

# Before and After with Temporal and Spatial Meaning in Language Acquisition

**Research questions**  
Do **Hungarian** postpositions with a spatial meaning have primacy with respect to postpositions with a temporal meaning during language acquisition?  
**Előtt** 'Before/in front of' – **Után/Mögött** 'After/Behind'  
Frame-hypothesis: The conceptual interpretation of space predates the conceptual interpretation of time. (Bowerman, 1983)

**Background**

<p><b>The order of acquisition of locations in Hungarian BEFORE &gt; BEHIND</b></p> <ul style="list-style-type: none"> <li>age 2: suffixes</li> <li>age 3: postpositions</li> </ul> <p>goal-types &gt; source-types <b>expediency</b> <b>before</b> (egocentric)* &gt; <b>behind</b>, <b>before</b> (located object)**</p>	<p><b>The order of the acquisition of the temporal relations: AFTER &gt; BEFORE</b></p> <p>In temporal meaning <i>after</i> (<i>után</i>) appears first (Sellar, 1999). The order of events is described with <i>after</i>, therefore it should be easier in production and in processing language.</p>
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**Relation between the two concept domains**

- Relative **frame of references** 'FoRs' (English: "Turn to the left") vs. absolute FoRs (Kuuk Taylorre "Turn to the East") → Languages using an absolute FoR for space use the same in temporal representation (Boroditsky 2009)
- Conceptual Metaphor Theory:** We interpret time as a one-dimensional domain, thus the one-dimensional component of space is mapped on it. The direction of mapping is from the tangible domain of space to the abstract domain of time – This supposition presumes the primacy of spatial terms. (Szamarsz, 2006)

"Christmas is near"

**Method**

- Participants:** 30 children, 3;6 – 7;5 (m=5;7) –
- 2 parts:** spatial task – temporal task

**Spatial task**

- Hide and Seek scene, 3 animals play (fig.1) + blindfolded puppet
- TVJT: Hedgehog puppet (HP) made statements about the scenes.
- 24 questions, 10 targets (5 before, 5 behind)

"Experimenter: Where did the dinosaur find the wolf?"  
– Hedgehog: "Behind the bed" – Child: "Y/N" (fig.2)



**Temporal task**

- 3D cartoon, 4 scenes, 1,5 minute
- 2 sessions: full video first followed by scene by scene (questions)
- 16 questions, 4 targets (2 before, 2 after)
- Forced choice

"When does the panther stretch? Before or after he falls down?"

**Results**

**Spatial task**

**Correct identification of locations:**

**Előtt**  $r = 0,321^*$  ( $p=0,083$ )

**Mögött**  $r = 0,264$  ( $p=0,158$ )

Children have already learnt the correct usage of spatial postpositions for this age.

**Temporal task**

**Correct identification of temporal relations:**

**Előtt**  $r = 0,383^*$  ( $p=0,037^*$ )

**Után**  $r = 0,316$  ( $p=0,089$ )

Children learn the correct usage of *after* earlier

**Mixing up the two postpositions in temporal task**

*before* instead of *after*  $r = -0.020$   $p = 0.918$

*after* instead of *before*  $r = -0.435^*$  ( $p = 0.016^*$ )

Children learn the correct usage of *after* earlier  
Younger children have not learnt the correct usage of temporal *előtt* yet.

**Conclusion**

There is no significant difference between the youngest and the oldest children's spatial production, but there is in the temporal production.  
→ The age has a significant effect on the production of *előtt* 'before' in temporal meaning. The children tend to replace it with 'after'.

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- The acquisition of spatial meaning of these postpositions is completed by the pre-schooler age, but the temporal meaning is not completely acquired yet.**
- Után** 'After' appears to be easier in temporal dimension.

TIME	SPACE
order of events	expediency
„Után”	„Előtt”

→ Directionality might lead the acquisition of temporal meaning of these postpositions, same as in spatial dimension (Pléh, 2014).

**Main references**

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