

NETS

IUSS Laboratory
for Neurolinguistics,
Computational
Linguistics &
Theoretical Syntax



IUSS

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NETS, IUSS LAB FOR
NEUROLINGUISTICS,
COMPUTATIONAL
LINGUISTICS AND
THEORETICAL SYNTAX

IN COLLABORAZIONE CON
GIORGIA GHERSI
(UNIFI), VALENTINA
MUSELLA E DEBORA
MUSOLA
(COOPERATIVA
LOGOGENIA)

CO_nVERSA.

Un'introduzione al test di
comprensione delle
opposizioni morfosintattiche
verbali attraverso la scrittura.

Prospettive interdisciplinari nella misura di competenze
e abilità linguistiche in età scolare

Padova – 25 Giugno 2024

Outline

- ◉ **Deaf children oral competence assessment**
 - ◉ Grammaticality judgments rather than comprehension task
 - ◉ Controlled lexical items and minimal pairs
- ◉ **Phenomena to be tested and their complexity**
 - ◉ Cartography, locality and the “growing tree” idea (Friedmann, Belletti & Rizzi 2021)
 - ◉ Measuring complexity combining “functional height” and “locality”
- ◉ **Validation results**
 - ◉ The task is reliable and corroborates major findings discussed in the language acquisition literature
 - ◉ Age and Complexity are major predictors of hearing children’s performance on COnVERSA
 - ◉ Deaf people performance on this test significantly differs from hearing children in a relevant way
 - ◉ ChatGPT... is different!

Deaf children oral competence assessment

- ⦿ **Frustrating experience:** lip reading induces a degradation in the linguistic input quality (poor understanding of the task)
- ⦿ **Reading** is slower and can be used only after training
- ⦿ **Comprehension task:** e.g. picture or character matching task cannot be used extensively to assess multiple linguistic domains in an effective way (too long, not an easy task for deaf children who need lip reading, joint attention loss...)
- ⦿ **Standard tests:** TROG-2 (Bishop 2009) / WISC IV (Wechsler 2003) are not suitable for deaf (oral tasks); they target non-specific linguistic aspects and require a psychologist to be administered; COMPENDO (Cecchetto et al. 2012) is too complex for children though it presents the kind of linguistic granularity we would be interested in. (see Cardinaletti 2019)

A proposal: **COnVERSA**

Test di Comprensione delle
Opposizioni morfo-sintattiche
VERbali attraverso la Scrittura

Version 3

- Based on **Grammaticality Judgments (Version 3)**: simple sentences to be judged
- **Lexical items are controlled**: only elementary words are included (cf. Lessico Elementare, Marconi et al. 1994)
- **Rich set of phenomena tested**: functional fields are selectively tested (DP, IP, CP)
- Two administration procedures tested (version 3):
complete and **dynamic**
 - **Complete mode** (240 items); divided in **two parts** (A and B) that can be administered at the beginning and at the end of a specific (logopedic) training; each part is divided in **two sections** (about 10-15 minutes each).
 - The **Dynamic mode** uses a complexity metric to select the block to be prompted; the following block is chosen according to child's performance: if the child succeeds in 80% of the items of the previous block an increasing complexity block is proposed, if the child performance on the previous block is below 80%, a less complex block is selected.

A proposal: COnVERSA

Test di Comprensione delle
Opposizioni morfo-sintattiche
VERbali attraverso la Scrittura

Version 4



- Based on **Forced Choice (Version 4)**: still simple sentences to be judged... but comparatively
- **Lexical items are still controlled**: "Fundamental Words" vs. "Highly-used" vs. "Highly-available" (cf. Nuovo Vocabolario di Base, De Mauro 2016)
- **Same set of phenomena tested**
- **Four ways** to test a dependency:
 - **A** - Agreement
 - **B** - Thematic structure
 - **C** - Pronominalization
 - **D** - Wh- questions
- **Three control checks**: **Vocabulary richness**, **featural sensitivity** and **Working Memory / Attention**
- The complete administration modality split:
 - **Base** (144 items) + **Advanced** (200 items); each divided in **two equivalent (but lexically different) parts (A and B)**; each part is divided in **two sections** (about 7-14 minutes each)

A proposal: **COnVERSA**

Test di Comprensione delle
Opposizioni morfo-sintattiche
VERbali attraverso la Scrittura

Version 3


🕒 A simple story to set-up the task:

The instructor tells the child a story about an alien (Melix) who came to the Earth and want to learn Italian.

(S)he tries producing sentences and answer questions, but sometimes (s)he generates wrong expressions.


