

Clarifying some findings regarding the ventriloquist aftereffect

Andrew V. Frane¹ · Ladan Shams¹

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Mendonça et al. (2015) replicated several findings of Wozny and Shams (2011b) concerning the ventriloquist aftereffect. These findings include: (1) Recalibration occurred rapidly, after a single exposure, and without feedback, (2) recalibration was enhanced by increasing the number of recent discrepancies in a consistent direction, (3) the most recent audiovisual (AV) exposure had the greatest influence on recalibration, and (4) among recent AV exposures, earlier exposures had lingering influence on recalibration, but had less influence than later exposures in the sequence. Unfortunately, some statements made in their article are potentially misleading. Below, we attempt to address these statements by Mendonça et al. about those replicated findings.

Regarding findings 3 and 4, Mendonça et al. concluded that through their analysis, “*For the first time*, it is revealed that, within recent sensory experience, all audiovisual stimuli are actually relevant, but that it is the last one that is weighted most” (emphasis added). On the contrary, that is essentially a restatement of an observation by Wozny and Shams (2011b): “As expected, the recalibration effect is degraded the further back we look in the AV history of trials, as intervening AV discrepancies counteract the effect.”

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* Andrew V. Frane
avfrane@gmail.com

¹ Visual and Multisensory Perception Lab, UCLA Psychology Department, University of California Los Angeles, 7531 Franz Hall, Los Angeles, CA 90095-1563, USA

Mendonça et al. also suggested that Wozny and Shams had incorrectly assumed “perceptual fusion” (perceived co-localization) to be necessary for recalibration, adding that “Here we find that the mechanism can be independent of such fusion.” But in fact, Wozny and Shams (2011b) found that although perceived co-localization substantially enhanced the “degree of subsequent recalibration,” it was not a prerequisite for recalibration. Indeed, “strong recalibration” appeared to be dependent on perceived co-localization, but mild recalibration occurred even after reported AV discrepancies of greater than 6° (see Fig. 3 in Wozny and Shams 2011b).

It is not clear what Mendonça et al. meant by the statement, “Wozny and Shams (2011b) did not design their experiments specifically to analyze sequential effects.” Nor is it clear whether Mendonça et al. considered their own study to be better suited for that purpose. However, there were some notable procedural differences between the two studies.

For example, Mendonça et al. used stimulus durations that were ten times as long, which may have affected perceptions of AV co-localization and/or the magnitudes of perceptual shift. Also, instead of randomly varying the presented AV discrepancy, Mendonça et al. used only a single magnitude of discrepancy (12°), which was in a consistent direction for each participant. Mendonça et al. explained this simplification by stating, “the one study that presented random audiovisual pairs (Wozny and Shams 2011a, b) experienced methodological limitations. Indeed, that study used a total of 146 subjects, a very uncommon sample size in perception studies.”

That is a confusing statement, not only because two different papers were cited as “the one study,” but also because using a larger sample is by no means a methodological limitation. Perhaps Mendonça et al. meant

that their own very small sample (11 subjects, one of which was an author of the study) reduced the number of manipulations that could be used and that, consequently, their own study “experienced methodological limitations.”

To their credit, Mendonça et al. successfully replicated key findings of Wozny and Shams (2011b) and codified a mathematical model to help describe those findings. But the replications should not be taken as novel or as implying some design flaw or erroneous interpretation in the original study.

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