Moses Illusion Report

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1 Moses Illusion

Moses illusions are cases where a speaker answers a question using common knowledge, even though the question itself is nonsensical and merely similar to a common question.

1.1 Moses Example

Common Knowledge Question: "How many of each animal did Noah take on the arc?"
Correct Answer: 2

Moses Illusion Question: "How many of each animal did Moses take on the arc?"
Moses Illusion Answer: 2
Correct Answer: "can't answer" / "NA" / etc.

2 Experiment

2.1 Methods

The data was collected via an online survey in April 2024.

2.1.1 Participants

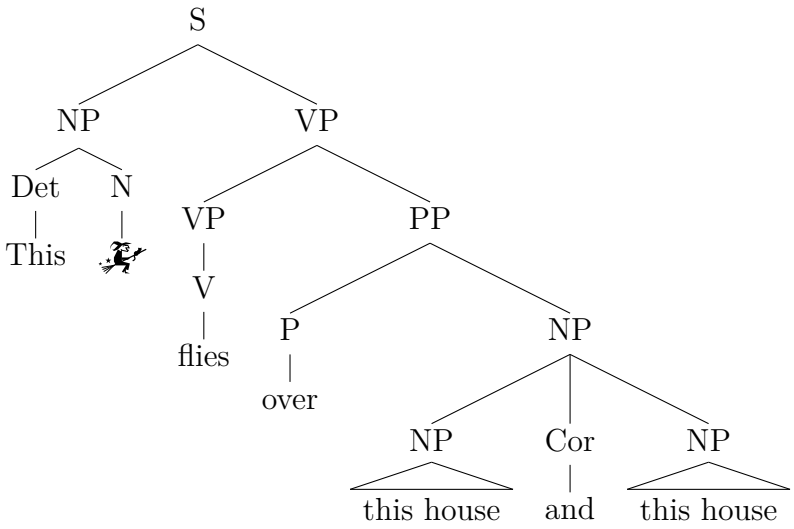
The participants of the study were the students attending the Digital Research Toolkit for Linguistics course in the Summer Semester of 2024 at the University of Stuttgart. The students were invited to invite friends and family to participate as well.

2.1.2 Materials

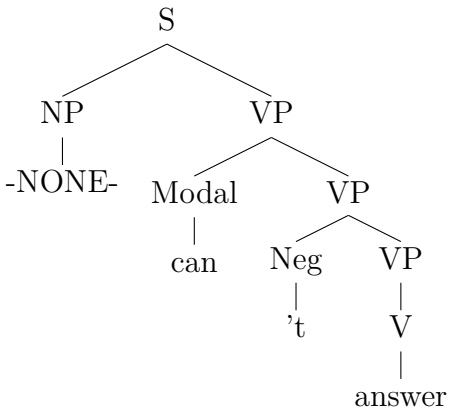
The experiment's materials followed that of Erickson & Mattson 1981. Their research and this experiment were both run in English, however this experiment could be performed in any other language.

(1) Wie viele Zahlen hat das deutsche Alphabet?
how many number.pl has the german.fem alphabet
How many numbers are in the German alphabet?

The questions follow many various syntactic structures that could be represented in trees. However, once seeing the syntax command "roof", the author of this paper really wanted to put a math witch flying over one.



However, in case the trees have to be related to the data, here is a tree representing one of the common response's syntax.



The semantics of being correct in this study can be understood as: $\forall x^s(know(x^s, answer) \rightarrow correct(x^s)$.

2.1.3 Procedure

The survey began with instructions for the participant to read each question and spontaneously answer either: "don't know" if they didn't know, or "can't answer" if the question is "distorted or nonsensical". The instructions also provided an example question for each of these potential answer types.

Question Type	Answer	Label
Common Knowledge	2	Correct
Common Knowledge	1	Incorrect
Moses Illusion	2	Incorrect
Moses Illusion	can't answer	Correct

Table 1: Labeling Method per Question Type

2.2 Predictions

Following the previous research done by Erickson & Mattson 1981, it was expected that some participants would not answer every Moses illusion question with "can't answer", even though they were told there would be nonsensical questions in the instructions.