The child should help her/him by indicating if her/his production was **ok** or **not**.


Progresso




Questa sarà la storia che dovrà essere raccontata al bambino in un modo a lui accessibile:


Melix è un alieno appena arrivato sulla terra.
Vuole imparare l'italiano, ma fa tanti errori quando parla:

 Io provare, ma no riescere bene parlare!

 Puoi aiutare me Melix, per favore?

Quello che devi fare è semplice:

se Melix dice qualcosa o risponde ad una domanda in modo **sbagliato** scegli 

se Melix dice qualcosa o risponde ad una domanda in modo **corretto** scegli 

Procedi

A proposal: COnVERSA

Test di Comprensione delle
Opposizioni morfo-sintattiche
VERbali attraverso la Scrittura

Version 3
(grammaticality judgments)

Computer-based version:

Paper & pencil version:

COnVERSA - Parte A Sezione 1

Nome	Data (AAAA-MM-GG)	Operatore

Ordine	Frase	X	✓
1	Il signore passeggia la strada.		
2	Il nonno è messo la coperta sulla sedia.		
3	Cosa faccio? Corri.		

A proposal: COnVERSA

Test di Comprensione delle
Opposizioni morfo-sintattiche
VERbali attraverso la Scrittura

Version 4
(forced choice)

Computer-based version:

The image displays two overlapping screenshots of the COnVERSA computer-based version interface. Both screenshots show a web browser window with a header bar containing 'USA MAIUSCOLE' and a 'Progresso' progress bar.

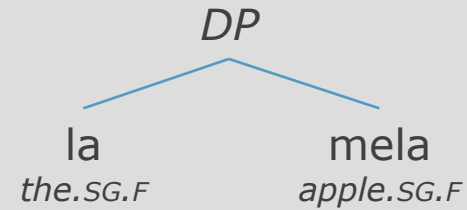
The top screenshot shows a question: 'Cosa fa la bambina con le monete?' (What does the girl do with the coins?). Below the question, there are two radio button options: 'La conta.' (She counts.) and 'Le conta.' (He counts.). A 'Procedi' (Proceed) button is located at the bottom right of the question area.

The bottom screenshot shows a question: 'Il bambino canta le canzoni.' (The boy sings the songs.). Below the question, there are two radio button options: 'Il bambino canta le canzoni.' (The boy sings the songs.) and 'Il bambino cantano le canzoni.' (The boy sing the songs.). A 'Procedi' (Proceed) button is located at the bottom right of the question area.

