

„Co teď frčí v psychometrice?“

PSYB2590: ZÁKLADY PSYCHOMETRIKY | PŘEDNÁŠKA 13

14. 5. 2024 | PETRA HUBATKA

Někdy kolem roku 1860

Kvalitativní

Kvantitativní

Duše

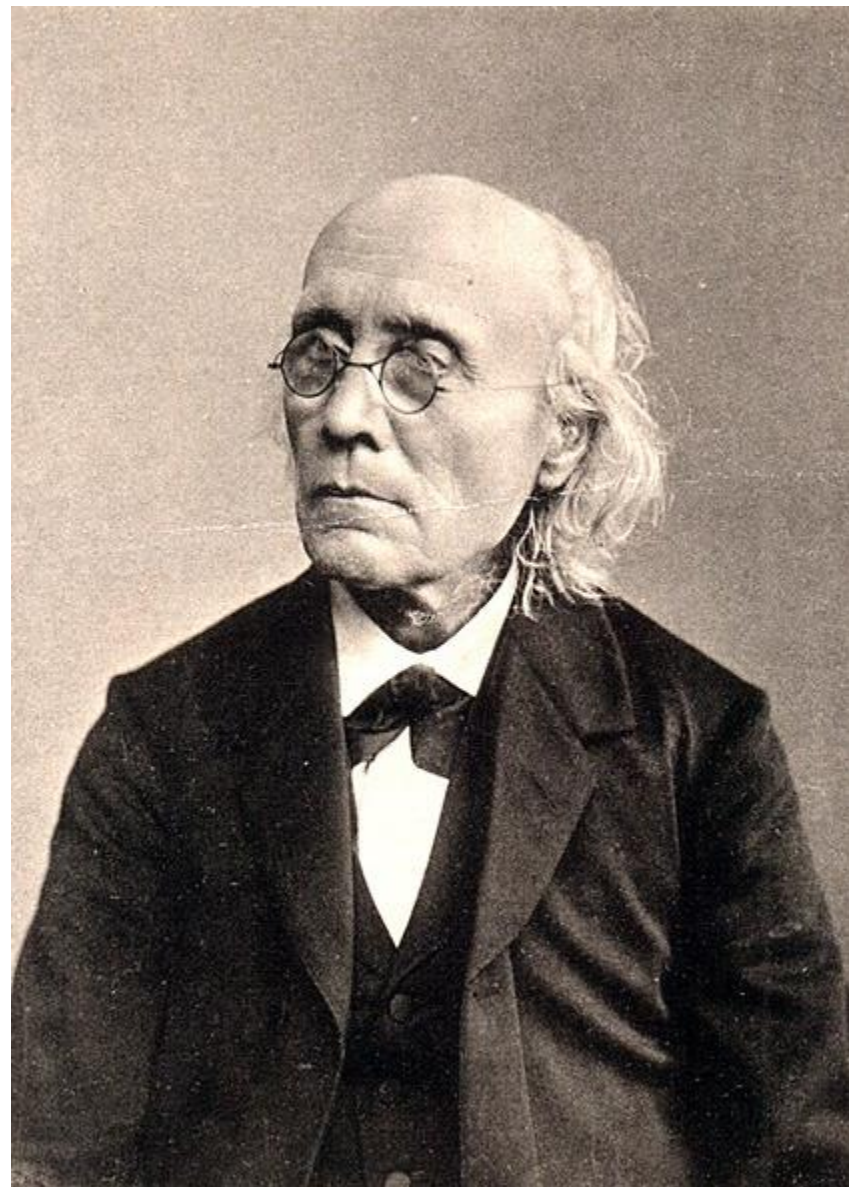
Hmota

To, co zažíváme.

To, co je „skutečné“.

Psychologie

Fyzika



Někdy kolem roku 1860

Kvalitativní  Kvantitativní

Duše

Hmota

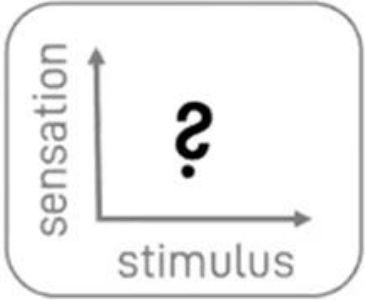
To, co zažíváme.

To, co je „skutečné“.

