

Getting your message across

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Far from processing every word we read or hear, our brains often do not even notice key words that can change the whole meaning of a sentence, according to new research from the Economic and Social Research Council (ESRC).

After a [plane crash](#), where should the survivors be buried?

If you are considering where the most appropriate burial place should be, you are not alone. Scientists have found that around half the people asked this question, answer it as if they were being asked about the victims not the [survivors](#).

Similarly, when asked "Can a man marry his widow's sister?" most people answer "yes" - effectively answering that it would indeed be possible for a dead man to marry his bereaved wife's sister.

What makes researchers particularly interested in people's failure to notice words that actually don't make sense, so called semantic illusions, is that these illusions challenge traditional models of [language processing](#) which assume that we build understanding of a sentence by deeply analysing the meaning of each word in turn.

Instead semantic illusions provide a strong line of evidence that the way we process language is often shallow and incomplete.

Professor Leuthold at University of Glasgow led a study using electroencephalography ([EEG](#)) to explore what is happening in our

brains when we process [sentences](#) containing semantic illusions.

By analysing the patterns of [brain activity](#) when [volunteers](#) read or listened to sentences containing hard-to-detect semantic [anomalies](#) - words that fit the general context even though they do not actually make sense - the researchers found that when a volunteer was tricked by the semantic [illusion](#), their brain had not even noticed the anomalous word.

Analyses of brain activity also revealed that we are more likely to use this type of shallow processing under conditions of higher cognitive load - that is, when the task we are faced with is more difficult or when we are dealing with more than one task at a time.

The research findings not only provide a better understanding of the processes involved in language comprehension but, according to Professor Leuthold, knowing what is happening in the [brain](#) when mistakes occur can help us to avoid the pitfalls, such as missing critical information in textbooks or legal documents, and communicate more effectively.

There are a number of tricks we can use to make sure we get the correct message across: "We know that we process a word more deeply if it is emphasised in some way. So, for example in a news story, a newsreader can stress important words that may otherwise be missed and these words can be italicised to make sure we notice them when reading," said Professor Leuthold.

The way we construct sentences can also help reduce misunderstandings, he explained: "It's a good idea to put important information first because we are more likely to miss unusual words when they are near the end of a sentence. Also, we often use an active sentence construction such as 'Bob ate the apple' because we make far more mistakes answering questions about a sentence with a passive construction - for example

'The apple was eaten by Bob'."

The study findings also suggest that we should avoid multi-tasking when we are reading or listening to an important message: "For example, talking to someone on the phone while driving on a busy motorway or in town, or doing some homework while listening to the news might lead to more shallow processing," said Professor Leuthold.

Provided by Economic & Social Research Council

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