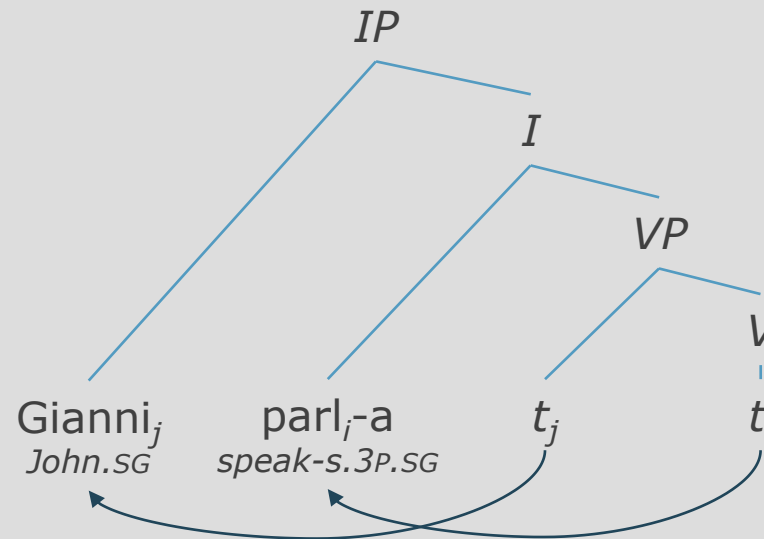
The linguistic rational behind COnVERSA

Focus on Agreement

One Merge



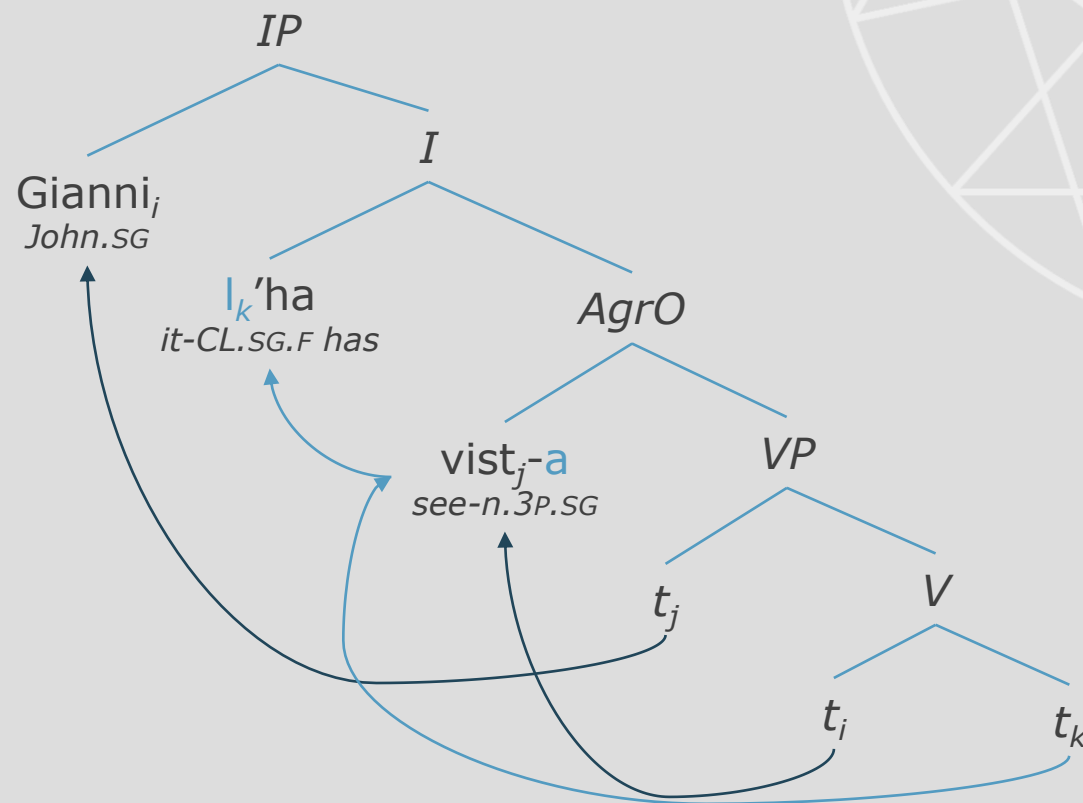
Merge + Move (e.g. Subj-V agreement, VP → IP)



The linguistic rational behind COnVERSA

Focus on Agreement

- Object clitic-past participle agreement (double VP → IP + AgrO/AgrS)



Gianni l'ha vista

John has seen it/her

The linguistic rational behind COnVERSA

- **Complexity** is related to the **height of the functional layers involved** and to the “**distance**” of the dependency (Moscatti & Rizzi 2013):
 - simple merge-based agreement (DP/NP)
<
 - movement-based Subj-V agreement (VP -> IP)
<
 - object clitic-past participle agreement (double VP -> IP + AgrO/AgrS)

- Growing trees (Friedmann et al. 2021)

Stage 1

[_{IP} [_{VP}]]

Stage 2

[_{QP} [_{ModP} [_{FinP} [_{IP} [_{VP}]]]]]]

Stage 3

[_{Force} [_{Int} [_{Top} [_{QP} [_{ModP} [_{FinP} ...]]]]]]

- **A complexity metric** assigning a synthetic value (**from 1 to 10**) to each item/block based on the **height** of the functional level involved (the higher -> the more complex) and the **locality** of the dependency (Chesi & Canal 2019)

Minimal pairs in COnVERSA

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

A4. Attraction

A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

○ A1. D-N

Il giorno.
the.SG.M day.SG.M

***I** giorno.
the.PL.M day.SG.M

○ A2. Subject-Adjectival Predicate

Il muro è rosso.
the wall.SG.M is red.SG.M

***Il** muro è rossa
the wall.SG.M is red.SG.F

○ A3. Subject-Verb

La maestra corre
the teacher runs

***La maestra** corr**ono**
the teacher run

(Unergative)

Arriva **la maestra**
(there) arrives the teacher

*Arriva **le maestre**
(there) arrives the teachers

(Unaccusative)

