What conclusions do you draw about whether we do or do not use context when accessing the meanings of words?

With other subjects, the priming task was repeated a short time after the ambiguous word bug. Here, subjects recognised the target word faster than normal when it was associated with the appropriate sense (here ANT), but not when it was associated with the incorrect sense (SPY). This effect seems to begin about 200 milliseconds (a fifth of a second) after an ambiguous word has been heard.

What conclusions do you think the experimenters reached?

**Top-down lexical processes**

Read the words below. Do you notice anything about them?

![Figure B6.3 Top-down processing](Source: Rumelhardt and McClelland (1986: 8))
What conclusions do you draw about whether we do or do not use context when accessing the meanings of words?

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What conclusions do you think the experimenters reached?

**Top-down lexical processes**

Read the words below. Do you notice anything about them?

![Image of words: TAE CAT, RED, SROT, FISH, DEBT](image)

*Figure B6.3 Top-down processing*

*Source: Rumelhart and McClelland (1986: 8)*
anticipating material that is about to come. When writing a particular word, we already have the next few words stored in our minds, ready for production. We will look more closely at this process in Section C7.

Motor processes
Studies of typing patterns offer insights into the last (motor) stage of the writing process. Average typing speed is 7 to 8 strokes per second. The way in which the typist processes linguistic information is shown by the length and regularity of the intervals between these finger strokes. The following findings appear to be important:

- In terms of rhythm, the unit of typing seems to be the word rather than the phrase or sentence.
- Intervals between strokes are greatest at the beginnings and ends of words.
- Intervals between strokes are longer for letter strings which occur infrequently.
- Syllable boundaries appear to have some effect; the frequent sequence -th- is typed faster in pathetic than in pathede.
- Performance declines with nonsensical letter strings, but not with non-words that bear a resemblance to existing ones.

This may tell us something more about the way in which words are retrieved from the brain, or it may simply tell us something about the typing process itself. Typing is clearly an activity that demands a great deal of conscious control at the outset, but that gradually becomes proceduralised into a set of automatic keystroke sequences—particularly for very frequent words such as the. It may be that the keystrokes made by a typist are stored as an independent set of procedures (accounting for faster performance with more frequent letter sequences). Or it may be that they are linked to a visual representation of each word, or indeed to a phonological representation.

EYE MOVEMENTS IN READING

Activity

Here are some assumptions that are sometimes made about reading as a process—especially in the 'speed reading' literature. Do you agree or disagree with them?

- Efficient readers do not need to read all the words in a text. They predict many words from the context in which they appear.
- Efficient readers make large sweeps with their eyes as they read along lines of text.
- Words can be identified by their overall shapes. So longer words often take the same time to read as shorter ones.
- A slow reader is one whose eyes do not move fast enough from left to right. Increases in reading speed can be achieved without loss of comprehension.

in the text. A saccade typically lasts from 20–30 milliseconds while a fixation can last from 150 to 500 msec and sometimes longer. At the end of a line, the reader makes a return sweep on to the following line.

Experiments have learnt a great deal about lower level reading processes thanks to equipment which enables us to track the movement of the reader's eyes across the page. By comparing the eye movements of skilled and less skilled readers, we can get a clearer idea of what makes for efficient reading. We can also get an idea of what aspects of a text cause processing problems.

Figure B8.1 above is based upon eye movement data published (1989) by reading researchers Keith Rayner and Alexander Pollatsek of the University of Massachusetts. The dots above the text mark the fixation points and the figures show how long in milliseconds each fixation lasted. The saccades move in a left-to-right direction except where an arrowhead indicates a regression (with fixations shown on a higher line).

Study the figure to find out:
1. How many fixations are there on average per line?
2. Where do they fall in relation to the words?
3. How many letters on average does a saccade move across?

<table>
<thead>
<tr>
<th>286 221</th>
<th>256 233 277</th>
<th>266 236 188</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 177 196</td>
<td>302 11717</td>
<td>199</td>
</tr>
</tbody>
</table>

Roadside joggers endure sweat, pain and angry drivers in the name of fitness. A healthy body may seem reward enough for most people. However, for all those who question the payoff, some recent research on physical activity and creativity has provided some surprisingly good news. Regular activity and creativity has provided some surprisingly good news. Regular

| 312 26027 188350 | 215 221 266 277 19120 219 |

bouts of aerobic exercise may also help spark a brainstorm of creative thinking.
MATERIAL FOR ACTIVITIES

SECTION A8

CIRCLE

rectangle

SQUARE

star

triangle

oval

arrow