Non-subject relative clauses are even more “annoying” than we thought! Production of four types of RC from Italian-speaking adults and children

Yangyu Sun[1], **Chiara Dal Farra**[1], **Chiara Saponaro**[1], **Aurore Gonzalez**[1], **Johannes Hein**[2], **Kazuko Yatsushiro**[3], **Uli Sauerland**[3] **and Maria Teresa Guasti**[1]

[1]University of Milano-Bicocca [2]Humboldt University of Berlin [3]ZAS Berlin
For info: yangyu.sun@unimib.it; mariateresa.guasti@unimib.it

In a nutshell 🌰🐿️

In this study, we investigated how Italian-speaking adults and children produce 4 types of relative clauses (RCs): S(ubject), O(bject), I(ndirect) O(bject), and L(ocative).

The results show that both adults and children produced target S-RCs, but avoided target responses in the other types, with different patterns of circumvention strategies.

Background 👩‍🏫

Relative clauses (RCs) have long been central to the research on language acquisition and processing, especially those formed on **subject and object**.
Cross-linguistically:

- **Subject advantage**: subject RCs (S-RCs) appear to be easier to comprehend and produce than object RCs (O-RCs) (Lau & Tanaka 2021, Tanaka et al. 2024).

In Italian:

- “**Change-to-S**”:
  - Adults and older children frequently produce passive O-RCs, transforming them into S-RCs (Belletti & Contemori 2010, Contemori & Belletti 2011).
  - Children produce S-RCs when prompted for genitive, IO- and L-RCs (Guasti & Cardinaletti 2003).
- **Resumption**: The above-cited works also note the use of resumptive clitics and DPs in non-S-RCs, which is not considered an option in standard Italian.

However, studies to date either have not investigated types of RCs other than S/O, or have not included adults participants.

Research questions ❓

1. Do S-, O-, IO- and L-RCs challenge Italian-speaking adults and children? If so, are they equally challenging?
2. When facing difficulties, what strategies do they use to circumvent the problems?

RCs in Italian ®©

RC type	Relativizer	Surface schema	Example
Subject (S)	*che*	Head – che – V – O	*Il cavallo **che** tira la mucca.* the horse that pull.3SG the cow
Object (O)	*che*	Head – che – S – V	*Il cavallo **che** la mucca tira.* the horse that the cow pull.3SG
Ind. Object (IO)	*cui*	Head – a cui – S – V – O	*Il gatto **a cui** la papera dà un fiore.* the cat to which the duck give.3SG a flower
Locative (L)	*cui / dove*	Head – Prep + cui – S – V – O	*Il letto **su cui** il gatto salta.* the bed on which the cat jump *Il letto **dove** il gatto salta.* the bed where the cat jump

Table 1: Standard RCs in Italian

Resumptives are not allowed in standard Italian but present in (adult) non-standard Italian (Berruto 2012).

(1) *Mario B., che **l’**hanno portato l’altro giorno...*
Mario B. REL **CL.3SG**-AUX.3PL bring.PTCP.M.SG the-other day
‘Mario B., whom they brought (him) the other day...’ (Berruto 2012: 144)

Experiment 👧💻🎙️

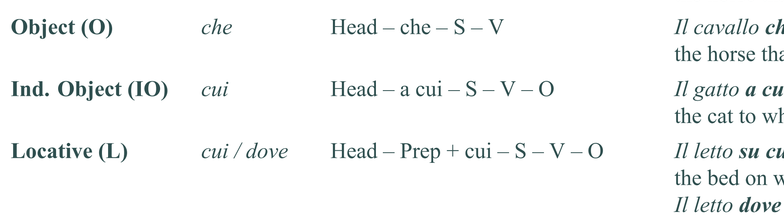
Participants:

- 25 monolingual Italian-speaking children (5;2-6;3) and 28 adults.
  Participants who produced less than 8 RCs in the experimental phase are excluded.

