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UNIVERSITY**

Language Sciences Research Lab



TRICK SENTENCES

1-Line Summary

When we listen or read sentences, we don't always pay close attention.

Background:

When people are figuring the meanings of sentences, we analyze them from two directions. From the bottom-up, we pay attention to the specific sounds and words we're hearing. From the top-down, we use our existing knowledge to create expectations and fill in information. Top-down processes often help us figure things out very quickly, but sometimes they can trick us. In these trick sentences, there is a mis-match between two pieces of information, but most people don't notice it. The trick works like an illusion – people often don't notice the problem with them until it is pointed out to them.

Readings

Introductory

Park, H. & Reder, L.M. (2004). Moses illusion: Implication for human cognition. In Pohl, R.F. (Ed). *Cognitive Illusions*. Hove: Psychology Press, 275-291.

Advanced

Sanford, A. J., & Graesser, A. C. (2006). Shallow processing an underspecification. *Discourse Processes*, 42(2), 99-108.

Ferreira, F., and Patson, N. D. (2007). The 'Good Enough' approach to language comprehension. *Language and Linguistics Compass*, 1, 71-83.

Materials:

The trick sentences are listed at the end. It is helpful to have each one printed out on it's own sheet of paper so that people can read it during the interaction.

The Interaction:

The pitch – Want to hear some trick sentences?

Using the materials – Show people one page at a time and let them read the sentence. Each sentence is a question, so after people read it, they can answer it (encourage them to do so if needed). Most of the time, people will get the question WRONG – especially for the first sentence when they aren't wise to the trick. Ask them if they're sure and encourage them to reconsider their answer. If they don't figure the trick out on their own, go ahead and tell them the answer. If they do figure it out, tell them they're right. Keep going through as many sentences as they want to do.



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Messages:

Critical take home: We don't always pay close attention when we're listening to sentences or when we're reading. That helps us understand things very quickly, but sometimes it can cause problems.

But wait, there's more: Not all sentences are equally tricky! Why do these cause particular problems? It has to do with the information that's in them. Notice that the wrong piece of information is always semantically related to the right one, and also notice that the question is about highly familiar information. The fact that we are very familiar with the context encourages us to use our background knowledge (the top-down approach) and the fact that the wrong information isn't too far from the right information means the problem doesn't leap out at us.

And still more: Top-down approaches are great for being FAST! We process language as we listen to it and we're always making guesses about what's going to come next. In fact, you start making guesses as soon as you hear the first sound of a word. We understand things so quickly that we're usually not even aware of how much thinking actually goes into figuring out what a sentence means.

Top-down approaches are also great for dealing with information in a noisy environment. For example, it helps us see-through misspellings, even when they are quite extensive! See for yourself in the attached sheet (and read about the phenomenon here: Rayner, K., White, S. J., Johnson, R. L., & Liversedge, S. P. (2006). Reading Words With Jumbled Letters There Is a Cost. *Psychological science*, 17(3), 192-193.)

And one more thing: You can get top-down illusions like this in other contexts as well! A famous one from the visual domain is the Müller-Lyer illusion (see attached sheet). In that illusion, people perceive the lines as being of different lengths, even though they are the same. Notice that it doesn't matter if you KNOW the lines are the same, you will still perceive them differently – we sometimes can't help using our top-down strategies.

Target Audience:

This works best with kids at least 7 years old or so – you need to have people who know the answers to the questions well enough that they feel like the sentence tricked them and not like they just didn't know the answer!



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Tips From the Field:

- People usually figure out the trick after the first item, and that will help them figure out how to approach the remaining questions. That's just fine – what's key is that they appreciate the trick nature of the sentences.
- Sometimes people don't know the fact involved, and then there is no trick – they really just don't know. This happens more often with younger children. Be nice about it and be clear that some of the information requires more schooling.
- The last question (the widow one) actually works a little bit differently but it tends to work quite well. People have a hard time just untangling the relationships in that one!

Acknowledgments:

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Trick Sentences

How many animals of each kind did Moses take on the Ark?

Wrong Answer: Two

Trick: It was NOAH who built the ark.

What kind of tree did Lincoln chop down?

Wrong Answer: Cherry

Trick: It was WASHINGTON who famously chopped down a tree.

What did Goldilocks eat at the three little pigs' house?

Wrong Answer: Porridge

Trick: She ate/sat/slept at the THREE BEARS' house

What is the name of the shape whose circumference is pi-r-squared?

Wrong Answer: A Circle

Trick: That's the formula for the AREA of a circle. The circumference is 2-pi-r

What phrase followed "To be or not to be" in Macbeth's famous soliloquy?

Wrong answer: That is the question

Trick: Those are HAMLET's lines

When did the Germans attack Pearl Harbor?

Wrong answer: December 7, 1941

Trick: It was the Japanese who attacked Pearl Harbor.

A plane crashed on the border between the US and Mexico. Where were the survivors buried?

Wrong answer: Anywhere

Trick: You don't bury survivors!

Can a man marry his widow's sister?

Wrong answer: Yes

Trick: If a man has a widow, then he's dead. He's not marrying anybody.



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According to a research at Cambridge University, it doesn't matter in what order the letters in a word are, the only important thing is that the first and last letters be at the right place. The rest can be a total mess and you can still read it without problem. This is because the human mind does not read every letter by itself, but the word as a whole.



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