Il maestro corregge i compiti
The teacher corrects the homework.PL

***Il maestro** corregg**ono** i compiti (Trans.)
The teacher correct the homework.PL

○ A4. Attraction

Il muro della casa è rosso.
the wall.SG.M of the house.SG.F is red.SG.M

***Il** muro della casa è rossa
the wall.SG.M of the house.SG.F is red.SG.F

La maestra degli alunni corre
The teacher of the students runs

***La maestra** degli alunni corr**ono**
The teacher of the students run

○ A5. Past Participle

La foglia è caduta
the leaf.SG.F is fallen.SG.F

***La** foglia è cadute
the leaf.SG.F is fallen.PL.F

Minimal pairs in COnVERSA

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

A4. Attraction

A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

○ A6. Psych verbs

A Gianni piacc**iono** **i gelati**

To John like the ice creams

"John likes ice creams"

*A Gianni piace **i gelati**

To John likes the ice creams

Il compito preoccup**a** gli studenti

The homework worries the students

***Il compito** preoccup**ano** gli studenti

The homework worry the students

○ A7. Cumulative

Gianni e io andi**amo** al mare

John and I go.1p.pl to the beach

*Gianni e **io** vad**o** al mare

John and I go.1p.sg to the beach

Minimal pairs in COnVERSA

B. Thematic roles

B1. Argumental structure

B2. Auxiliary selection

B3. Passive diathesis

○ B1. Argumental structure

Il libro cade **dal** tavolo.
the.sg book.sg falls off the table

Il nonno prende il cappello dall'armadio
The granpa takes the hat from the closet.

*Il libro cade **il** tavolo.
the.sg book.sg falls the table

*Il nonno prende **Ø** dall'armadio.
The granpa takes from the closet

○ B2. Auxiliary selection

Il gatto **ha** giocato.
the cat has played

*Il gatto **è** giocato.
the cat is played

○ B3. Passive diathesis

Il cuoco **è stato riconosciuto** dal ragazzo.
The chef has been recognized by the boy

*Il cuoco **ha riconosciuto** dal ragazzo.
The chef has recognized by the boy

Minimal pairs in COnVERSA

C. Pronouns

C1. I and II person pronouns

C2. Reflexives

C3. Clitics

○ C1. I and II person pronoun rotation

Cosa fai?

What do you do?

Mangio.

(I) eat.1P.SG

*Mangi.

(You) eat.2P.SG

○ C2. Reflexives

Il ragazzo scivola.

The boy slips.

*Il ragazzo si scivola.

The boy himself slips.

Il pittore si preoccupa del quadro.

*Il pittore ~~si~~ preoccupa del quadro.

The painter himself worries about the painting

"The painter is worried about the painting"

○ C3. Clitics

La nonna disegna un albero e lo colora.

*La nonna disegna un albero e gli colora.

The granma draws a tree and it/to_it paints.

Il nonno vede la bambina e le compra un gelato.

* Il nonno vede la bambina e la compra un gelato.

The granpa sees the child and her/to_her buys a ice cream.

Minimal pairs in COnVERSA

D. Questions

D1. Questions on modifiers/adjuncts

D2. Questions on arguments

D3. Polar questions

D4. Why questions

D5. Questions on subject/object
relatives

○ D1. Questions on modifiers/adjuncts

Dove dorme il ragazzo?

Where does the child sleep?

In camera.

In the bedroom

***Di notte.**

At night

○ D2. Questions on arguments

Chi mangia?

Who eats?

La mamma.

Mom

***La pasta.**

Pasta

Cosa mangia?

What (does (s)he) eat?

La pasta.

Pasta

***La mamma.**

Mom

○ D3. Polar questions

La bambina sogna?

(Does) the child dream?

Sì.

Yes

***Una torta.**

A cake

Minimal pairs in COnVERSA

D. Questions

D1. Questions on modifiers/adjuncts

D2. Questions on arguments

D3. Polar questions

D4. Why questions

D5. Questions on subject/object
relatives

○ D4. Why questions

Perché il bambino dorme?

Why does the child sleep?

Perché è tardi.

Because (it) is late

*No.

No

Perché il ghiaccio si scioglie?

Why does the ice melts?

Perché fa caldo.

Because it is hot

*Fuori dal frigo.

Outside the fridge

○ D5. Questions on subject/object relative clauses

Ci sono due bambine.

Una corre, l'altra salta e chiama i cugini. Quale bambina salta?

There are two children. One runs, the other jumps and calls the cousins.

Which one jumps?

Quella che chiama i cugini.

The one who calls the cousins

*Quella che i cugini chiamano.

The one who the cousins call

Ci sono due maestri.

Uno insegna ed è ascoltato dagli studenti, l'altro si riposa.

Quale maestro insegna?

There are two teachers. One teaches and he's listened to by the students, the rests. Which one teaches?

