

# PREDICTING A NOUN BASED ON AN ADJECTIVE: AN EYE-TRACKING STUDY

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## Abstract

### Background:

Predicates, including adjectives, are harder to learn than nouns. The priority of nouns over adjectives has been observed cross-linguistically both in early production and in comprehension (Caselli et al. 1995, among others).

According to the Noun-Anchor Hypothesis (Ninio, 2004, Fernald et al. 2010) Noun-Adjective combinations are challenging for young children because their processing requires a two-step procedure: first, the noun must be interpreted as a category of objects; then the adjective must be interpreted so that the N-A combination refers to a subset of the objects that also possess the property labelled by the adjective. This hypothesis was tested and confirmed by Ninio's results of an off-line picture selection task with Hebrew-speaking children (1;6–4;4). Similar results were obtained with children acquiring Italian (2;2–5;4), where, similarly to Hebrew, attributive adjectives are post-nominal (Redolfi, 2018).

However, results of an eye-tracking study addressing the processing of A-N combinations in Dutch-speaking toddlers (3;0–3;5) revealed a different picture. Tribushinina & Mak (2016) designed a study in which children saw two objects (e.g. a pillow and a book) and heard an A-N combination where the adjective was a prototypical (and not visually apparent) property of one of the objects (e.g. soft). Since 3-year-olds' looks at the target increased after hearing the adjective, they concluded that children interpret A-N combinations incrementally, being able to predict the noun on the basis of the adjective meaning, hence providing evidence against the Noun-Anchor Hypothesis.

### Research questions:

The aim of this study is to test the Noun-Anchor Hypothesis studying the online processing of Italian Adjective-Noun combinations in young (monolingual) children. Specifically, we aim at 1. measuring subject's eye-movements with the Visual World Paradigm; 2. investigating the role of the informativeness of the adjective in A-N combinations. The main research questions we intend to answer in this study are the following: whether and to what extent young children are able to process the adjective before hearing the noun it refers to and when children start to show an adult-like behaviour in this respect. Also, about the results of Tribushinina and Mak (2016), does an adjective prototypically linked to a noun create discourse expectations about the described object?

### Method:

30 Italian monolingual speaking children (2;6–4;6) and 20 Italian monolingual adults will take part in a Visual World Paradigm task in which they will be presented with two different objects at once on a screen monitor. While looking at the screen, they will hear a question about one of them. Specifically, they will be asked yes/no questions, which in Italian present the order verb (copula) - adjective - noun (e.g. "è morbido il cuscino?", lit. "is soft the pillow?"). The choice of this structure is determined by the fact that Italian adjectives are mostly post-nominal in noun phrases; thus, yes-no questions provide a felicitous structure for testing the predictive role of adjectives modifying the following nouns. The items will be described either by a **prototypical** adjective (not visible on the screen, e.g. soft, see **Figure 1**) or by a **non-prototypical** adjective (visible on the screen, e.g. open, see **Figure 2**). This set-up is crucial to establish whether toddlers can predict the noun based on an informative adjective describing it and, in addition, if a property prototypically associated to a noun creates discourse

expectations assisting in the (early) identification of the noun. Besides, the comparison with adults will allow us to understand when this ability emerges in development.

Predictions:

If the Noun-Anchor Hypothesis is correct (i.e. if children need to wait for the noun before starting the interpretation of the adjective describing it), then young children shouldn't be able to identify the target object (and look at it) before hearing the noun; hence, they start processing the adjective only after they hear the noun at the end of the yes/no question.

On the contrary, if the Noun-Anchor Hypothesis is wrong, children should be able to predict the target object, independently from the type of adjective used to describe it, when informative (i.e. whether the adjective is prototypically or not prototypically linked to the object).

Finally, a third possibility is that the Noun-Anchor Hypothesis is correct in one case (i.e. when the adjective is not a prototypical property of the object) and wrong in the other case (i.e. when the property is prototypical of the object and consequently more frequently recurrent with the noun itself). Hence, the two different conditions (prototypical and non-prototypical) will be useful to investigate whether a prototypical property of an object creates discourse expectations about the object itself or, on the contrary, any adjective (when informative), is enough to identify it.



Figure 1

Figure 2

	INFORMATIVE	UNINFORMATIVE
PROTOTYPICAL (not visible)	È morbido il cuscino? 	È bianco il cuscino? 
NON-PROTOTYPICAL (visible)	È chiusa la finestra? 	È aperta la scatola? 

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