

Culture, collectivism, and second language use affect perspective taking in language production

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Language allows interlocutors to depict spatial positions from a range of perspectives. For example, an interlocutor can use an egocentric self-perspective (e.g., on my right), or an allocentric non-self-perspective¹ (e.g., to her left). Tosi et al.² conducted a study whereby native English speakers produced spatial descriptions of objects. These participants were shown pictures with two objects on the left or right of the screen. One condition had no person in the picture (no agent condition). In the other conditions, the person faced either away from the participant (same orientation) or towards (opposite orientation); and could see/act on the objects (can-act action potential) or could not do so (cannot-act action potential). Tosi et al. found that Orientation affected the use of allocentric perspective taking, especially in the can-act condition.

Tosi et al. along with other papers focus on how environmental factors and audience design affect perspective taking. However, there is a lack of research on how factors internal to an interlocutor affect this phenomenon. We therefore conducted two experiments, the first comparing perspective taking by Chinese and English speakers, who grew up in more collectivistic and individualistic cultures respectively. Collectivism entails a self perception grounded in relationships, with Asian cultures being generally more collectivist than Western cultures³. We hypothesize that higher collectivism may lead to greater allocentrism, due to more relational emphasis that could evoke an increase in simulating the perspectives of others⁴.

Experiment 1 replicated Tosi et al.'s Experiment 3 (described above) but with 93 native Mandarin speakers. We built a logistic mixed model (binary DV of egocentric/allocentric response) on our and Tosi et al.'s data, with Language (Mandarin vs. English), Orientation (same vs. opposite perspective) and Action Potential (can act/see vs. cannot act/see items) along with their interactions as fixed effects, and with data justified maximal random effects. More allocentric responses were produced by the Mandarin speakers than the English speakers ($z = 5.01$), and for opposite than same orientations ($z = 11.74$), but the effect of Orientation was greater for the Mandarin speakers ($z = 6.06$). In addition, the effect of Orientation was greater when the person could than could not act ($z = 2.93$). Therefore, consistent with their collectivist culture, Mandarin speakers used more allocentric perspectives compared to English speakers, and especially when viewing people with opposite orientations.

Experiment 2 tasked 109 native Mandarin speakers with the same task, except in both their native/second languages (Mandarin/English respectively; within subjects) with only the opposite-orientation can-act condition and the no-agent condition, with participants answering scales on collectivism and English proficiency. Participants produced more allocentric responses in their second language ($z = -0.914$), and the effect of language was modulated by both presence of an agent ($z = 1.181$) and Collectivism ($z = -0.831$). These results suggest that second language use increases allocentrism, especially when no agent is present, and that individual differences in collectivism modulated perspective taking more in second language use. Overall these two experiments replicate and extend Tosi et al.'s findings, showing that culture and collectivism affect perspective taking, and that the increased allocentrism of the Mandarin speakers was not due to idiosyncratic properties of Mandarin. On the contrary, use of English as a second language increased allocentrism, possibly due to an increase in deliberative thinking associated with second language use⁵.

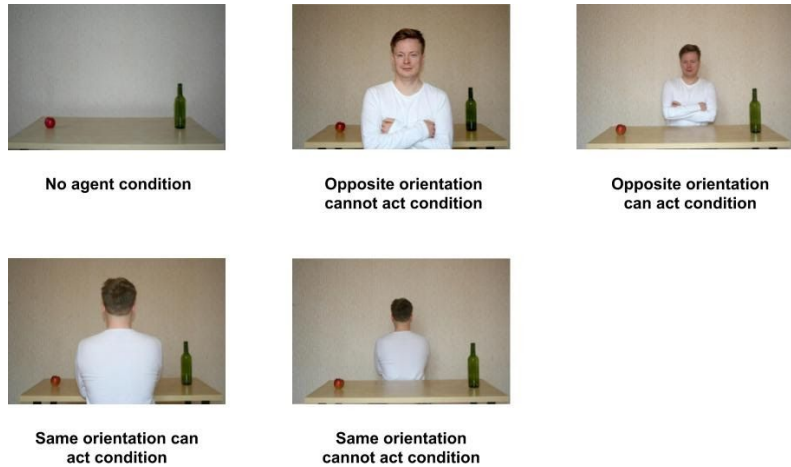


Figure 1: The Conditions of Experiment One and Two

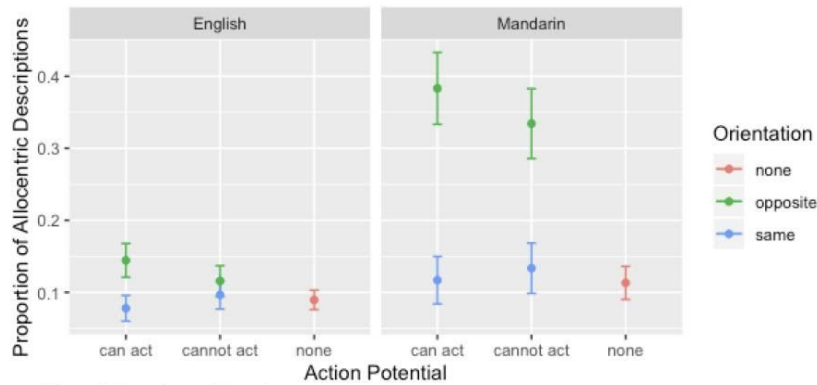


Figure 2: Experiment 1 Results English data source: Tosi et al. (2020)

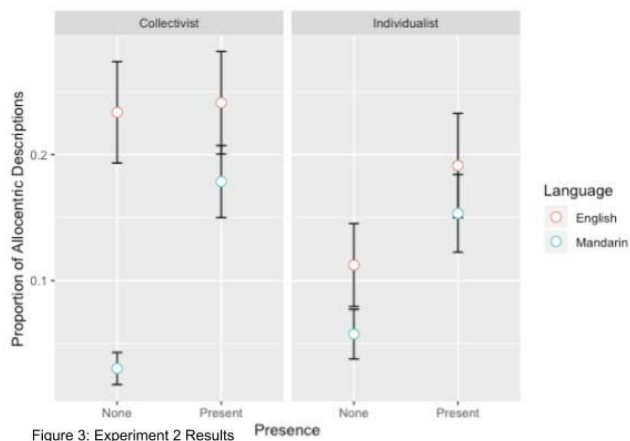


Figure 3: Experiment 2 Results

¹Tversky, B. (1996). Spatial perspective in descriptions. *Language and space*, 3, 463-491.

²Tosi, A., Pickering, M. J., & Branigan, H. P. (2020). Speakers' use of agency and visual context in spatial descriptions. *Cognition*, 194, 104070.

³Singelis, T. M., Triandis, H. C., Bhawuk, D. P., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: A theoretical and measurement refinement. *Cross-cultural research*, 29(3), 240-275.

⁴Wu, S., & Keysar, B. (2007). The effect of culture on perspective taking. *Psychological science*, 18(7), 600-606.

⁵Alter, A. L., Oppenheimer, D. M., Epley, N., & Eyre, R. N. (2007). Overcoming intuition: metacognitive difficulty activates analytic reasoning. *Journal of Experimental Psychology: General*, 136(4), 569.