

## **Tutorial: GOMS and KLM Analysis**

1. This task applies analytical methods to real users.

Consider the following simple word processing task in MS Word:

1. Type in "Is this a dagger that I see before me, the handle toward my hand?"
2. Replace "dagger" with "squirrel"
3. Replace "handle" with "bushy tail"
4. Italicize "hand"
5. On a new line, type "Come, let me clutch thee"
6. On a new line, type "I have thee not yet I see thee still."
7. Replace all instances of "thee" with "you"
8. Replace "me" with "my very eyes"
9. Underline "squirrel"
10. Save the document as "tail.doc"

Launch Word and try the task yourself. Consider the following questions:

- In how many ways can this task be done?
- Are some ways more efficient than others?
- How much more efficient?
- In general, how long can we expect users to perform these tasks?

**Step 1:** Build a predictive model of human performance. Try the task on your own, and write down the human procedure you used to perform the task. Use this as a basis for constructing two alternative predictive models of the task: (a) GOMS and (b) KLM. According to the keystroke model, calculate how long it will take somebody to perform the entire task, and each subtask.

**Step 2:** Test them on real users. Get 1-2 of your friends, who are not enrolled in this course, but who are familiar with Word, to go through each of the subtasks. Measure the time that they need. How well does your model predict real human performance? Try to quantify the percent error by calculating:

$$\text{percent error} = (\text{abs}(\text{observed time} - \text{predicted time}) / \text{predicted time}) * 100$$

If you get a percent error of 20 percent or less, that's considered good by HCI standards. Where did your model go wrong?

### 3. GOMS/KLM Analysis of a Real Task.

Open up the Paint application in Windows. Draw a rectangle somewhere on the canvas.

Now assume that you wish to move the rectangle to elsewhere on the canvas. Write down the GOMS/KLM descriptions of how to go about this task. According to the KLM analysis, which method will be faster?