Assumptions: base-line for novice problem identification

1. Some base level commonalty of both subject experience and predictive scope was to be arrived at. Subjects' experience level was assessed by a questionnaire which included both HCI terminology and general hardware/software use. In particular, subjects were asked if they had used Word rather than Word Perfect, and if they had used Excel filtering (Excel use was assumed of this subject group). Subjects in the 'prediction' groups were asked to predict "what could go wrong" when "someone with about the same level of experience as yourself" was doing these tasks "for the first time, and then repeatedly thereafter".

2. Assume Word (or Word Perfect) and Excel familiarity consistent with that of a Psychology undergraduate. Thus subjects were unlikely to have used many keyboard/mouse shortcuts, or to be familiar with style sheets, filtering, etc., but would know more than simple basics. Assume that failure at such items is more likely to be due to forgetting or other lapses than a consequence of learning something new (or a new way of doing something known). As a consequence, assume that failure at other items **is** more likely to be due to failures of knowledge and experience, including incorrectly applied assumptions.

   For example, assume that subjects **do** know that:

   Word

   - have to select object (text) before operation (eg. select text, copy, click on target, paste)
   - will lose current selection of object (text) if click again (outside or on selection) before use (eg copy to clipboard) first
   - can select more than one object (text string) together prior to performing group operations (eg. copy, move, emphasise)

   Excel

   - have to select object (cell(s)) before operation (eg. select cell(s), copy, click on target, paste)
   - will lose current selection of object (cell(s)) if click again (outside or on selection) before use (eg copy to clipboard) first
   - can select more than one object (cell) together prior to performing group operations (eg. copy, move, emphasise)
   - formula entries (eg cell references) need not be in upper case
   - new inputs to cells have to be accepted (click elsewhere, click on √ in formula bar, press return key) before operations on those new cell contents can be initiated: for example, that a copy and paste will not work while the insertion point is still in the cell
   - can auto-select cell ranges from the worksheet when a dialogue box with field inputs is open: for example, full array cell references can be inserted into pre-selected input fields of an ANOVA dialogue box without need for typing
   - can move dialogue boxes out of the way while looking at sheet contents underneath

   But assume that subjects **do not** know that (eg):

   Word

   - can use drag and drop to move text
   - common keyboard shortcuts, eg Command+B for bold
   - shift-select to select multiple (contiguous) objects (text)

- double-click to select words
- command-click to select sentences

Excel

- can use drag and drop to move cells
- keyboard shortcuts, eg Control+B for bold
- shift-select to select multiple (contiguous) objects (cells)
- command-select to select further (non-contiguous) objects (cells)
- double-click to go into insertion (cell contents edit) mode
- double-click again to select word within cell contents
- auto-selection of complete cell ranges (into dialogue boxes fields) requires that input fields be fully selected, rather than just having the insertion point (cursor) in the field (when ranges are appended to those already in front of the cursor)
- why Excel uses absolute cell and sheet reference ('sheet' and $s in cell ranges) during auto-selection (and precisely how absolute reference works)

3. Ignore (discount or take what is predicted as questionable) comments (**other** than those deliberately primed by prior tasks) which may be artefacts of the experiment. For example,
   - Excel file will not close (move to next task) while in insertion mode (eg. cell input not accepted)
   - attempts to double-click on objects (words, cells) after having been shown this by the experimenter following earlier tasks
   - attempts to move Excel cells when not part of the current task (having learnt drag and drop in a previous task)
   - predictions/explanations that "... would not know how to do ...", or "... is hard to do ...", when not knowing how to do it was assumed as part of the task !
   - in task 7 (Excel filtering), comments about the (experimenter's) instructions (text box), or (eg) "would not have done it without the instructions"

4. Include predictions that are wrong (for example: Excel bold/unbold toggles separately each of all cells selected; exact sources of Excel filtering errors), thus making them part of the false positives for that task.

5. Ignore (ie. record but do not count as predictions) observed difficulties/problems which 'prediction' subjects experienced but did not themselves comment upon (ie. did not address as predictions). (There were a surprisingly large number of these!).

6. Discount (record as "no single [observable consequence]") predictions which cannot be matched to **specific** observed events (for example, "would not/cannot understand the error box terminology", or "dialogue box labels not meaningful"), unless these can be directly related to an observed comment such as "cannot understand error box terminology". (Question 'prediction' subjects as to the likely consequences of such difficulties).