CSE 340
Winter Quarter 2020
2/14/2020

Professor: Dr. Lauren Bricker
Note-taker email: jial8@uw.edu

Week 6 Lecture 3
Motor Control & Mental Models

Notes

Side Note: Midterm and Accessibility Recap

Fitts Law: describes how the distance from start point to the target and the width of the target influence the index of difficulty (ID) of the task

- The closer the buttons and bigger the button touch area, the easier it is to touch them

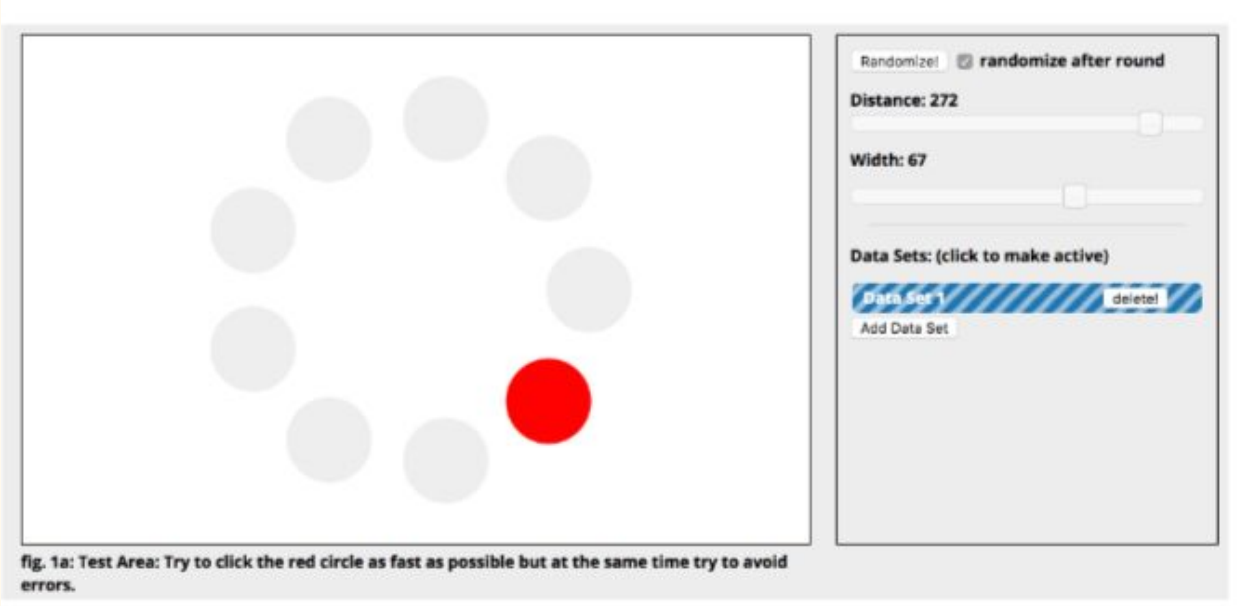


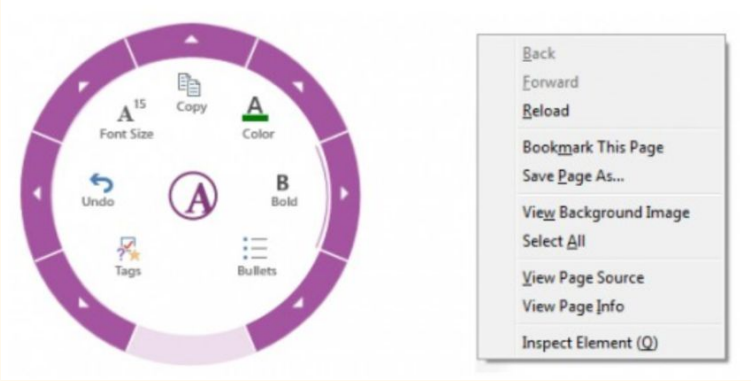
fig. 1a: Test Area: Try to click the red circle as fast as possible but at the same time try to avoid errors.

$$MT = a + b * log_2(\frac{Dist}{Size} + 1)$$

- MT = movement time
- A and b are empirically derived constants
- Warning: *if error is introduced, Fitt's Law does not apply*
- *Maximal size = smaller value inside log, better movement time*

