

Activity 2

a. How perceptual load has determined the scope of attention in “eye-witness study shared in class”. Look at the slide 47. You can refer to the paper as well :-)

Ans. In short, the eye-witness study determined that the scope of attention was more constrained, leading to inaccurate testimony, when perceptual load was high. ¹

In the eye-witness study, participants were asked to watch a minute-long video featuring a robbery, with the knowledge that they would be questioned on the details after. The perceptual load was set by changing the number of objects on the scene, with the higher load being a more cluttered environment with multiple posters on the wall. The video comprised a woman entering the office and stealing a number of items, and a man walking by the window and pausing to look in for a few seconds. The participants were asked, among other questions, to identify the thief and the eyewitness, and if the thief was wearing a watch - and they were asked this with a time gap, and the questions could be regular or leading.

The results: with higher perceptual load, identification of the eyewitness and the thief were both lower. With lower load in both tasks, participants averaged around 60% accuracy, but with higher loads accuracy for thief identification dropped to around 50%, and accuracy for witness identification *dropped to around 20%*. This fits the theory that with higher perceptual load, the selection process employed is early-stage - very basic feature processing is used, leading to poorer results. We can determine through this that the attentional scope in this case is low.

b. How the scope of attention determined the accuracy of eye-witness testimony?

Ans. In summary, the study determined that with low-scoped attention, eyewitness testimony can be incredibly inaccurate, especially if leading questions are asked by attorneys.

We have already determined that with higher perceptual load, the scope of attention is low. Moving on to the leading vs regular questions: in both cases of low and high perceptual load (high attention and low attention scopes, respectively), the accuracy drops. But when the perceptual load is high, accuracy drops by 75%, from 80% to 20%. With low load, the drop is minor - from 85% to 75%.

Activity 3

Dual or Multi-task performance - Analysis of time, using different perceptual modalities, motor, and cognition, of Byrne and Anderson (2001) study. You are expected to think and draw similar to time event sharing used an explanation for Schumacher et al. (2001) results.

¹Murphy, G., & Greene, C. (2016). Perceptual Load Affects Eyewitness Accuracy and Susceptibility to Leading Questions. *Frontiers in Psychology*, 7.

Class-work Activity 2 and 3

Ans. In the first study², participants were required to look at three numbers, and if the first and second added up to the third, press a number, and report the product of multiplying the first and the third number. Like with the Schumacher et al. (2001) study³, there are multiple modalities of perception (speech and manual action being unique to each task in this case) but vision and central cognition are shared, with the latter acting as a bottleneck.

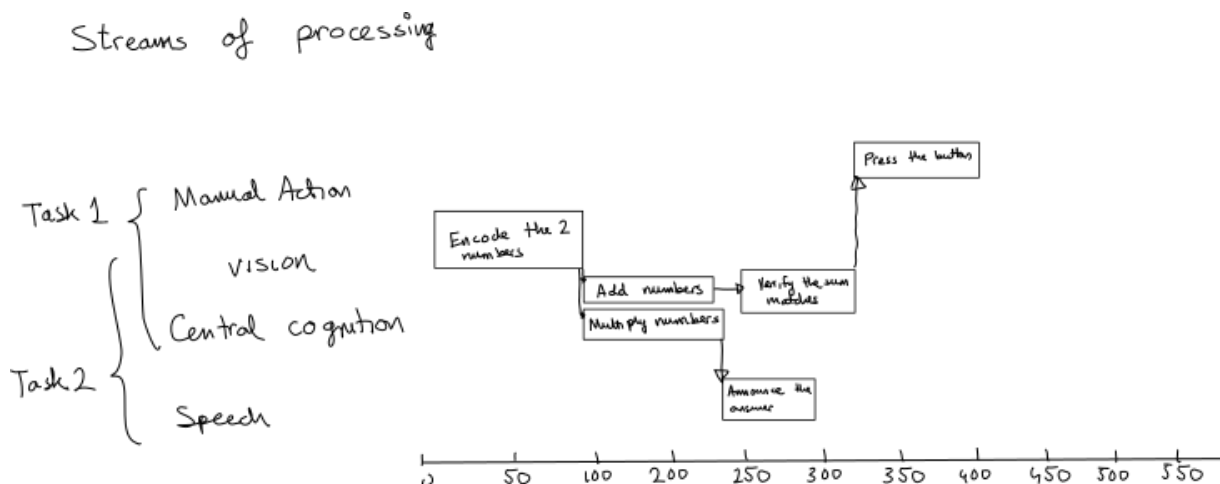


Figure 1: The time-sharing like in Schumacher (2001), showing the cognitive bottleneck

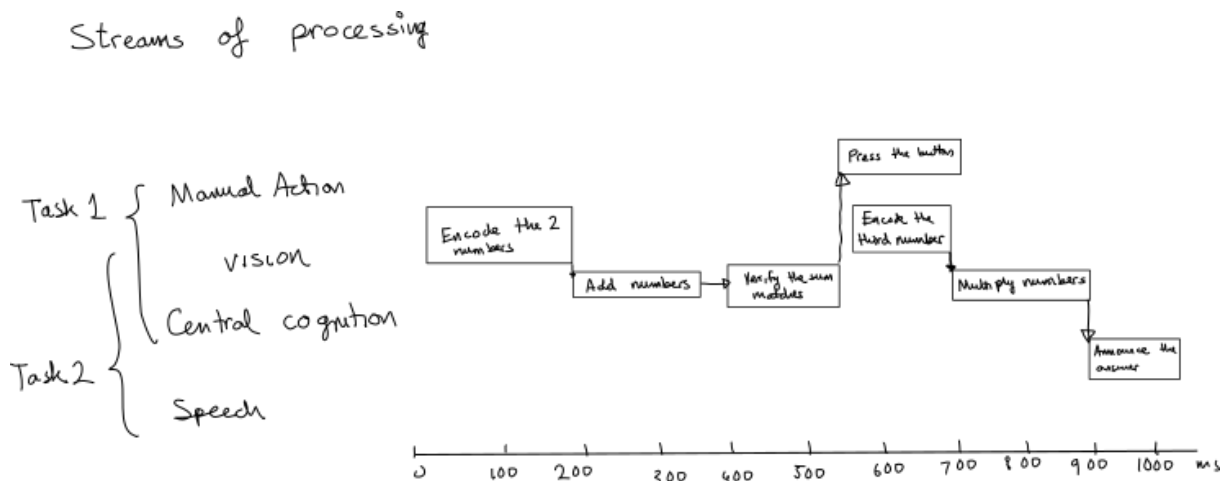


Figure 2: How the process will proceed, due to the bottleneck

²Byrne, M. D., & Anderson, J. R. (2001). Serial modules in parallel: The psychological refractory period and perfect time-sharing. *Psychological Review*, 108(4), 847.

³Schumacher, E. H., Seymour, T. L., Glass, J. M., Fencsik, D. E., Lauber, E. J., Kieras, D. E., & Meyer, D. E. (2001). Virtually perfect time sharing in dual-task performance: Uncorking the central cognitive bottleneck. *Psychological science*, 12(2), 101-108.