



1st SynCart Workshop
From Maps to Principles: Syntactic Cartography and
Locality

Chiusi/Siena/Pienza/Motepulciano

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**Training the Comprehension and
Production of Restrictive
Relative Clauses: A Case Study
on a Cochlear-Implanted Child**

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Aim of the Study

- To investigate the comprehension and production of relative clauses in a hearing impaired child fitted with a cochlear implant aged 8;5.
- To describe an approach to treatment of the structures in this child.



Hearing Impairment

- Hearing impairment limits the quantity and the quality of linguistic input available to hearing-impaired individuals and affects the natural acquisition of an oral language.
- Hence language development is atypical (Chesi 2006; Friedmann & Szterman 2006; Volpato 2012; Volpato & Vernice 2014).
- Hearing impaired individuals show difficulties with complex syntax and especially with sentences with a non-canonical order of constituents.



Treatment of Complex Sentences

- It is possible to rehabilitate complex sentences through explicit teaching of syntactic movement in individuals with language disorders:
 - **Individuals with aphasia** (Thompson & Shapiro 1995, Chinellato 2003);
 - **SLI children** (Ebbels & Van der Lely 2001; Levy & Friedmann 2009).
- This is the first study attempting rehabilitation of relative clauses in a hearing impaired child.



Participants

- Name: LB
- Age: 8;5
- Profound sensorineural hearing loss
- Hearing parents
- Diagnosed and received conventional hearing aids at the age of 2
- Received the CI at the age of 2;7
- Orally trained
- No sign language (LIS)
- Selected and tested at the Padua University Hospital

CONTROL GROUP (NH)

- 9 normal hearing children
- Age range: 6;10-9;10 (mean age: 8;2)

PRODUCTION TASK CI GROUP

- 11 children and adolescents
- Profound sensorineural hearing loss
- Mono or binaural CI
- Age range: 5;7-12;7 (mean age: 8;7)
- Age of HA: 0;2-6;0
- Age of CI: 0;10-8;7
- Orally trained
- No sign language (LIS)
- Hearing parents

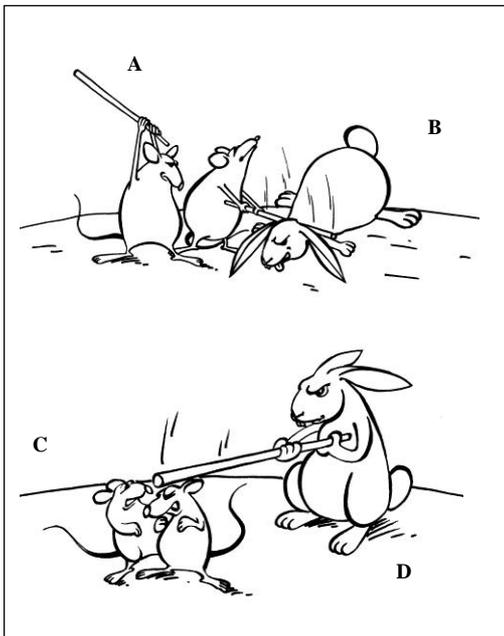


Testing the Comprehension: Agent Selection Task

Agent selection task (following Friedmann & Novogrodzky 2004, Arnon 2005) → the participant has to select (touch) the correct referent out of four possible choices.

48 experimental sentences

20 filler sentences



SR	Il coniglio che colpisce i topi The rabbit that hits the mice
OR	Il coniglio che i topi colpiscono The rabbit that the mice hit
ORp	Il coniglio che colpiscono i topi The rabbit that hit the mice

Tocca il coniglio che i topi colpiscono
Touch the rabbit that the mice hit



Testing the Production: Preference Task

Preference task: elicited production of relative clauses (Volpato 2010) (following Friedmann & Szterman 2006) → the participant was asked to express his/her preference between two options and thus forced to produce a relative clause.

12 SRs



There are two pictures. In the former, the children stroke the cat, in the latter, the children hit the cat. Which children do you like?

Expected production:

(I like) the children that stroke/hit the cat.