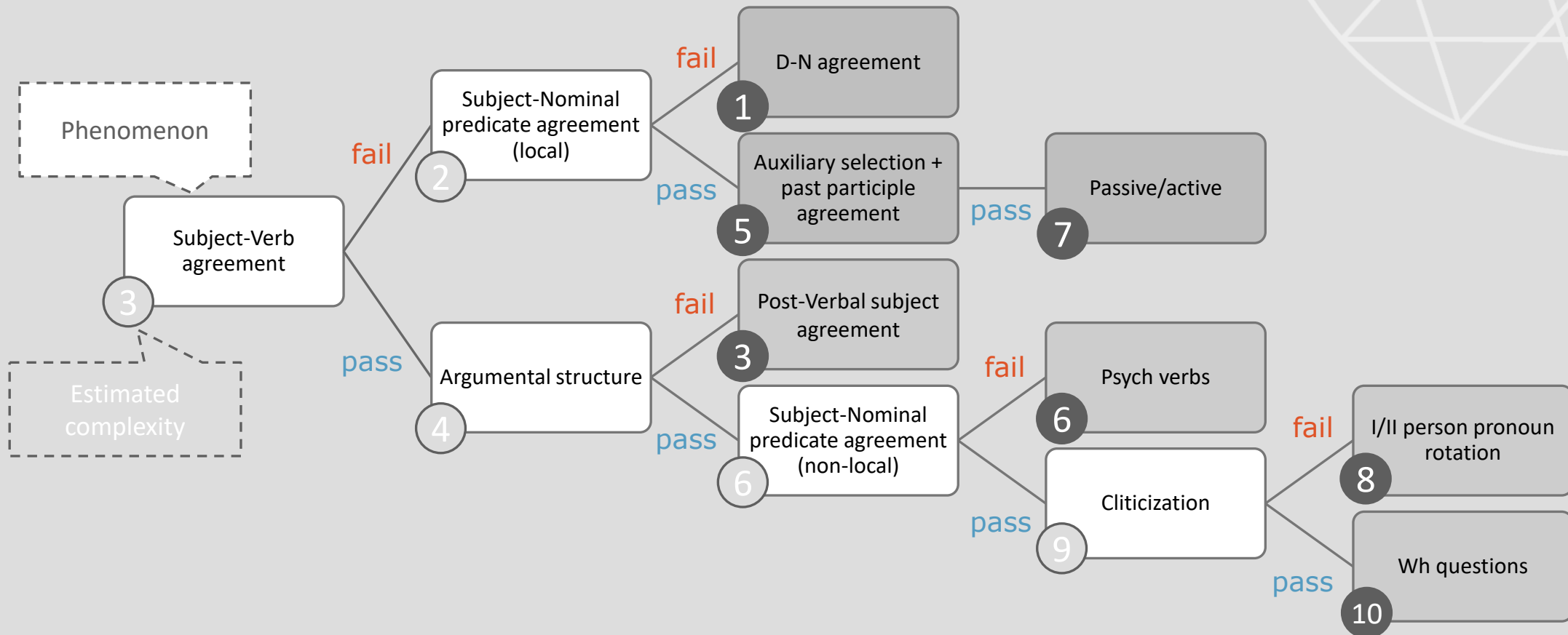
Quello che gli studenti ascoltano.

The one who the students listen to

*Quello che ascolta gli studenti.

The one who listens to the students

Decision Tree in the dynamic modality



Results (control group)