Psychologie

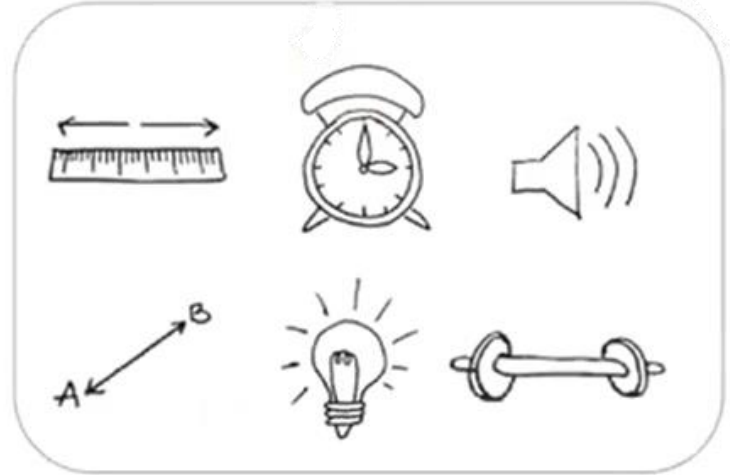
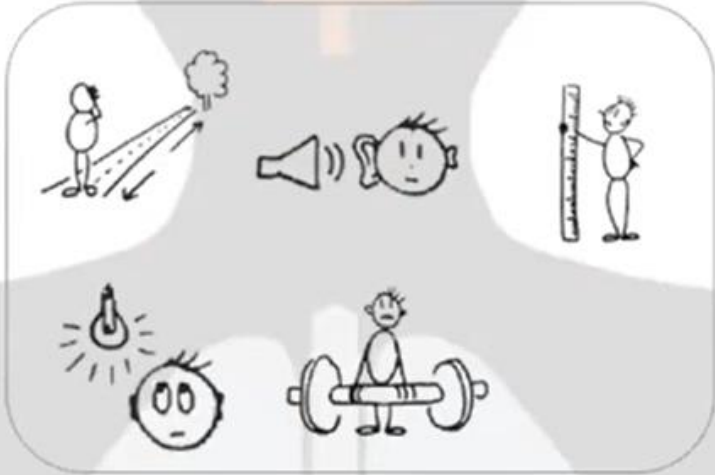
Fyzika

Psychofyzika



sensation
S

stimulus
I



Jaký je vztah mezi
stimulem a vnímáním?

***„...an exact science of
the relations between
body and
soul.”(Fechner, 1860)***

První psychofyzikální zákony

Weber-Fechnerův zákon

- Just-noticeable difference: $\Delta S = k * S$
- $dp = k \frac{dS}{S}$
- $p = k \ln \frac{S}{S_0}$