12 ORs



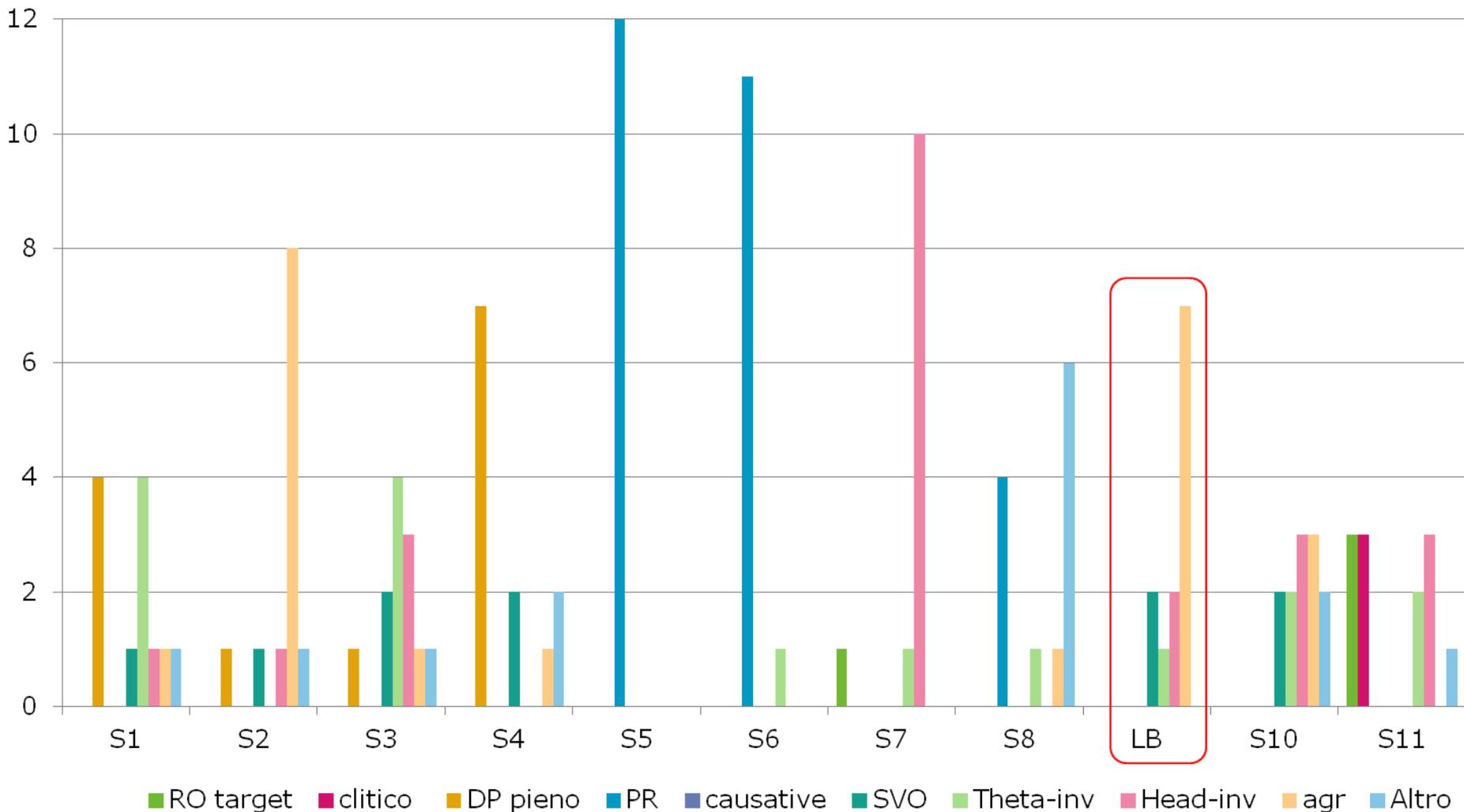
There are two pictures. In the former, the mother hugs the child. In the latter, the mother kisses the child. Which child do you like?

Expected production:

(I like) the child that the mother hugs/kisses



Strategies adopted by the CI group





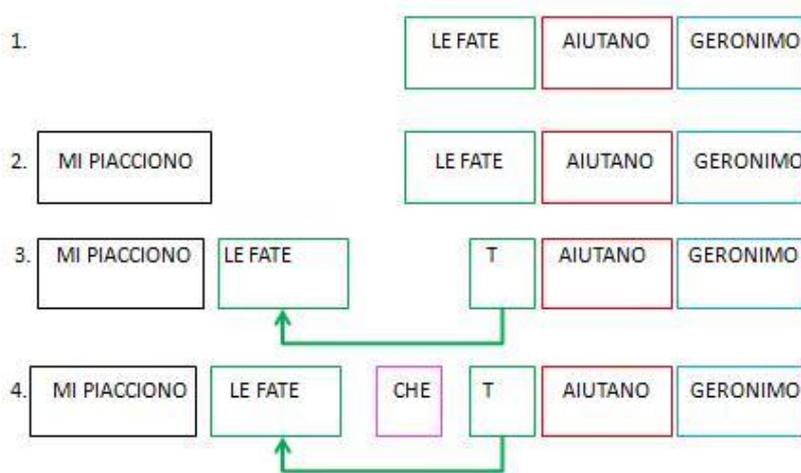
Treatment of Relative Clauses

- It follows the approach proposed for a Hebrew speaking child with SLI by Levy & Friedmann (2009).
- Based on syntactic theory and consisted in training relative clauses through explicit teaching of:
 - **Verb argument structure;**
 - **Theta criterion;**
 - **Syntactic movement.**
- It consisted of 6 sessions, each lasting 75 minutes.
- Each session included both oral and written exercises.
- It lasted 6 weeks.
- The production and comprehension tasks were administered again after training and 5 months after treatment.