Version 3

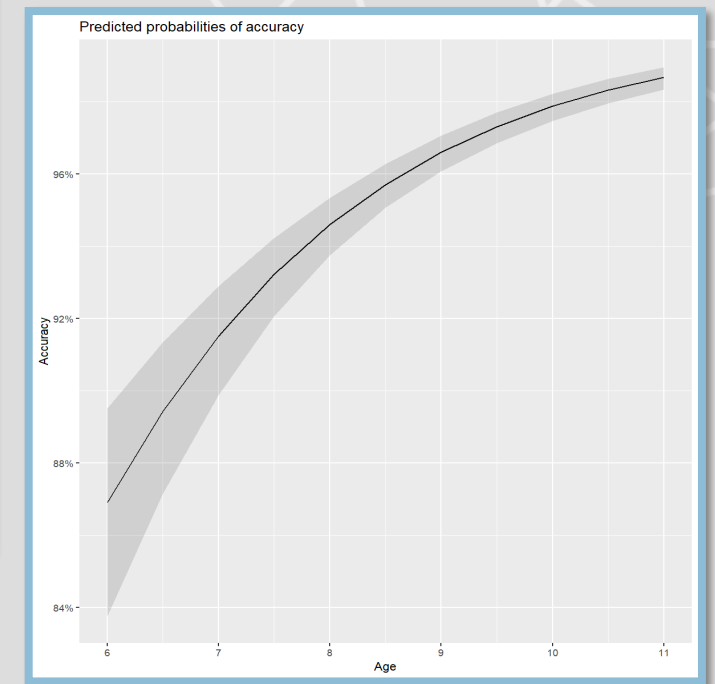
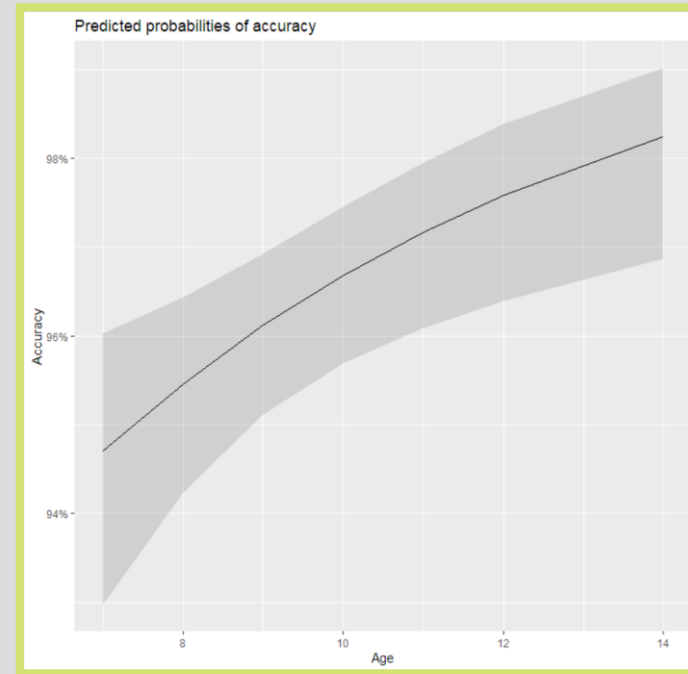
87 normally developing
Hearing Children
(Age range=7-14, $M=8.73$, $SD=1.48$)

Version 4

787 normally developing
Hearing Children
(Age range=6;6-11, $M=8.93$, $SD=1.25$)

Age in the control group

- Significant **Age** effect ($\chi^2=8.8239$ $p=0.003$) - **Version 3**



- Significant **Age** effect ($\chi^2=395.89$ $p<0.0001$) – **Version 4**

Results (control group)

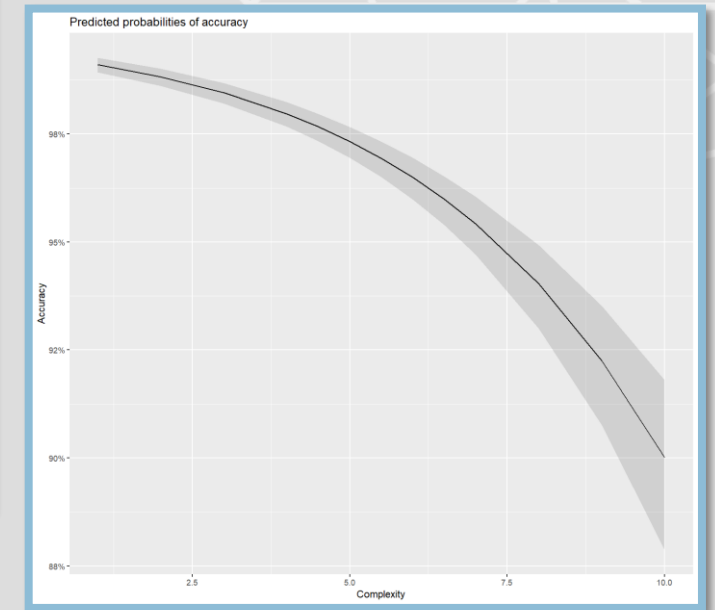
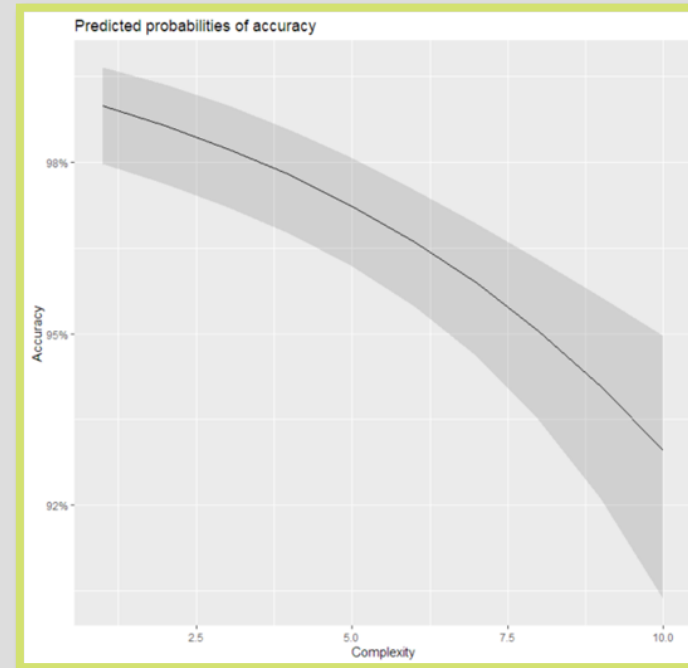
Version 3