Stevensonův „power law“

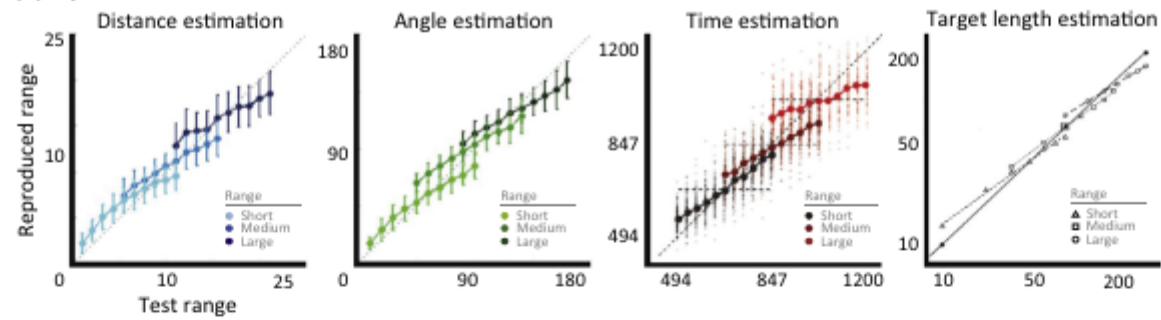
- $\psi(I) = kI^a$

Eee, nejsme náhodou
na přednášce „co *ted'*
frčí v psychometrice?“

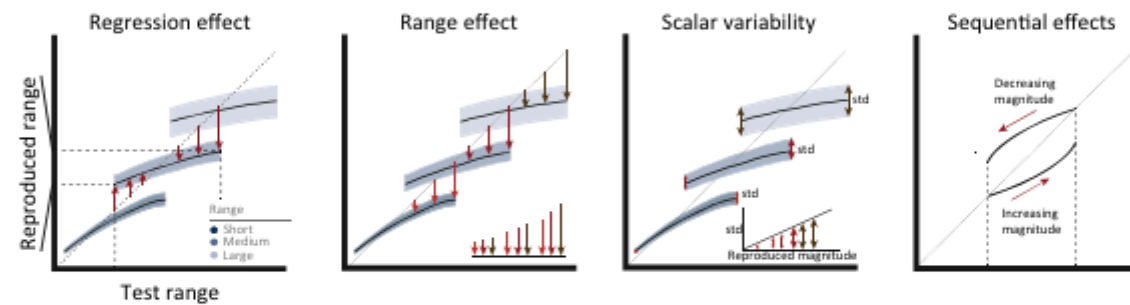
Kritika Fechnera a Stevense

„The strongest criticism of Stevens work came from Poulton, one of his students who found contextual variations in the fitted exponent depending on the range of stimuli tested, the task instructions, and various other components that were not directly related to the sensory system. Poulton argued that a full understanding of magnitude estimation needs to take these characteristics into account. As discussed in this paper, a Bayesian perspective might be capable of doing so.“ (s. 287)

