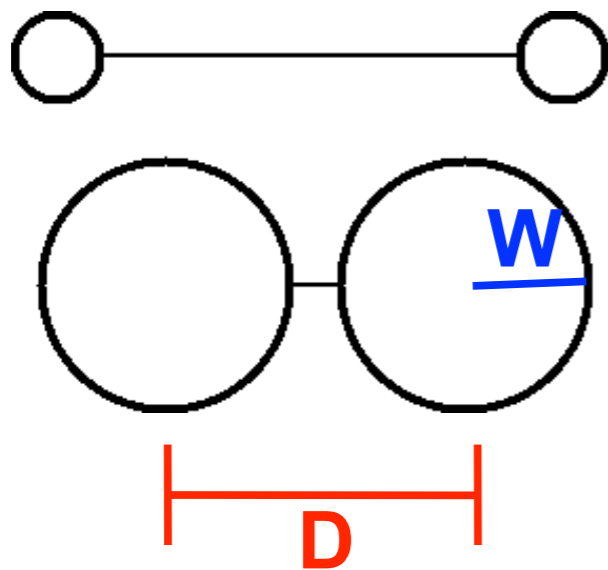# Interactive Session 4:
User Studies

Allison M. Okamura
Stanford University

Fitts' Law

Fitt's Law states that the **time to acquire a target (T)** is a function of the **distance to (D) and size (W) of the target**
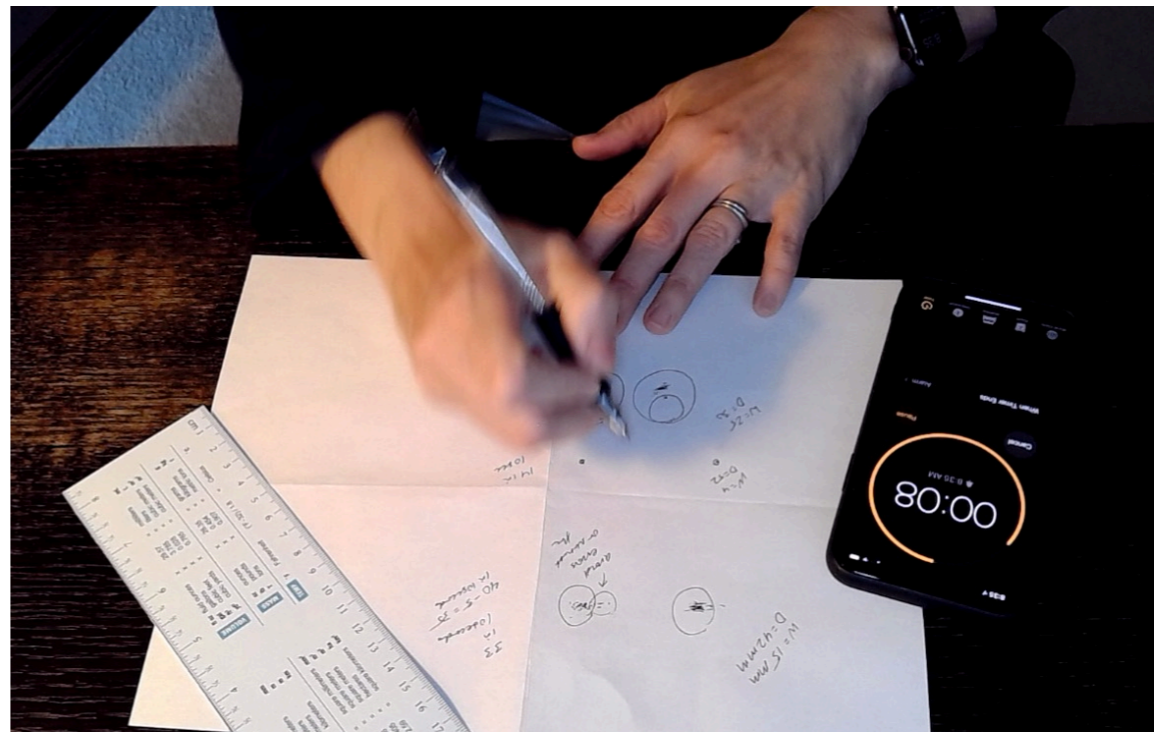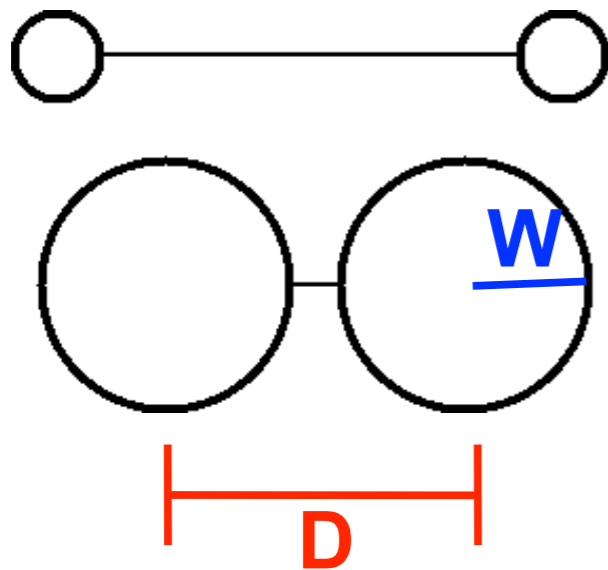
W

D

$$T = a + b \log_2 \left(\frac{D}{W} + 1 \right)$$

index of difficulty

Fitts' Law

Now you try it! Watch my demo first, then measure how many targets you can hit for a given W and D in about 10 seconds.