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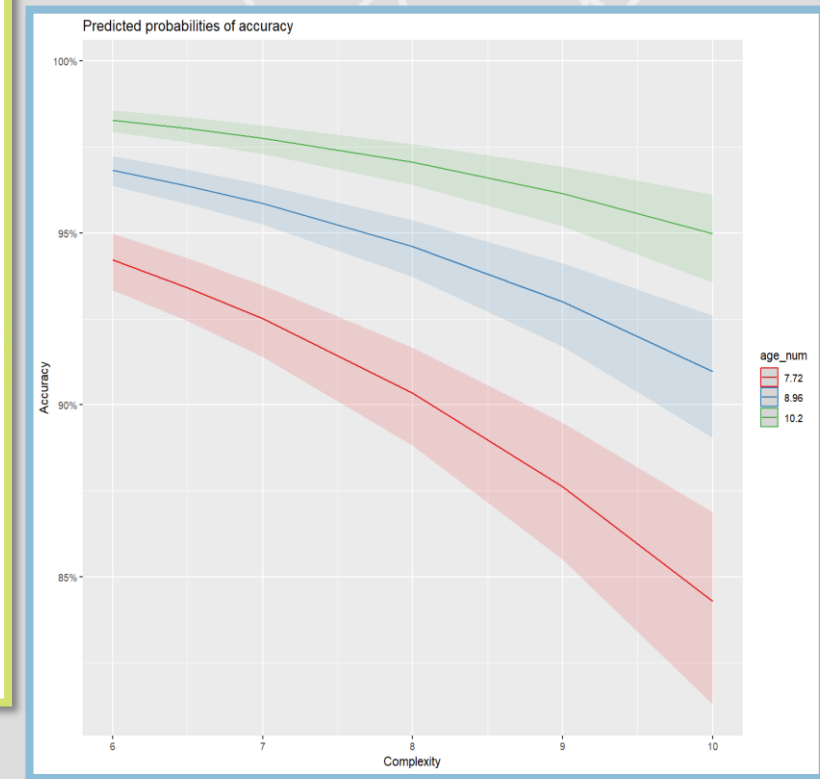
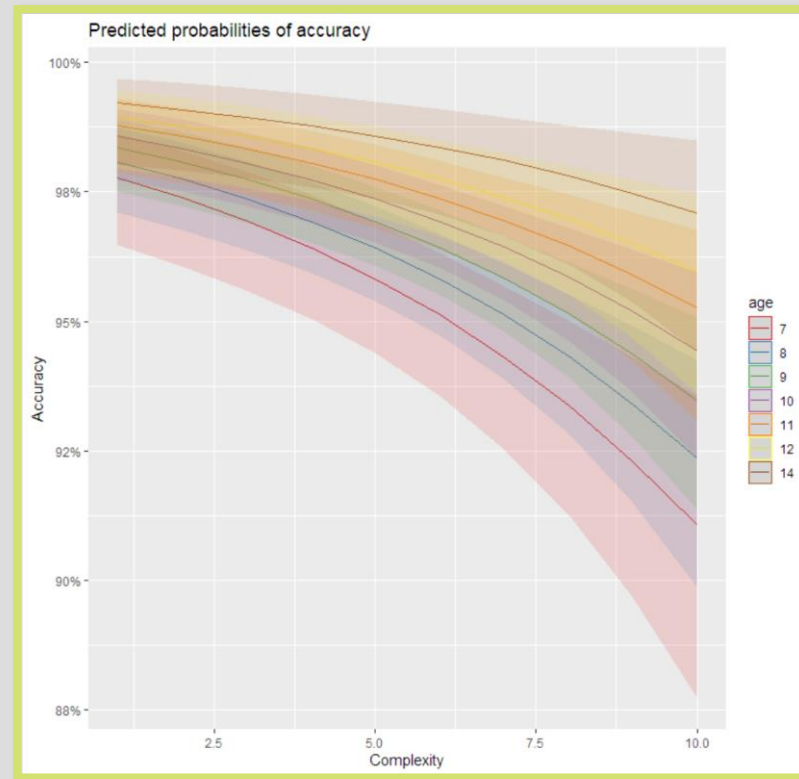
- Estimated **Complexity** in the control group
 - Significant **Complexity** effect ($\chi^2(3)=15.0983$ $p<0.001$) - **Version 3**