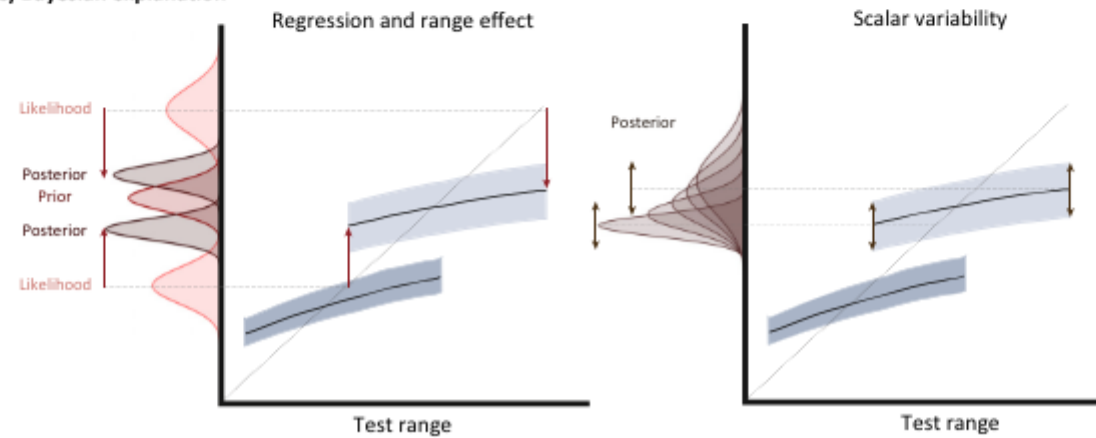
(A) Experimental data

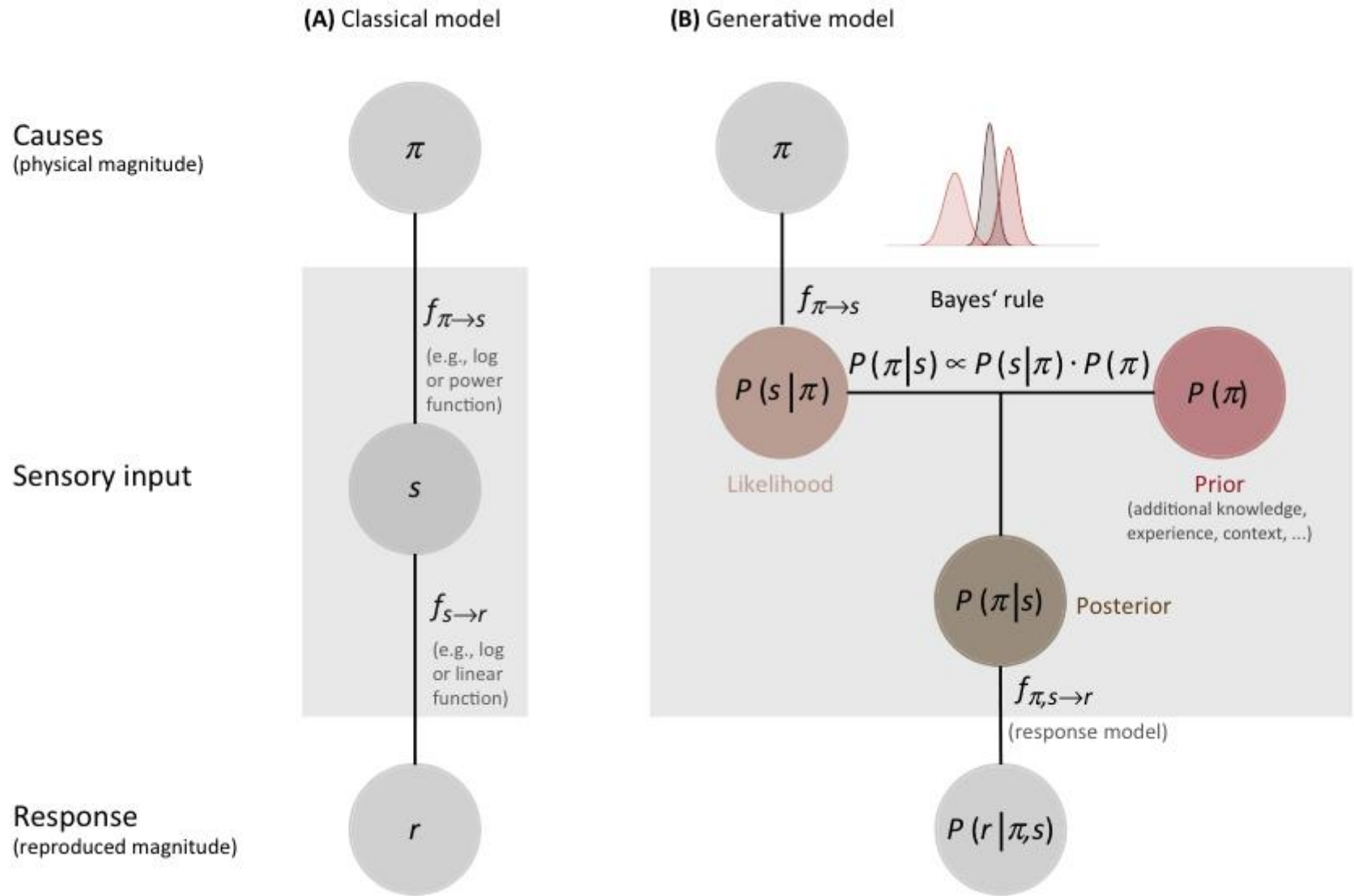


(B) Behavioral effects



(C) Bayesian explanation

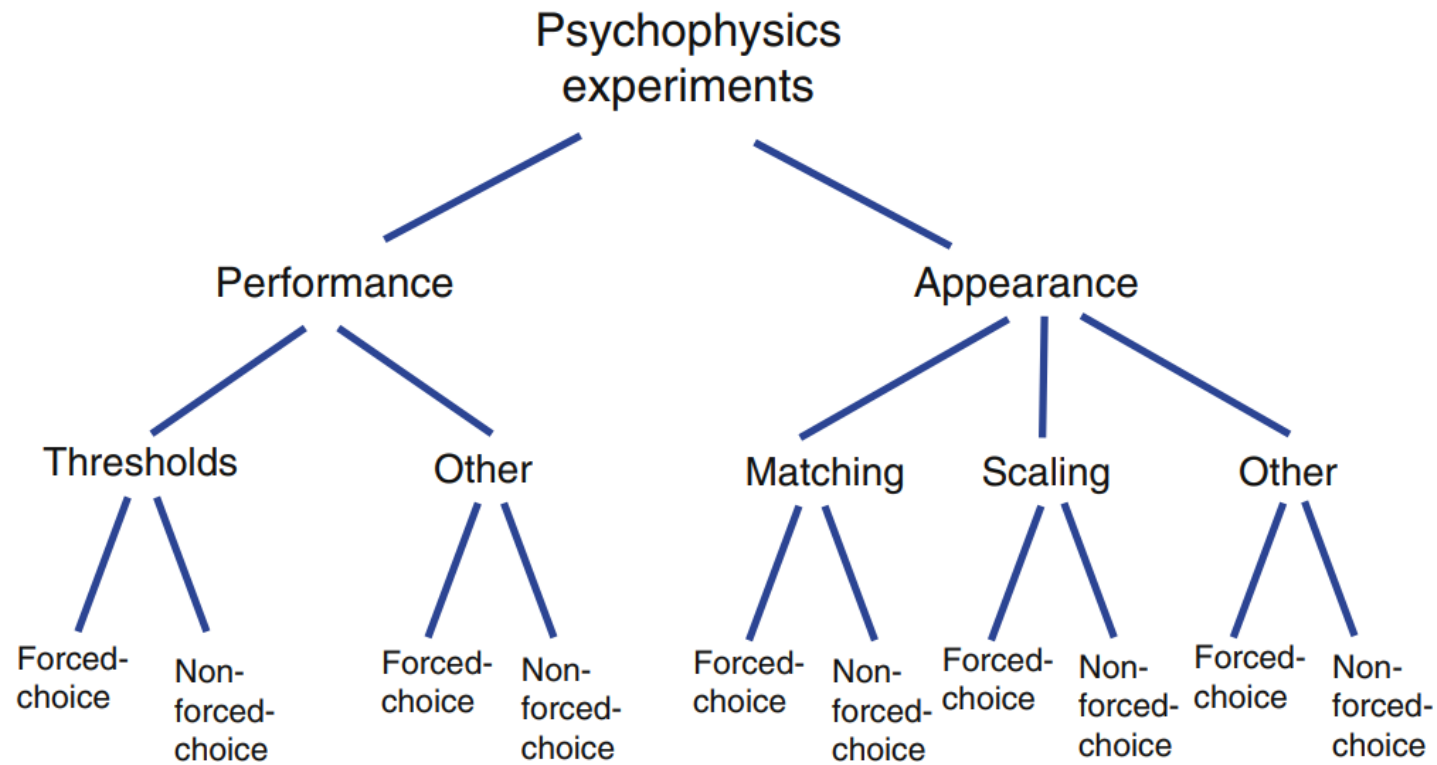




TRENDS in Cognitive Sciences

Psychofyzika jako data