Design Tips

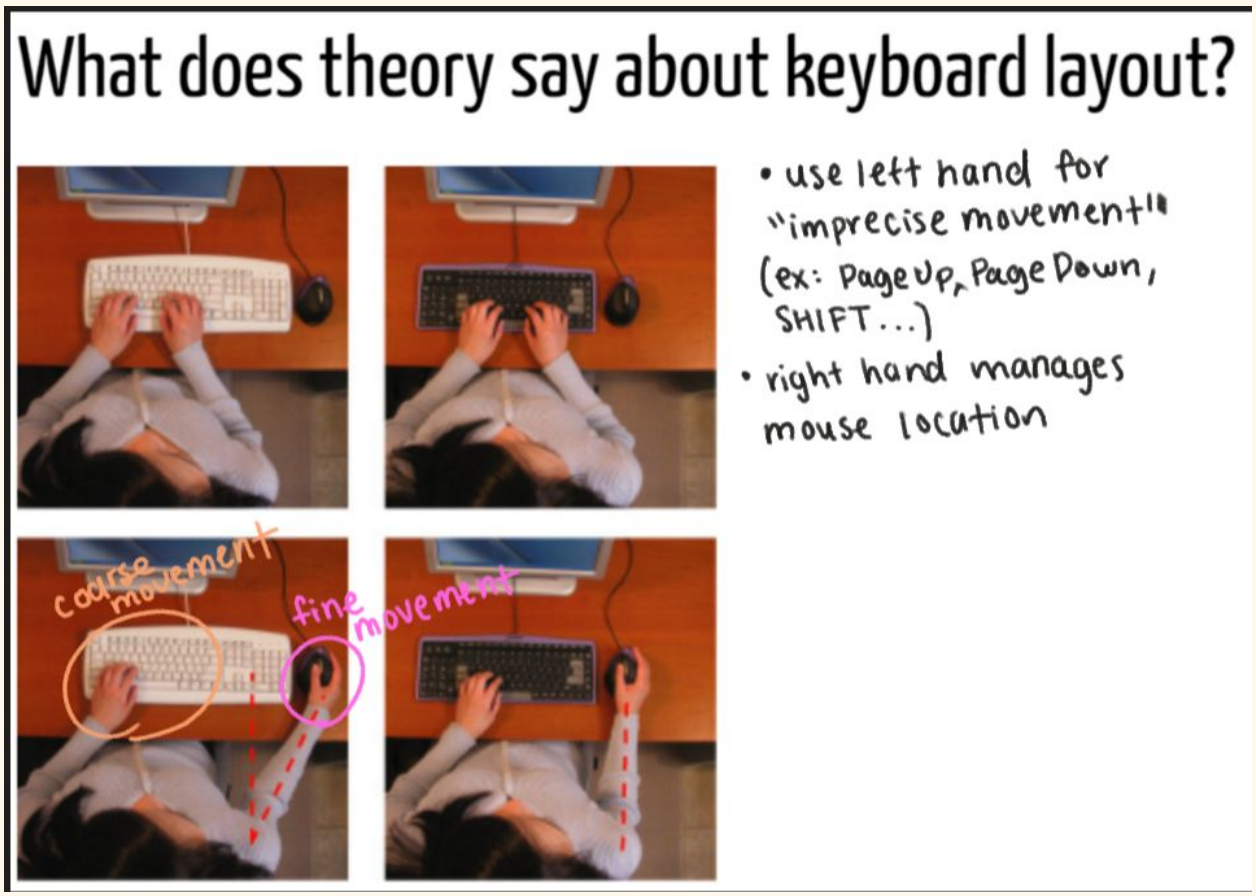
1. *Make small buttons **bigger***
2. *Put commonly used things **close** together*
3. *Make use of **edges***
    a. *Don't have to slow down to hone in on button*
4. *Use **radial** menus (pie menus)*
    a. For expert tasks
    b. Avoid putting too many things in a radial menu.
    c. Left: Radial, Right: Linear
5. *Use **snapping** to minimize distance when likely targets are known*
    a. Ex: PowerPoint image snaps to layout
6. Separate Motor Size from Visible Size
    a. (A) evenly spaced visual space appearance of buttons in a dialogue box
    b. Motor space version of button design in (A) with much larger targets for certain buttons



2-Handed Interaction

Guiard's model of bimanual control:

- Non-preferred hand leads the preferred hand (in time)
    - Performs coarse movements
- Preferred hand follows the non-preferred hand
    - Works within established frame of reference established by non-preferred hand
    - Performs fine/precise movement
- Guiard assumes you are right handed



Lenses

- Structured for 2-handed input
- In-context interaction