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Metaphor understanding in school-aged children: from good-enough to very good understanding?

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Introduction

Metaphors have always been a privileged object of study for pragmatics. However, how and when they are understood by children remains a matter of debate. While certain authors have shown that children understand metaphor as soon as 3 or 4 years (Pouscoulous & Tomasello, 2020), others have shown a later understanding, around 8 years of age (Deckert et al., 2019). We propose to explain this divergence by distinguishing several levels of metaphors understanding. Therefore, understanding could be neither correct or incorrect: some understanding could be correct "enough" to ensure the conversational flow, while being incomplete and imprecise. This proposal is in line with the fact that adults often process language globally which allowed them to build "good enough" understanding (Ferreira & Patson, 2007).

We defined 3 types of understanding of metaphor:

1. A **very good understanding** should enable the identification of a 'precise' meaning of the metaphor, which involves identifying the semantic feature of the vehicle transferred to the topic. For example, in the metaphor 'a butterfly is a rainbow,' it precisely implies that butterflies are very colorful.
2. A **good enough understanding** should allow for grasping the 'global' meaning of the metaphor, aligned with the broad intent of the speaker and the context of the utterance, without necessarily pinpointing the specific semantic feature of the vehicle transferred to the topic.
3. A **poor understanding** would fail to capture both the precise and the global meaning of the metaphor.



We hypothesized that a good enough understanding could be observed early on (around 5 years old), while a very good understanding would emerge later (around 8 years old), providing older children and adults with a broader range of levels of understanding.

Method and Results

Material and procedure

Metaphor understanding task:

Children listened to a story ending with a metaphor, then were asked to rate how well a rephrasing resemble the metaphor on a 5-point scale from -2 (*poor meaning resemblance*) to 2 (*very good meaning resemblance*).



There were **10 metaphors** embedded in a short context. For example:

Victor collects photos of butterflies in an album. For him, a butterfly is a rainbow

Each metaphor has **3 possible rephrasings** linked to the 3 types of understanding defined above:

Metaphorical rephrasing	Situational rephrasing	Unacceptable rephrasing
"Victor loves butterflies because they are full of colors."	"Victor finds that butterflies are very beautiful insects."	"Victor cuts out the photos of butterflies in an album."
A high rating reflected a very good understanding	A high rating reflected a good enough understanding	A high rating reflected a poor understanding

The entire task was computerized using the Open Sesame software: it randomly assigned a rephrasing to the story for each participant.

Peabody Picture Vocabulary Test (French version):

This test measures the receptive vocabulary level of French children by presenting four images and asking the participant to find the one representing a word. This test was used as a control measure.

Participants

Participants were recruited in 2 French regions in public schools :

- $N = 300$
- $M = 8$ years 5 months
- $SD = 2$ years
- $Min = 5$ years 1 month
- $Max = 11$ years 12 months
- Girls (53%) / Boys (47%)

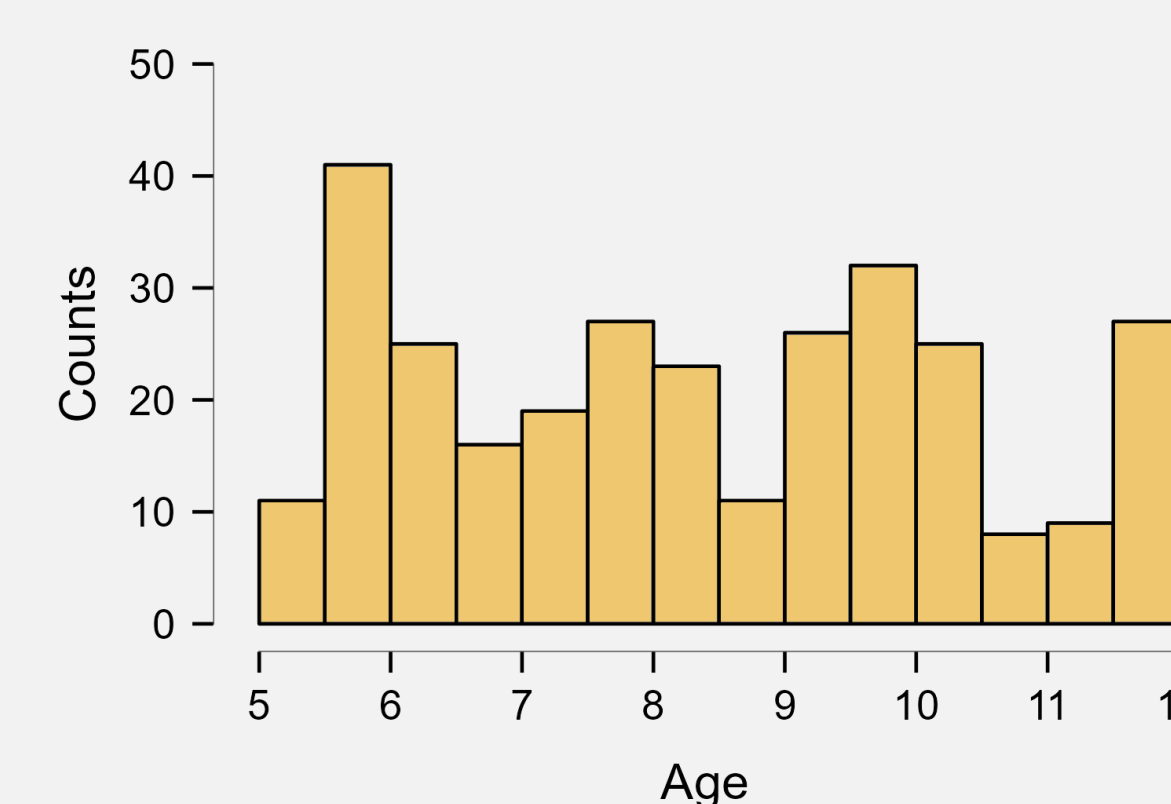


Figure 1. Participants age repartition

Results

Controlling for vocabulary level, as children get older:

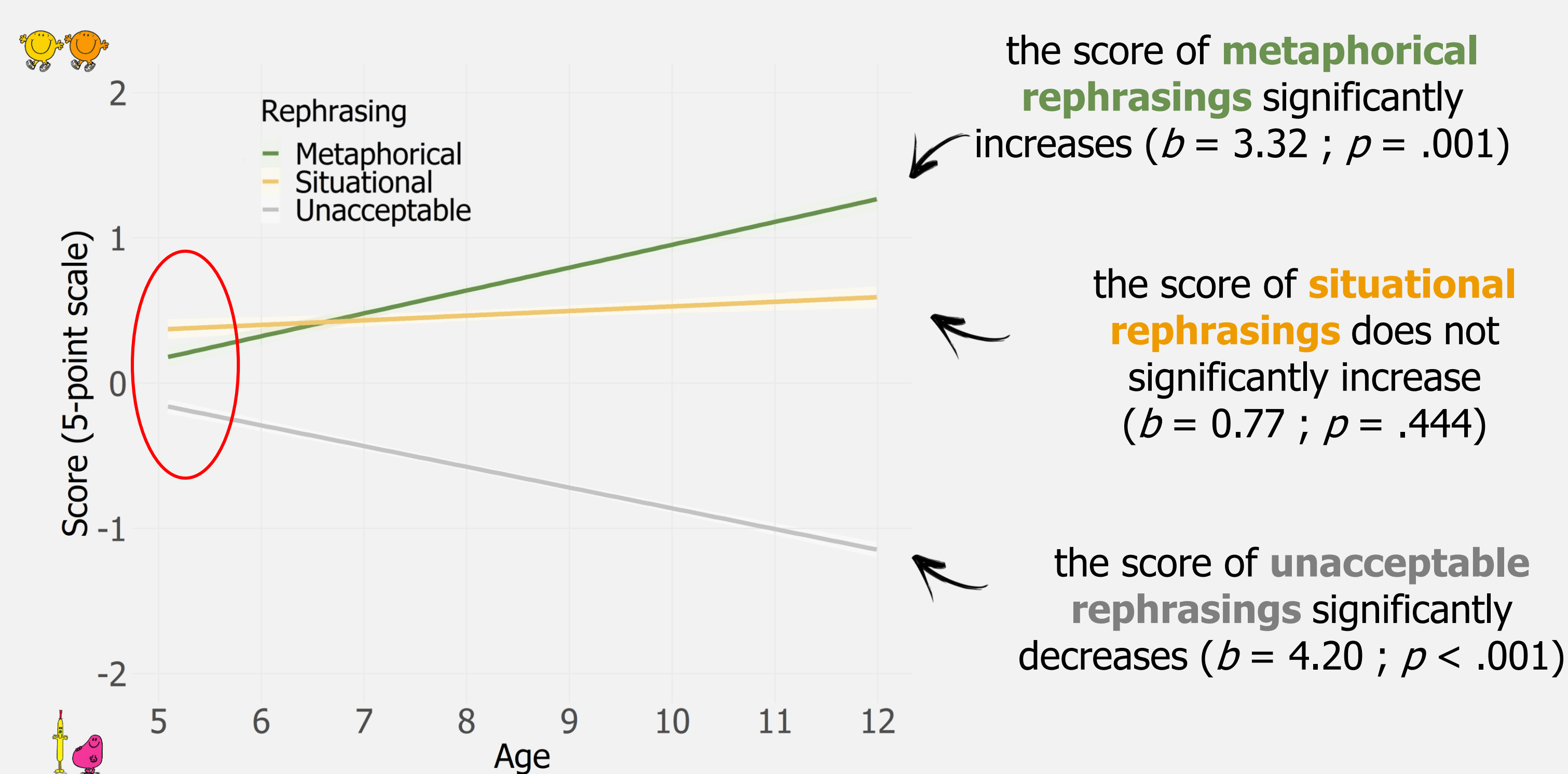


Figure 2. Resemblance score according to rephrasings and age (confidence bands are standard error)

At the beginning of the sample, children scored the 'good' rephrasings significantly better than the unacceptable ones, $t(2826) = -3.74$, $p < .001$. Five years old children understand the metaphors, but they do not distinguish between metaphorical and situational rephrasings.

Discussion

Since children judged *metaphorical rephrasings* more resembling to our metaphors while judging *unacceptable rephrasings* less resembling with age, we can conclude that understanding improve from 5 to 11 years old which is coherent with the literature. Children reach a very good one at the end of our sample.

Children also judge *situational rephrasings* evenly from 5 to 11 years old, as resembling to our metaphors. This, in line with the difference observed between the good rephrasings and the unacceptable one, suggest that 5-year-olds are able of "good enough" understanding, with little change with development: children still witness this understanding around 11 years old.

Since 11-year-olds did not reject the situational rephrasings as a bad one, we can assume that children understanding of metaphor might remain "good enough" when they are older. Therefore, the type of understanding produced by children could depend on various factors, such as the context of presentation: for example, in daily communication when the stakes of understanding the metaphor are low and the need of a fast a cohesive response are high.