generující proces

Co chceme měřit?

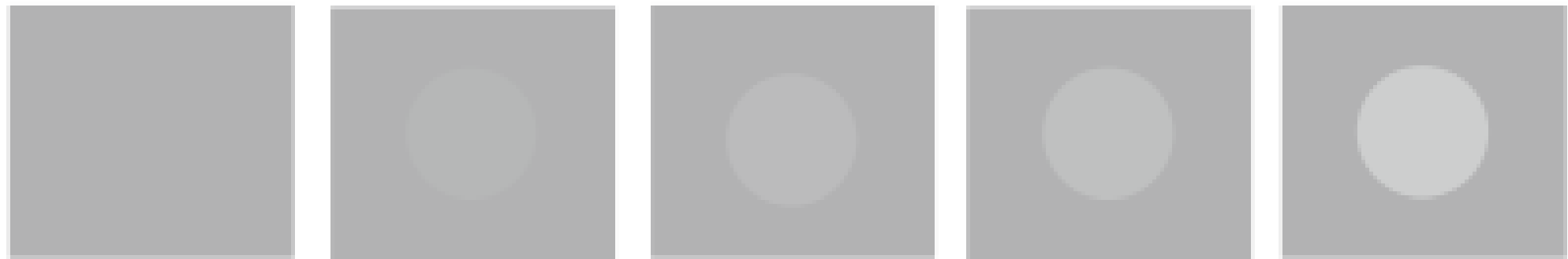


Psychofyzikální experiment

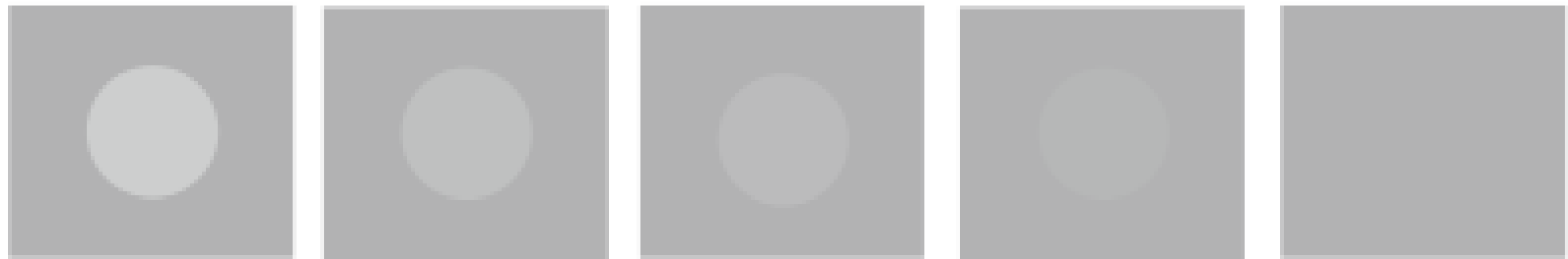
- Stimulus
- Úkol (task)
- Methoda (Method)
- Analýza (Analysis)
- Měření (Measurement)

