School of Intelligence
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Computational Learning & Memory Neuroscience Lab

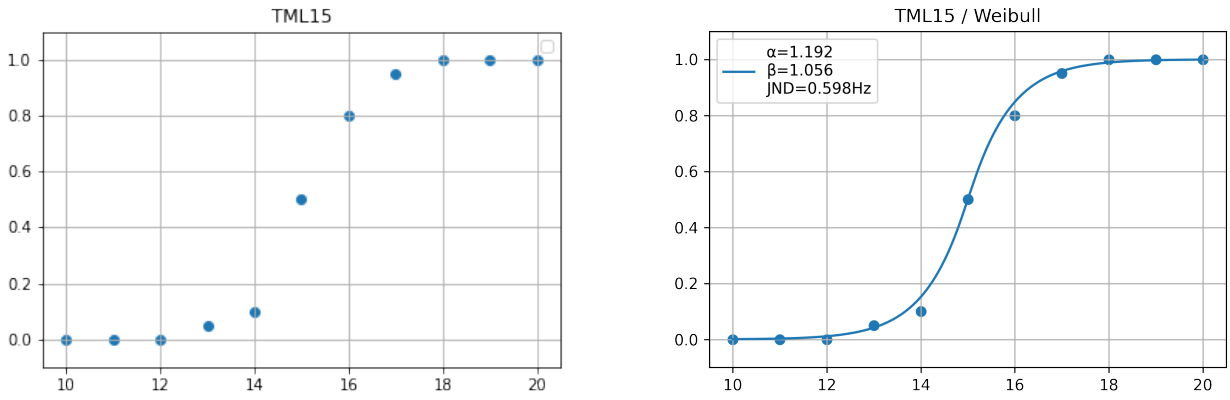
Performance evaluation

Introduction

1. Subjects performed a two-alternative forced-choice frequency discrimination task. They discriminated between the frequency of two vibrotactile stimuli (f_1 and f_2) applied sequentially to the left index finger.
2. Data Storage (Click!)
3. Column Heads
   (a) Trial classifier
   (b) f_1 (Hz)
   (c) A first interstimulus interval(often abbreviated as ISI) time (sec)
   (d) f_2 (Hz)
   (e) A second ISI time
   (f) **Subject's decision.** 'before' means that they chose (b), 'after' means (d), and 'NaN' means that they didn't make a decision.
   (g) **Correctness.** 1 : right, 0 : wrong
   (h) A time taken to make a decision
   (i) A third ISI time

Import a subject's datum through the above link and then try to plot a figure (a) or (b) in any way possible (python, MATLAB, R, etc.)

- The psychometric function (PF) is about relation between human performance (e.g., classification) on a psychophysical task and sensory inputs (e.g., stimulus intensity). In this case, it shows the probability of 'higher' response as a function of the comparison stimulus f.



(a) **(b)**

Figure 1: An example of estimation of the optimum fitting curve. (a) Filled circles are data which are based on 10 trials at each stimulus level. (b) We can easily obtained just noticeable difference (JND) whereas the point of subjective equality (PSE) is 15. Notice, the JND is defined by the difference between thresholds $P = 0.5$ and $P = 0.75$, so JND $= (\frac{1}{\alpha}\log 2)^{1/\beta}$. that is, when the slope α becomes steeper, the JND becomes smaller.