that of Experiment 1 with two exceptions: Participants completed two trials instead of four and were assigned to one of two groups. The groups varied only as to whether their *first* trial included a tight or a loose relation in the base scene. Both groups' *second* trial was the one in which the base relation was Loose In. If completing tight-base trials does in fact promote attention to fit in subsequent loose-base trials, we expect performance in the second trial to vary across groups. As predicted, participants who had first completed a tight-base trial attended to fit in the second trial while those who had completed a loose-base trial first did not.

Discussion

Our results are consistent with the suggestion that participants' responses to tight and loose spatial relations are not symmetric. Because this work advances our understanding of the nonlinguistic conceptual space, it has important implications for investigations of the role language might play in shaping these representations.

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