- *Procedura (procedure)*

Příklad: Stimulus



Příklad: Úkol (*adjustment*)



Příklad: Úkol (*nucená volba*)



JAKE-CLARK.TUMBLR

Příklad: Metoda

Pro úpravu:

- method of adjustment

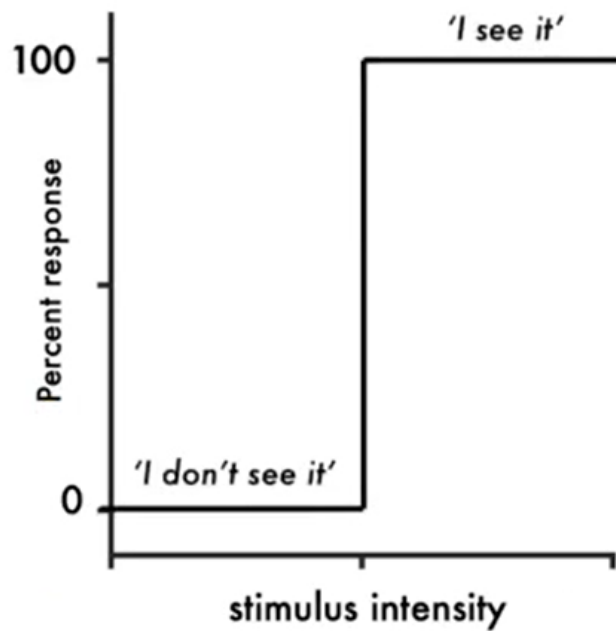
Pro nucenou volbu:

- Method of constant stimuli
- Adaptive (or staircase) procedure

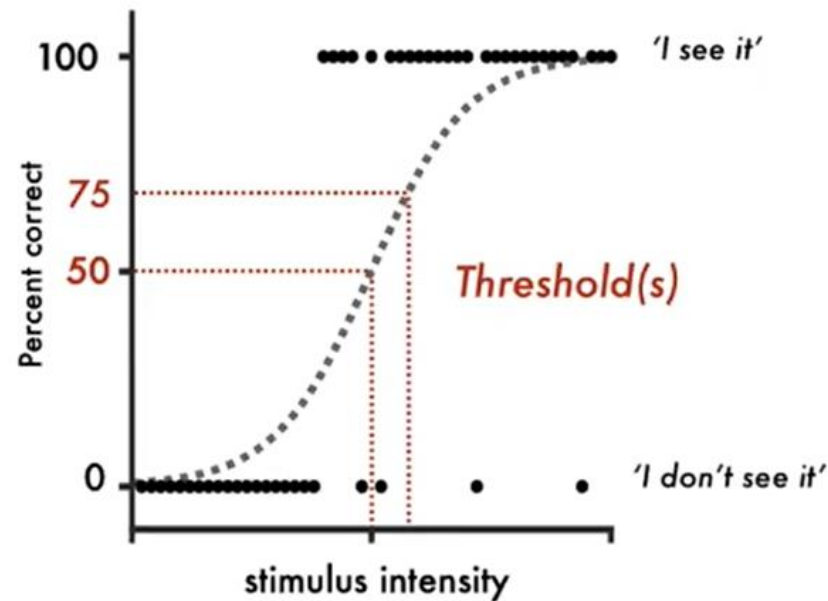
Příklad: Analýza

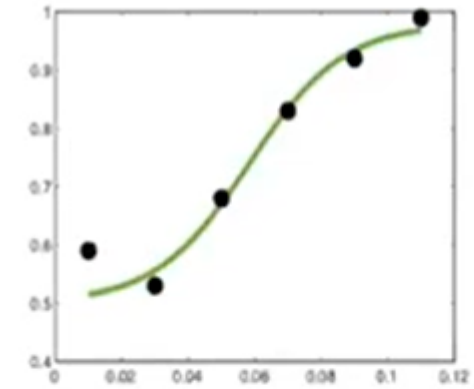
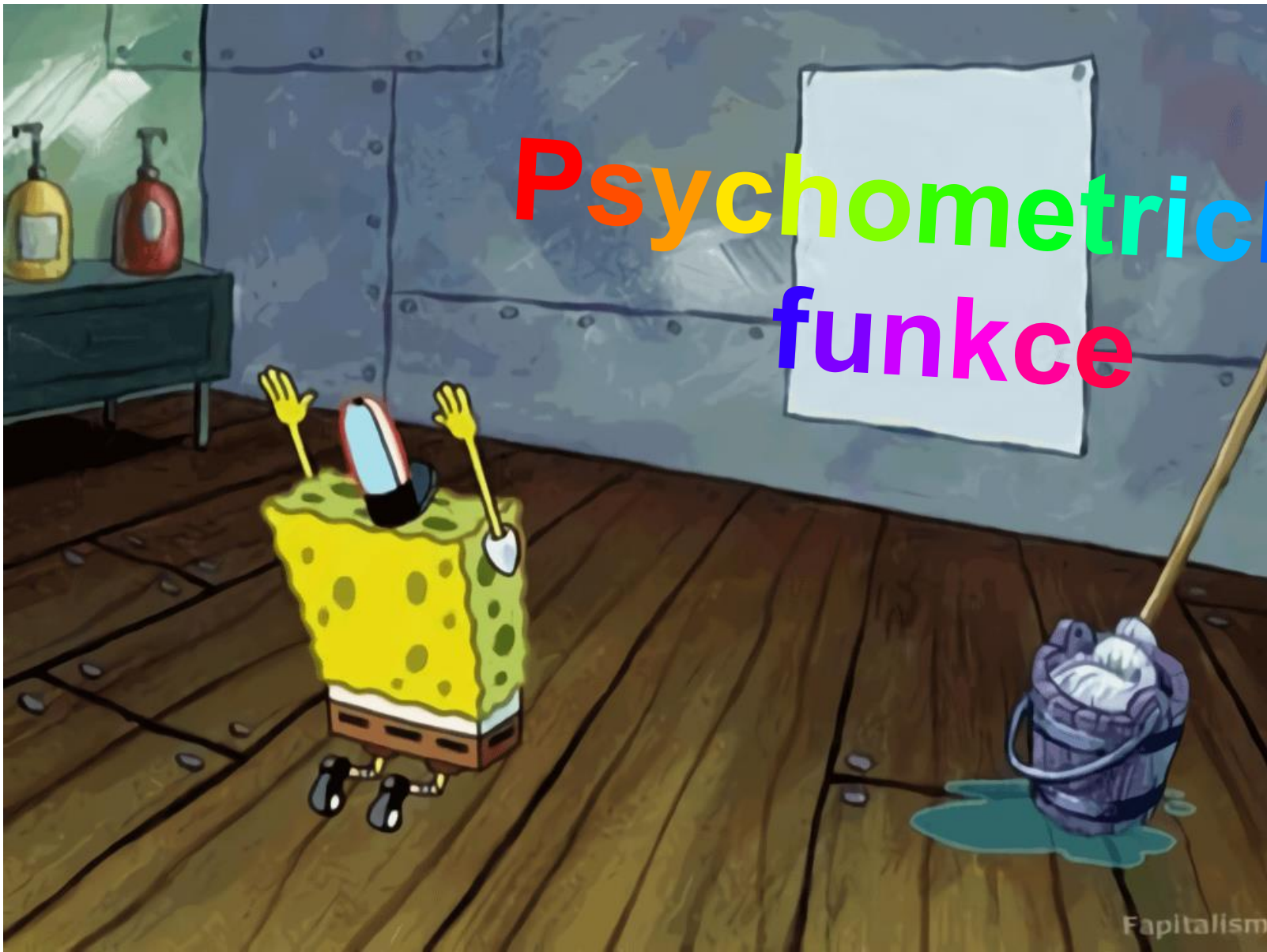
Na vnitrosjektové (within-subject) úrovni

Perfect Threshold



Where is the threshold?

