

DOES DECIDING WHAT TO SAY INVOLVE DECIDING HOW TO SAY IT?

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To answer a question, speakers must first construct a pre-linguistic message by referring to their declarative knowledge of the world [1]. Research suggests that retrieval is harder when more concepts are activated [2, 3] – the so-called fan effect. For example, participants find it harder to recognise a fact such as *The hippie is in the park* if they have also studied the fact *The hippie is in the church* compared to when no other facts share concepts with *hippie*. The fan effect is thought to occur because retrieval involves serially searching through a number of concepts in memory, looking for the target. When more concepts are activated, search takes longer. The fan effect thus suggests that ease of speaking will be affected by ease of searching memory for a particular concept. But what happens when there is more than one plausible answer for a question? For example, a speaker answering the question *What is your favourite novel?* has to choose among many plausible answers. When do speakers make this choice?

One possibility is that speakers choose a single answer before beginning the processes of formulation, thus deciding what they want to produce with little consideration for how they will actually produce it. If so, selection should be unaffected by linguistic properties of unselected answers. Alternatively, all answers may go through formulation, with speakers choosing their final answer only once the processes of formulation are complete. Thus, speakers consider how they will produce their answer before settling on what they will produce. If so, selection should be affected by linguistic properties of unselected answers.

We tested between these two possibilities in two question-answering experiments that exploit the fact that to-be-expressed answers vary in their linguistic complexity (e.g., *Harry Potter and the Philosopher's Stone*, *Dracula*). We manipulated the ease of selecting an answer by manipulating whether the questions were constraining (with most participants providing a particular answer concept) or unconstraining (see Table 1). We also manipulated the length of answers, so that they were short and linguistically simple, or long and linguistically complex. All stimuli were carefully pre-tested on a separate group of participants (N=80 in Experiment 1; N=22 in Experiment 2). To assess whether speakers chose a single concept early or late, we fitted linear mixed effects models, with maximal random structure, to answer times.

In Experiment 1, Native English monolinguals (N=40) answered earlier when questions were constraining ($M=647$ ms) than unconstraining ($M=1279$ ms; $t=-7.26$), suggesting they found it easier to respond when they did not have to extensively search through a number of potential answers during retrieval. Consistent with previous research [4], participants also answered earlier when answers were shorter rather than longer ($t=3.73$). Importantly, there was no interaction between these two predictors ($t=-0.91$; Bayes factor=0.88), suggesting that speakers were not affected by the complexity of unselected, but plausible, answers.

We replicated these findings in Experiment 2, in which we increased the cognitive load of the task by recruiting L2 English speakers (N=41), who are likely to have more difficulty accessing concepts and preparing answers. In particular, participants answered earlier when questions were constraining ($M=1177$ ms) rather than unconstraining ($M=1816$ ms; $t=-5.49$) and when answers were shorter rather than longer ($t=-3.20$). Consistent with Experiment 1, there was no interaction between question constraint and answer length ($t=-1.02$, Bayes factor=0.78).

We conclude that speakers decide what to say early, during pre-linguistic processing, so that only a single answer is further processed during formulation. These findings suggest that speakers can decide what they want to produce without necessarily considering the complexity of how they are going to produce it.

References

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Table 1. Example stimuli for the four conditions in both experiments.

Question Constraint	Answer Length	Question
Constraining	Short	What is the capital of France?
	Long	How did The Titanic sink?
Unconstraining	Short	What is your favourite city?
	Long	What is your favourite book?