

EYE-TRACKING INSIGHTS INTO CHILDREN'S PROCESSING OF COPULAR STRUCTURES

INTRODUCTION: Following Moro (1997) and subsequent works, nominal copular constructions should be classified into two distinct types, canonical (CC; 1) and inverse (IC; 2):

(1) [DP_{subject} Le foto del muro]_{PL} sono [DP_{predicate} la causa della rivolta]_{SING}
The pictures of the wall *be.PL* *the cause of the riot*

(2) [DP_{predicate} La causa della rivolta]_{SING} sono [DP_{subject} le foto del muro]_{PL}
The cause of the riot *be.PL* *the pictures of the wall*

Moro (1988, 1997, 2017) argues that the two DPs originate within a small clause [_{SC} DP DP] selected by the copula. From this structure, either DP can move to the clausal subject position, resulting in two distinct syntactic representations (Fig. 1) that share the same linear structure, DP-*be*-DP. Crucially, while the CC represents a standard case of subject raising, Moro (1997:75) analyzes IC as involving a pro-predicate *pro* that originates within the SC and subsequently raises to Spec,TP. ICs require the extra computational steps of predicative agreement in the SC and adjunction of the lexical DP predicate, predicting heavier computational costs. Greco et al. (2020), in an acceptability judgment task, found a preference for CCs over ICs in adult native speakers of Italian, while a recent eye-tracking study carried out in our lab showed an increase in late measures while reading ICs compared to CCs. The aim of the present study is to investigate whether the differential access to the superficial and the deep structure of such sentences is already evident in children aged 10 years old. To do so, we examine whether an NP matching with the copula for phi-features, and linearly adjacent to it, can facilitate the processing of a more demanding deep structure (i.e., ICs) compared to its structurally less complex counterpart (i.e., CCs). When encountering structures like (4), children might: (i) analyze the sentence based on its underlying syntactic structure (Fig. 1); (ii) rely on the linear adjacency of the plural NP and copula. If children adopt (i), we expect that despite the presence of a linearly adjacent NP matching for phi-features with the copula, children should still display greater processing effort while reading ICs compared to CCs.

(3) [Le foto del [muro]_{SINGULAR}]_{PLURAL} SONO_{PLURAL} [la causa delle rivolte]_{SINGULAR}
The pictures of the wall *be.PL* *the cause of the riots*

(4) [La causa delle [rivolte]_{PLURAL}]_{SINGULAR} SONO_{PLURAL} [le foto del muro]_{PLURAL}
The cause of the riots *be.PL* *the pictures of the wall*

METHOD: 36 native speakers of Italian (age range: 9;6-10;10, mean: 10.4, sd: 0;5) completed an eye-tracking while reading paradigm, conducted using an SR Research Eyelink 1000. Experimental items were constructed as (3)-(4) and presented in one line. Each child saw 15 items in each condition (canonical vs. inverse), spaced out by 60 fillers. Gaze duration, total reading time, regression path duration and regression in and out count were collected for the copula, the head noun of the DP following the copula and the last word of each sentence.

RESULTS: Linear mixed models were employed for data analysis. More regressions in on the copula were detected for ICs ($p < 0.001$). On the head noun of the DP following the copula gaze duration, total reading time and regression path duration were all significantly longer in ICs (respectively: $p = 0.028$, $p = 0.007$, $p = 0.016$), and more regressions in were counted ($p = 0.015$), showing that children went back to this noun from fewer times when interpreting a canonical structure. The consistency of these effects can be appreciated by looking at Fig.2. Finally, on the last word reading times were longer in the case of CCs ($p = 0.001$). However, there were more regressions out for ICs ($p = 0.049$).

CONCLUSION: Overall, our results point to an increase in processing effort on ICs compared to their canonical counterparts. The higher cognitive load required by the post-verbal subject indicates that children aged 10 years old accurately represent the distinct hierarchy underlying two identical surface structures. This result is further confirmed by showing that the presence of linearly adjacent elements matching with phi-features do not override the computation of the structural relations during online sentence processing.