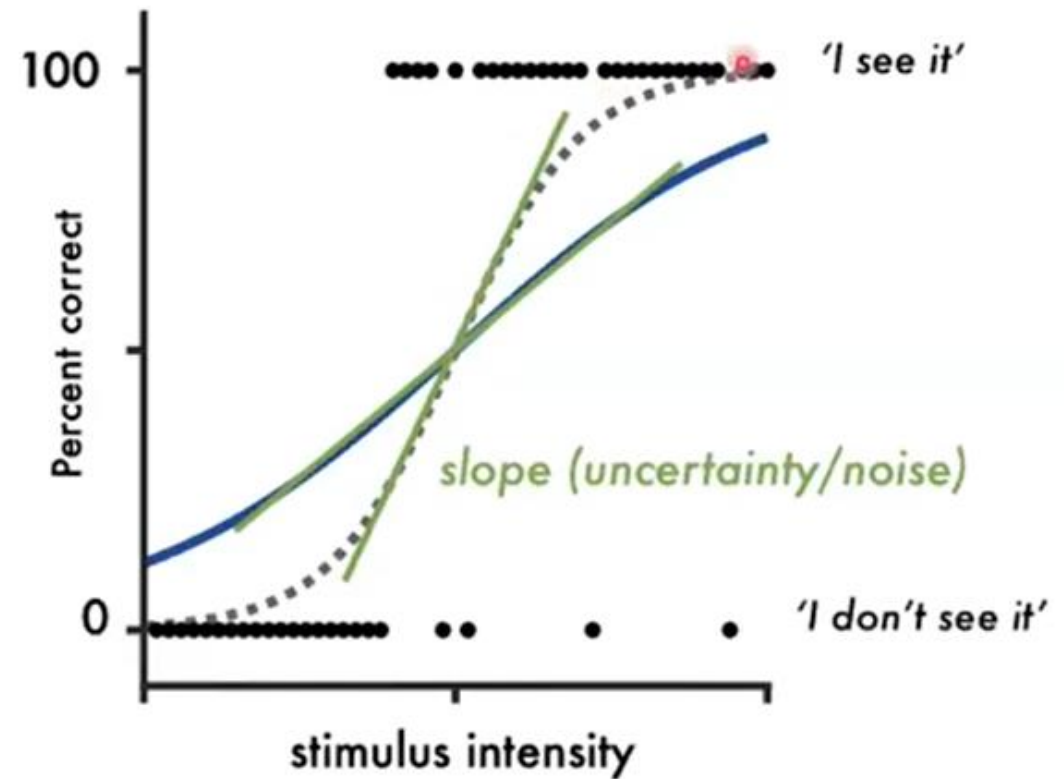
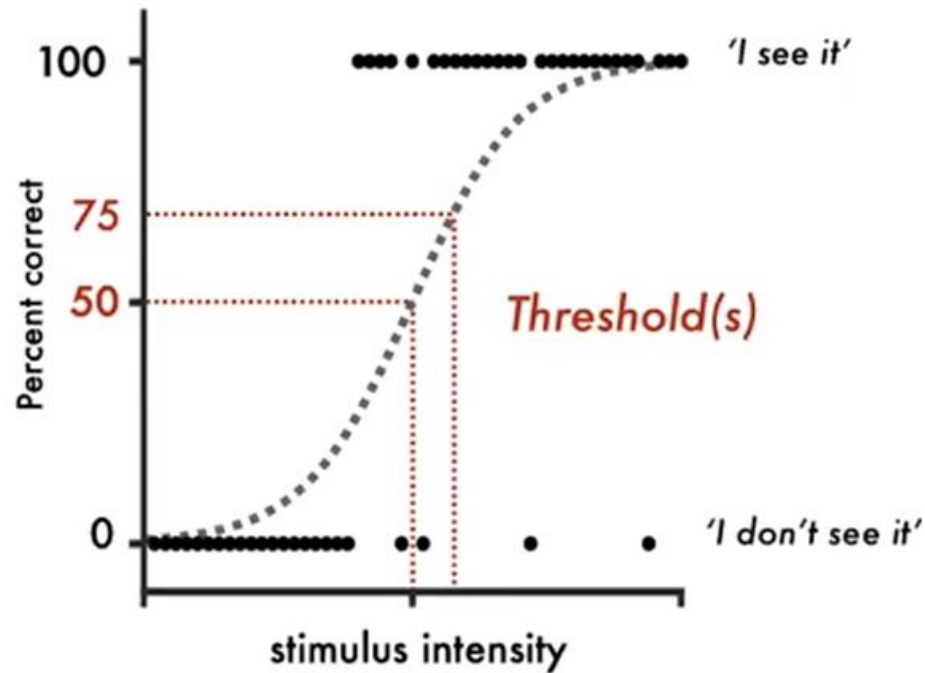




- Cumulative Normal Distribution
- Logistic Function
- Weibull Function
- Cumulative Normal
- Gumble (Log-Weibull)
- Quick
- Hyperbolic Secant
-

Příklad: Měření

Where is the threshold?





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