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The Comprehension of Negation: A Comparative Analysis of English - and Macedonian-Speaking Preschool Children

-Lightning Talk-

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The Great Developmental Mystery

What Is Negation?

A fundamental logical operator used to express nonexistence, rejection, and denial — one of the earliest linguistic tools children acquire.

One of the first words that children learn and use is “no”.

Despite this, there are important findings that explain children’s ability to acquire such a complex linguistic phenomenon as negation. Vaidyanathan (1991) provides a brief overview of the four stages of development of negative sentence structure proposed by Klima & Bellugi (1966).

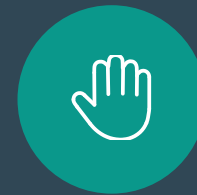
This categorization implies that at the initial stage of negation production, a negative morpheme *no* (sometimes also *not*) is most often used at the beginning or end of a sentence. For example, *No daddy home* or *Cookie no*.



Experiment



The experiment was realized with ten Macedonian preschool children aged 3 to 5-6 in the kindergarten and educational center “Peperutka” in the city of Skopje. Children were split into two groups of five: 3–4 and 4-5,5-6. It is to be noted that in both the groups extra children had expressed the wish to join in on the discussion so that the usual number of children answering questions was 8 to 10. But the answers were recorded only from the children who were assigned or chosen to represent their respective groups. The experiment took place on two different days..



On May 27 the first group of children was evaluated. The targeted group was children aged between 3 and 4, and the experimental session was 1 h and 05 min. The second group was tested on May 31st. It was the age group with 4;5 to 6;5 years. The experiment took 52 min 27 s. In both groups the same materials were presented and the same questions were asked. This experiment heavily relied on study by Thornton et al. (2016). However, I borrowed some ideas and parameters from Čoso's experiment (2015), which were reduced and adapted such that it would be clear to the children interacting with them.



Methodology

The experiment was conducted in children's playrooms during the morning shift. Both groups were sat down at a round table in order for the interaction to be as natural and effortless as possible. Both tests were recorded with a voice recorder on a smartphone, which was placed at the center of the table. The first part of the experiment consisted of presenting five photographs on a tablet so that all the children could see them clearly. They were encouraged to talk about all the elements they recognized on the photograph so as to get them relaxed and ready for an open conversation.

After a brief general discussion about the theme of the photo, I read them four statements and they were then instructed to either agree or disagree with a statement based on their understanding. Throughout the experiment the children were changing opinions and their answers. Nevertheless, only their first spontaneous reactions were recorded, while any change of mind because of the peer pressure was not noted.



Results

Macedonian vs. English

Results

This part of the experiment tested the children's basic understanding of negative sentences. The first category which will be analyzed are simple affirmative sentences. The examples used in the experiment were:

1. Патот е прав. (неточно)
'The road is straight.' (incorrect)

Typological differences in negative markers — position, morphology, and frequency — create distinct acquisition pathways for each language group.

Why It Matters

Comparing these languages isolates universal cognitive constraints from language-specific learning patterns.

Children from both groups effortlessly recognized and correctly estimated the truth value of the first four statements. There were no hesitations and they very confidently agreed and disagreed with the statements. However, the final statement *Детето е мирно.* – ‘The child is calm.’ caused issues for children from the first group. Upon discussing the picture, the children correctly described the photo and clearly saw a boy jumping high with his arms outstretched and a big smile on his face. However, when asked if the boy is calm, they all answered affirmatively. None of the children could explain why they agreed with the statement. In contrast, the second group of children had no trouble understanding the sentence and immediately disagreed with it..”



The second category consisted of statements containing sentential negation.

These include:

1. Патот не е прав. (точно) ‘The road is not straight.’ (correct)
2. Кучето не се смешка. (неточно) ‘The dog is not happy.’ (incorrect)

Discussion

It will be possible to find a variety of reasons why the children committed certain errors during the experiment. According to the results, there were some misleading mistakes even for sentences with a positive meaning or when they perfectly knew the picture or the story. With regard to the first group, the difficulty was not complete language maturation, leading to errors of interpretation and misunderstanding. Active language development in children is still going on at the age of four, but children are still acquiring and refining their language well past that age (Hoff 2014).

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Conclusion: Decoding the Developing Mind

→ More Than a Word

Negation is the child's first step into formal logical thought — a bridge between language and abstract reasoning.

→ Nature Meets Nurture

Understanding these mechanisms reveals the interplay between innate cognitive architecture and cultural-linguistic input.

→ The Road Ahead

Future research must refine models of how preschoolers bridge the gap between a simple "no" and complex truth-functional logic.

