

Feedback does not influence the weight given to slant cues when placing objects

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People combine monocular and binocular cues to estimate the orientation of objects and surfaces relative to their body. They do so by averaging the values indicated by separate cues, with weights that reflect the cues' reliabilities. Can we change the weights given to the different cues by providing feedback indicating that some are more reliable than others? To find out we asked people to place a cylinder on a virtual surface. On most trials, monocular and binocular cues indicated different slants. In separate blocks of 100 trials, we rotated a real table to match the slant of either the monocular or the binocular information. If the feedback influences the weights, subjects should gradually give more weight to the cue that is consistent with the felt slant. Surprisingly, the weights of the cues did not change. We investigated whether this resulted from subjects judging the visual information unreliable and therefore using a slant estimate that was solely based on a prior. The difference in the cylinder's angle just before contact with the table between the non-conflict conditions was only slightly smaller than veridical and did not change over trials, indicating that subjects' responses were at least partly based on the current visual information. We conclude that for the online control of movement, subjects do not rapidly reweigh slant cues when the context indicates that one of them is unreliable.