Keystroke Level Model

- Definition
  - Predicts average time to do a task for an expert user
- Purpose
  - Analyze method efficiency during the design process
  - Compare two different designs for efficiency of performance
  - Evaluate a product for efficiency
- $T_{execute} = T_{key} + T_{point} + T_{home} + T_{draw} + T_{mental}$

How to Do it

- Write down the method for the task
  - Specify a task with low-level actions
    - key press, mouse pointing action, reach for mouse or keyboard
    - Add mental action at the beginning of a command
  - Add system response time
- Give times for each action and system response
  - key press = .2 sec; mouse point = 1.1 sec; reach = .4 sec
  - mental time = 1.35 sec
- Sum to compute estimated time for the task
Example

• TASK: Replace a 5 letter word with another 5 letter word
• METHOD
  – Mental M[recall command]
  – Home to mouse H[mouse]
  – Point to word P[mouse]
  – Select word 2K[double click mouse]
  – Home to keyboard H[keyboard]
  – Cut command 2K[ctrl + X]
  – Type new word 5K[word]
• $T_{execute} = T_{key} + T_{home} + T_{mouse} + T_{move}$
  $= (9 \times 2) + (1 \times 1.1) + (2 \times 0.4) + (1 \times 1.35) = 5.05$ secs

Caveats

• Cannot predict errors
• Assumes methods are well-learned skill—not learning
• Accuracy within 80% mean +/- 20% mean
  mean = 5.05 secs, range [4.04 to 6.06 secs]