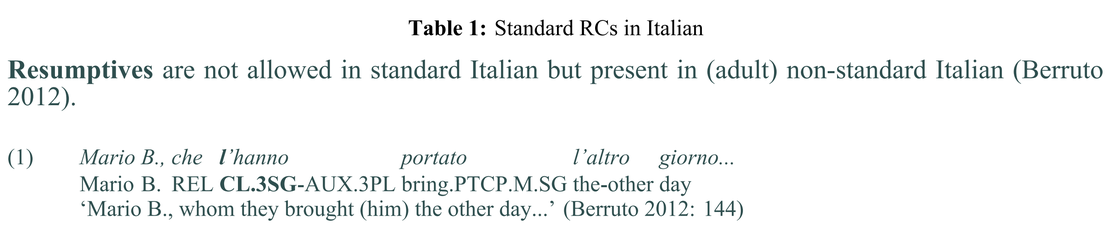
Task:

- Elicitation-production;
- Training: 4 S-RCs – 3 intransitive + 1 transitive; fixed order;
- Experimental phase:
  4 types: S-, O-, IO-, and L-RCs; 4 items per type, 16 items in total, fully randomized;
  Images depicting animals/objects involved in actions → One entity changes colour → Prompt “Who/what changed colour?” → Answer with N + RC (as in Zukowski 2009).

Example of an S-RC: “The lion who is pulling the cows.”



Example of an L-RC: “The bed on which the cat is jumping”



Coding 1 2 3 4

1. **Target function**: if the RC preserves the targeted S/O/IO/L function of the item or not;
2. **Function change**: if not the targeted function, what the response appears to be;
3. **Resumptive**: if the RC contains a noun/pronoun co-referring to the head noun;
4. “**Circumvention**”: all strategies that allow speakers to bypass derivational difficulty (see Table 2).

Results & Analysis 🔍

We collected 445 RCs from adults and 346 RCs from children. All analyses with the above dependent variables used mixed-effects logistic regression models with fixed effects for Group (adults/children) and Condition (types of RCs) and random intercepts for participants and items.

Target function & function change

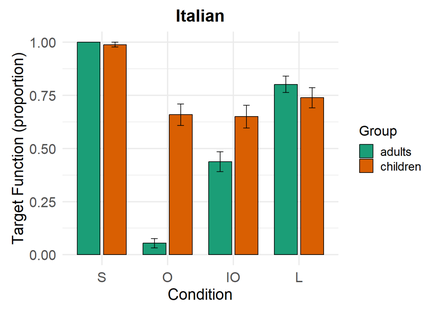


Figure 1: Target function rates (%) of adults and children

- **Children > Adults**: children produced significantly more RCs corresponding to the target functions ($\chi^2 = 19.52, p < 0.001$);
- **S was preserved**: Both groups produced function changes in all conditions but S. Adults preserved L the most, then IO and O (corrected $p < 0.001$), while children showed no difference across the three (corrected $p > 0.46$);
- **Different strategies**: almost all function changes were non-S → S. Adults frequently passivized O-RCs, and changed the verbs in IO items to turn them into S; children instead committed inversion errors in O and IO items (see Table 2).

Resumptives

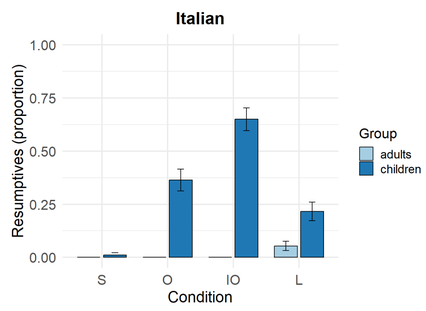


Figure 2: Resumptive rates (%) of adults and children

- **Only children**: adults produced only 6 resumptive elements (1%, all in L), while about 30% (106/346) of children’s RCs contained resumptives ($\chi^2 = 63.13, p < 0.001$);
- **More resumptives in IO**: among children’s RCs, S resumptives were rare; they appeared most frequently in IO, then O, then L (all pairwise comparisons had corrected $p < 0.001$).