W

D

Enter your results here:
https://tinyurl.com/Fitts2020

Weber's Fraction

Linear relationship between differential threshold and stimulus intensity

For example: to feel different, 2 heavy weights must differ more than two light weights (WF for this is said to be approximately 1/30)

$$\Delta\varphi = c\varphi$$

$$\frac{\Delta\varphi}{\varphi} = c$$

Gescheider, 1984
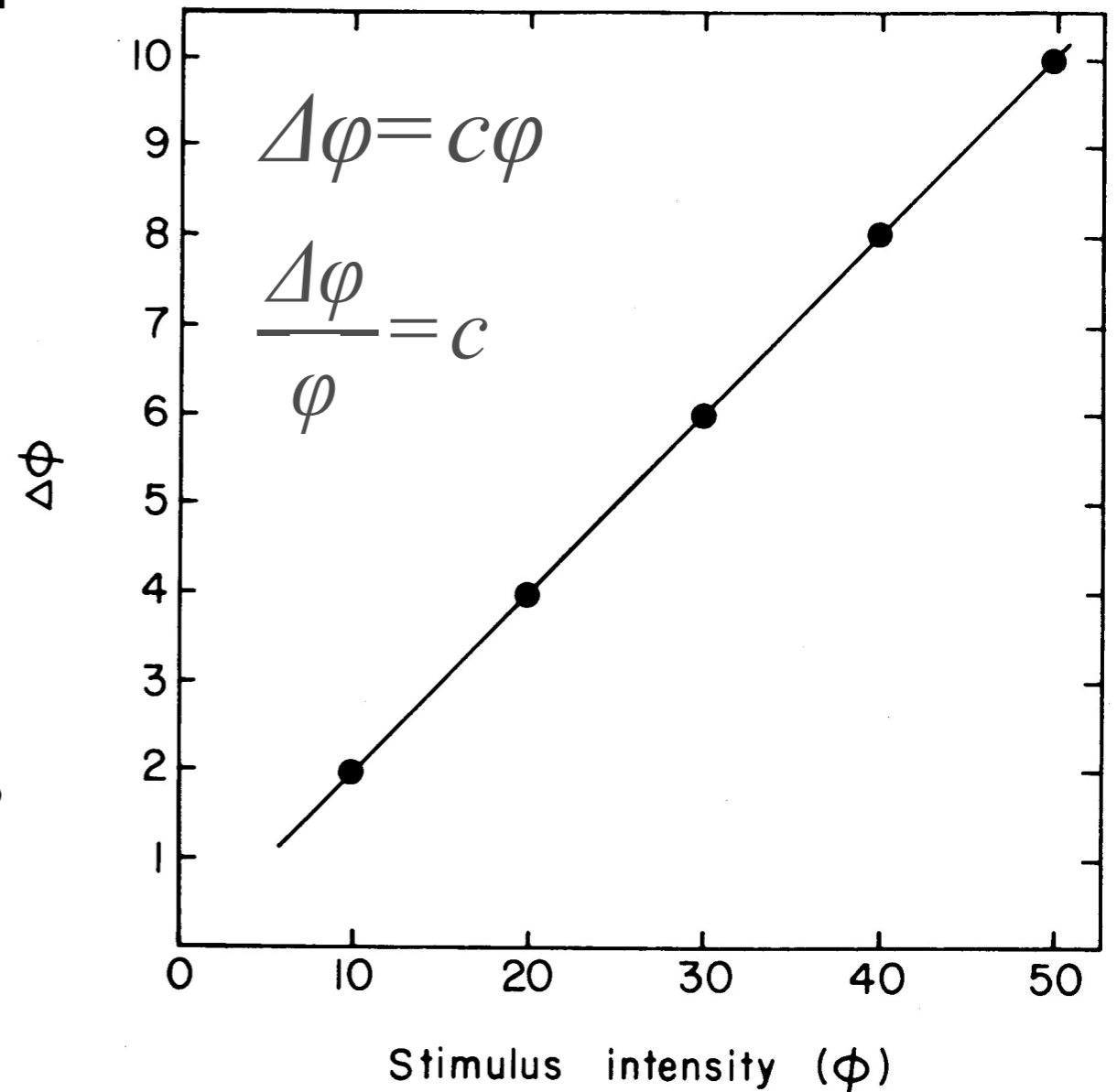
Weber Fraction (WF)

Now you try it! In your breakout group, use coins and come up with methods and collect data to calculate a WF in about 15 minutes.

Enter your results here:

https://tinyurl.com/WFcoins2020

| Weight | 2.27g. | 2.5g. | 5.0g. | 5.67g. | 8.1g. | 11.34g | 22.68g |

Thank you for posting questions to the Canvas discussion board!

I will try to get the prerecorded lectures up earlier.

Look for an assignment to be posted later today.

Office Hours/Q&A with Allison until 10 am.
Question queue (see tab with today's date):
https://tinyurl.com/HapticsAllison