Feeling a Flash

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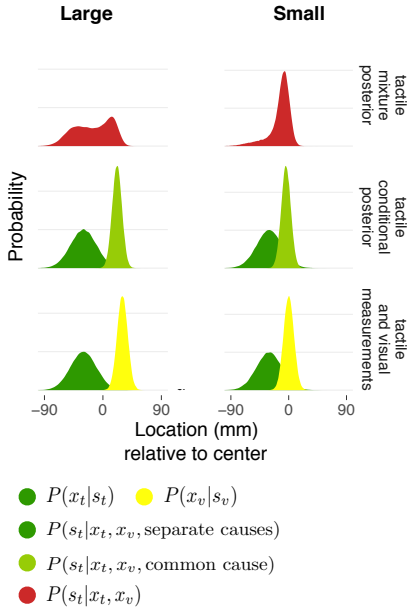
Introduction

Concurrent visual and tactile stimuli

1. Common cause → shift in perceived tactile location (ventriloquist effect)
2. Separate causes → unbiased tactile localization
3. Ambiguous → bimodal posterior over tactile space from mixture of 1 and 2

Touch and flash location disparity



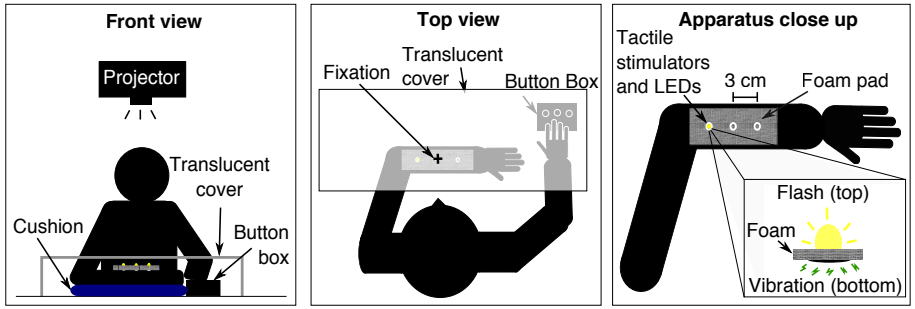
Hypothesis

If the posterior distribution of tactile location is bimodal, then a touch and a flash could induce the perception of two tactile stimuli.

Task

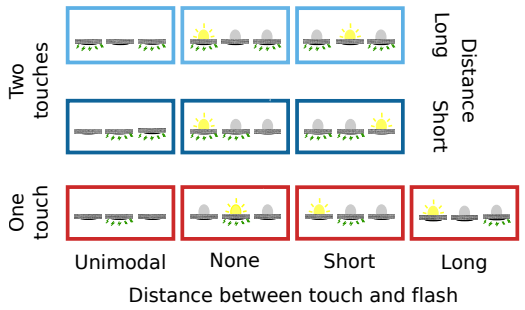
- Tactile numerosity: "Did you feel one touch or two?"
- "Ignore the flash!"

Setup

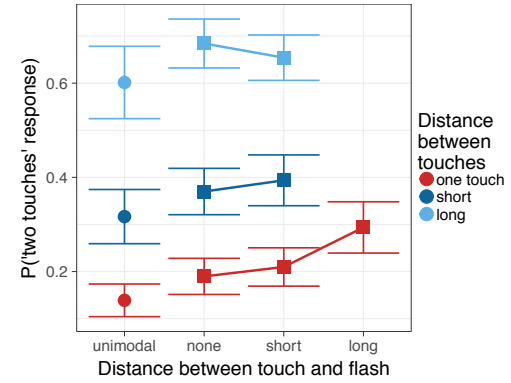


Conditions

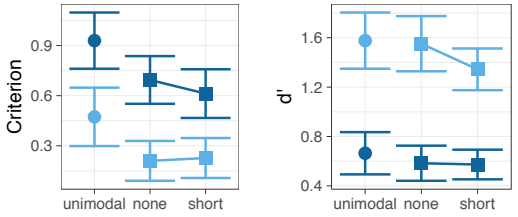
- 50% one tactile stimulus, 50% two tactile stimuli
- 50% task-irrelevant flash, 50% tactile only
- Suprathreshold tactile stimuli (2.5 times tactile detection threshold)



Results



Increased distance of flash from touch → increase in p(two touches perceived), $F(2, 22) = 14.66$, $p < 0.001$, $\eta^2 = 0.083$



Conclusion

Visual-tactile common-cause ambiguity promotes an increased number of illusory touch percepts.

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