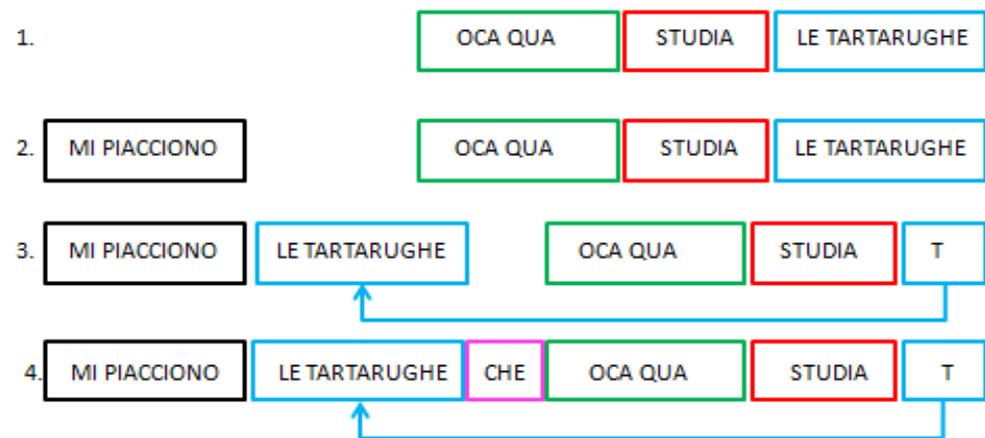


How to Explain the Syntactic Movement to a Child?

Example of SR



Example of OR

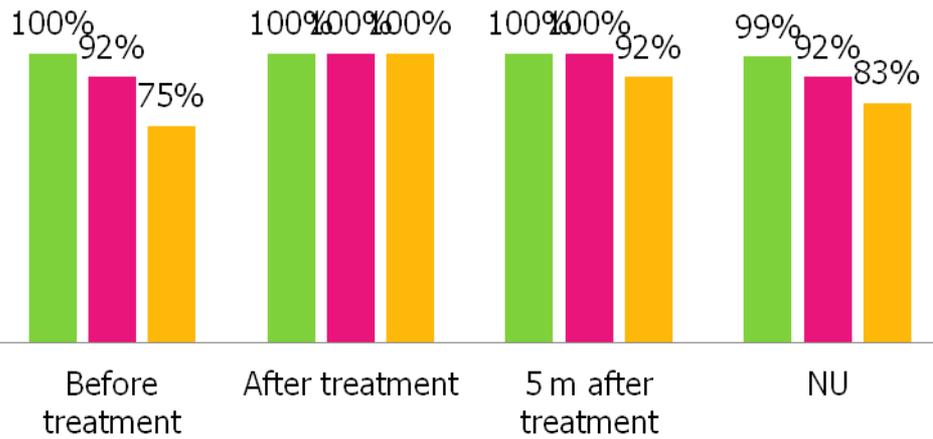




Results

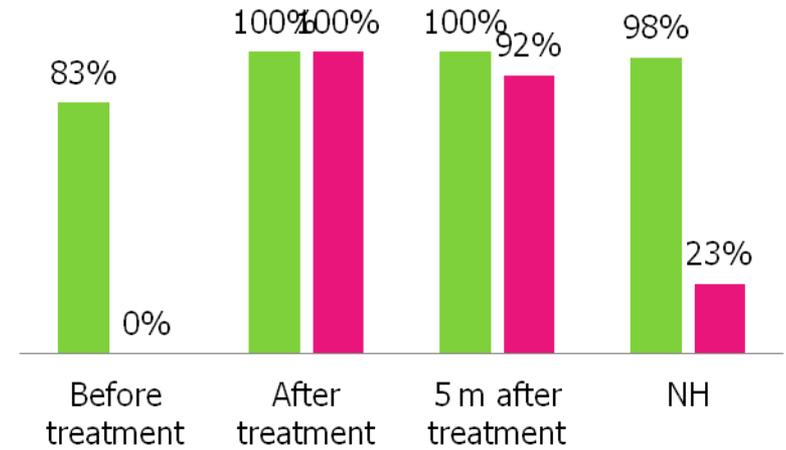
Comprehension task

■ SR ■ OR ■ ORp



Production task

■ SR ■ OR





Conclusions

Comprehension task

- Before treatment: typical gradient of difficulty (SRs>ORs>ORps) also found in the CI and NH groups.
- After treatment: Ceiling performance.
- Five months after treatment: ceiling performance in SRs and ORs; only one error in ORps. The high performance level was maintained 5 months after the treatment

Production task

- Before treatment: SRs were quite preserved, ORs were never produced. Different response strategies were adopted when an ORs was targeted (in particular ungrammatical sentences). The use of ungrammatical sentences replicates previous studies on hearing impaired children (Franceschini 2013, Volpato & Vernice 2014).
- After treatment: ceiling performance. ORs with gap were correctly produced. Ungrammatical sentences were no longer produced.
- Five months after treatment: both object relatives with gap and with resumptive pronouns were produced. Ungrammatical sentences were no longer produced.



**THANK YOU. YOU HAVE SUCCESSFULLY
REACHED THE LAST SLIDE OF THIS
PRESENTATION**



QUESTIONS / COMMENTS

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