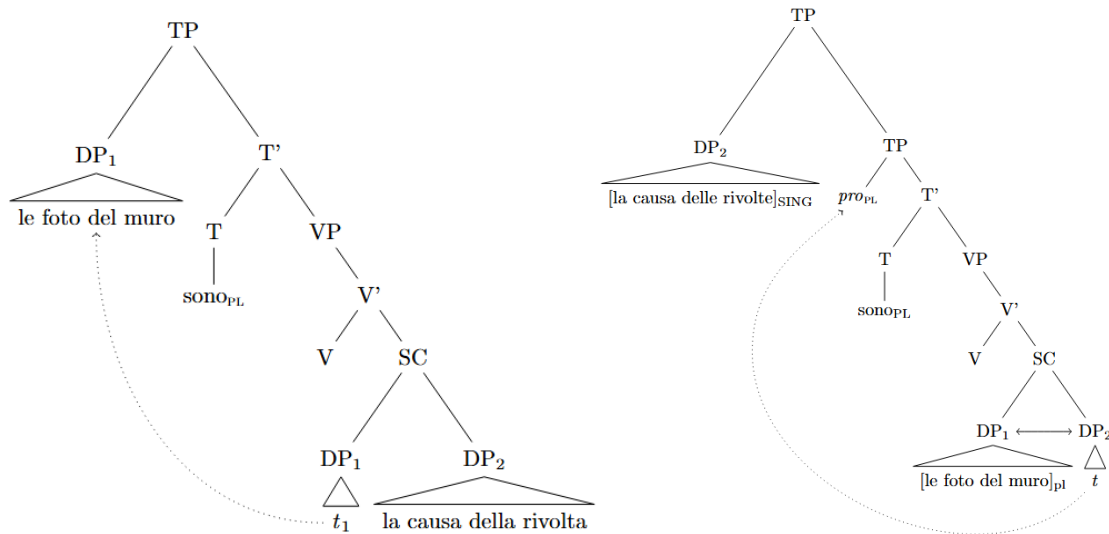


Fig.1 Canonical (on the left) and Inverse (on the right) Copular constructions. Predicative agreement prior raising of *pro* in Spec, TP is signaled by the arrow between DP₁ (subject) and DP₂ (predicate) within the SC of the inverse CC.

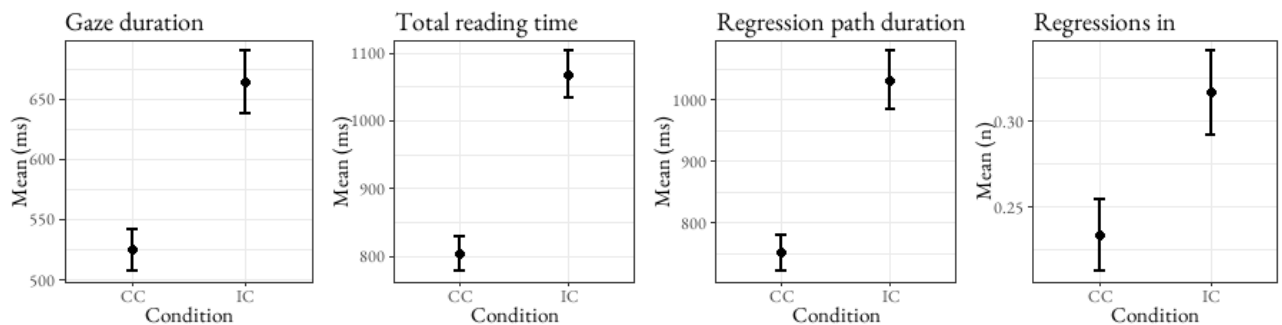


Fig.2 Difference between canonical (CC) and inverse (IC) nominal copular constructions processing as observed through gaze duration, total reading time, regression path duration and regressions in on the first noun following the copula.

REFERENCES:

- Greco, M., Lorusso, P., Chesi, C., Moro, A. (2020). 10.1016/j.lingua.2020.102926
- Moro, A. (1988). https://lingbuzz.com/j/rgg/1988/moro_rivista_1988.pdf
- Moro, A. (1997). [10.1017/CBO9780511519956](https://doi.org/10.1017/CBO9780511519956)
- Moro, A. (2018). [10.1002/9781118358733.wbsyncom043](https://doi.org/10.1002/9781118358733.wbsyncom043)