Circumvention

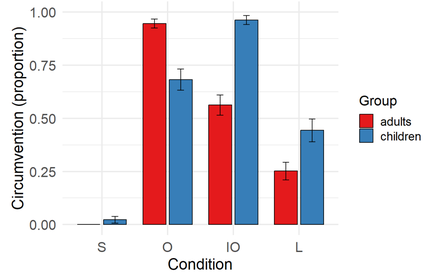


Figure 3: Circumvention rates (%) of adults and children

- **Overall difficulty**: we suggest that function changes and resumptives are strategies to circumvent difficult RCs; together, they give a measure of speakers’ tendency of not producing the targets;
- **More challenging for children**: children produced more RCs with circumvention strategies than adults did ($\chi^2 = 5.55, p = 0.019$);
- **Different hierarchies**: a main Condition effect (all pairwise comparisons: corrected p< 0.001 in adults, $p < 0.01$ in children) yielded non-target hierarchies from easiest to hardest:
  Adults: S > L > IO > O;
  Children: S > L > O > IO.

Frequent strategies of Circumvention: examples 💬

Strategy	Example (Italian + Gloss)	Target meaning
Adults		
Passive (full)	*La capra che **viene tirata** dai gatti.* the goat REL comes.PRS pulled by.the cats	The goat that the cats are pulling.
Passive (red.)	*La capra **tirata** dai gatti.* the goat pulled by.the cats	The goat that the cats are pulling.
Verb change	*La gallina che sta **ricevendo** una mela dal topo.* the hen REL is receiving an apple from.the mouse	The hen to whom the mouse is **giving** an apple.
Children		
Head inversion	*L’anatra che sta dando un fiore al **gatto.*** the.duck REL is giving a flower to.the cat	The **cat** to whom the **duck** is giving a flower.
Role inversion	*La **rana** che sta lavando le **anatre.*** the frog REL is washing the ducks	The **frog** who the **ducks** are washing.
Resumptive NP	*I cani che la pecora sta lavando i **cani.*** the dogs REL the sheep is washing the dogs	The dog who the sheep is washing.
Resumptive CL	*I cavalli che **li** sta spingendo la mucca.* the horses REL them.CL is pushing the cow	The horses who the cow is pushing.
Other	*La gallina, il topo che le sta dando una mela alla gallina.* the hen, the mouse REL to.her.CL is giving an apple to.the hen	The hen to whom the mouse is giving an apple.
Common strategy (Adults & Children)		
PP + S-RC (L head shift)	*La casa della pecora che sta saltando.* the house of.the sheep REL is jumping	The house on which the sheep is jumping.

Table 2: Examples of circumvention strategies

Overall, non-S-RCs pose challenges for both adults and children, but in different ways: adults can rely on a wider range of morphosyntactic tools, learned in a later stage of language acquisition (e.g., the passive form), to circumvent difficulties, while children rely on strategies that minimize syntactic computation, sometimes sacrificing the semantics.

References

Belletti, A., & **Contemori**, C. (2010). Intervention and attraction: on the production of subject. Language acquisition and development: Proceedings of GALA 2009, 39. **Berruto**, G. (2012). *Sociolinguistica dell’italiano contemporaneo* (2ª ed.). Roma: Carocci. **Contemori**, C., & **Belletti**, A. (2011). Disentangling the mastery of object relatives in children and adults. Evidence from Italian. STiL-Studies in Linguistics, 4, 48-81. **Guasti**, M. T., & **Cardinaletti**, A. (2003). Relative clause formation in Romance child’s production. Probus, 15(1), 47-89. **Tanaka**, N., Lau, E., & Lee, A. L. F. (2024). On the universality of the subject preference in the acquisition of relative clauses across languages. First Language, 44(3), 219–243.

Funding

This presentation is part of a project that has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (Grant agreement No. 856421).