



Cognitive Science Colloquium

Winter semester 2023/24

Tuesday 12.15 – 13.15h; HS 09 Neue Aula

| When | What |
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| 19.12.2023 | <p>TALKS BY COGNITIVE SCIENCE PHD STUDENTS (Tübingen)</p> <p>1. How to save cognitive resources by using context and habits Speaker: Maximilian Mittenbühler (Cognitive Modeling)</p> <p>2. Grasping follows Weber`s law Speaker: Kriti Bhatia (Experimental Cognitive Science)</p> |
| | <p>2. Abstract: Kriti Bhatia: Grasping follows Weber`s law Work-group: Experimental Cognitive Science (V. Franz)</p> <p>Weber`s law is considered one of the most fundamental psychophysical principles. Yet, many studies reported that visually-guided grasping, a central and basic human ability, did not follow Weber's law – a surprising exception. We suggest that this conclusion arises from a methodological fallacy, and that grasping indeed follows Weber`s law. The typical version of Weber`s law states that the just-noticeable-difference (JND) in stimulus magnitude increases linearly with stimulus magnitude. However, typical grasping studies used the within-subject standard deviation (SD) of the grasping response instead of the traditionally used JND. We show that using the SD as a proxy to JND is only sensible when the measured response is a perfect, linear function of stimulus magnitude, which is not the case for grasping (the response is slightly bent for large objects). We provide a method to estimate the JND in grasping directly. We apply our method to fresh data, cross-validate our method by re-analysing data from our own previously published study, as well as two high-impact studies on this topic, including the first study to report that grasping did not obey Weber`s law. We find Weber constants consistent with values reported in the literature for visual size estimation. Our conclusion that grasping does follow Weber`s law is coherent with the near-omnipresence of Weber`s law in different perceptual domains. Consequently, certain claims about perception-action dissociations based on absence of Weber`s law in grasping will need to re-assessed.</p> |

Organisation: Bettina Rolke and Volker Franz

Welcome to everybody!