2.3 Data Labeling

The experiments were run on Moses Illusion questions, normal common knowledge questions, and control questions. All submitted answers were given the following labels:

- Correct
- Incorrect
- Don't Know

The labels were assigned according the the answer and question types. Using the Moses Illusion and Common Knowledge example questions discussed in Section 1.1 as an example, the participants' answers would be labeled as in Table 1.

3 Analysis and Results

As seen in Figure 1, the predictions stated in Section 2.2 proved true. The number of incorrect answers increases significantly on Moses illusion questions.

4 References

Erickson, Thomas D and Mark E Mattson (1981). "From words to meaning: A semantic illusion". In: Journal of Verbal Learning and Verbal Behavior 20.5, pp. 540–551. DOI: 10.1016/s0022-5371(81)90165-1.

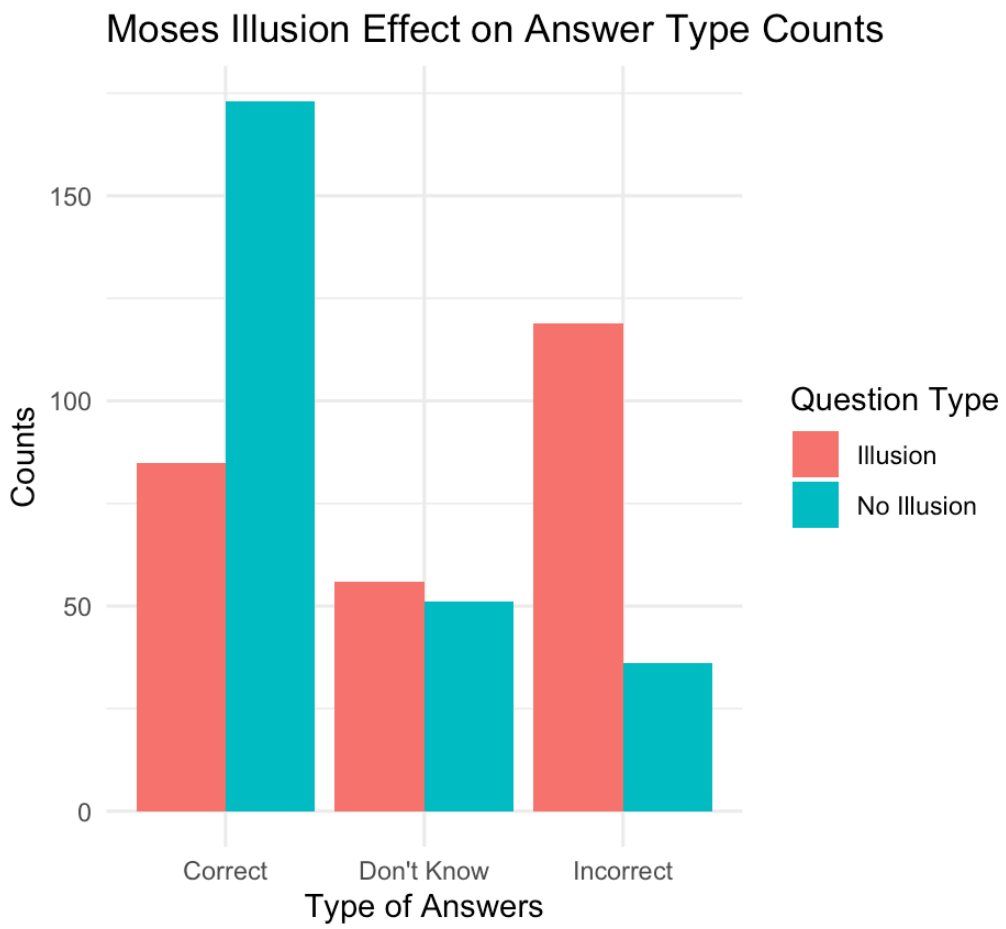


Figure 1: Count of each answer type for questions with and without the Moses Illusion