- Significant **Complexity** effect ($\chi^2(3)=906.04$ $p<0.0001$) – **Version 4**

Results (control group)

- **Age and complexity** in the control group
 - Significant interaction **Age X Complexity** ($\chi^2(9)=8.8934, p=0.011$)
- **Version 3**



- Significant interaction **Age X Complexity** ($\chi^2(9)=364.75, p<0.0001$)
- **Version 4**

Results (control group)

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

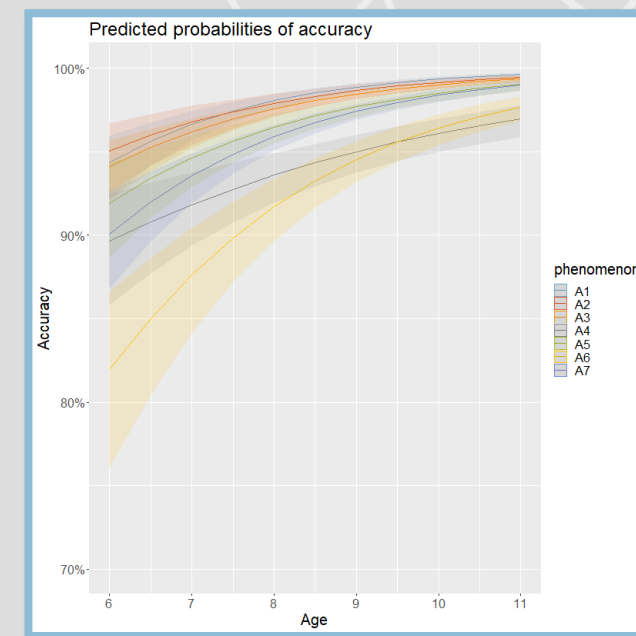
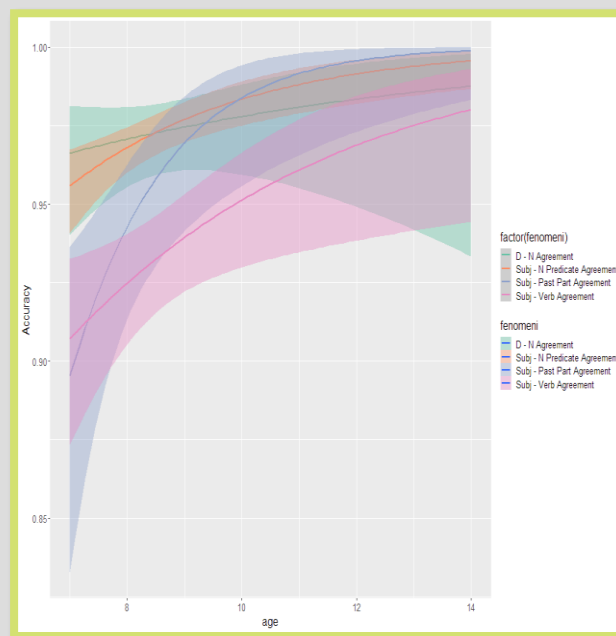
A4. Attraction

A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

- Significant difference for agreement **Type**
(Ver.3: $\chi^2(9)=22.4445$ $p<0.001$; Ver. 4: $\chi^2(9)=1452.3$, $p<0.0001$)
- Significant interaction of agreement **Type X Age**
(Ver. 3: $\chi^2=18.4920$, $p=0.018$; Ver. 4: $\chi^2(15)=304.1$ $p<0.0001$)



- A1 D-N** \cong

A4 Attraction \cong

A5 Past Part \cong

A2 S-AP

A6 Psych V,

A7 Cumulative
- D-N Vs. Subject-Verb** agreement: $estimate=0.7480$, $SE=0.152$, $z=4.924$, $p<0.0001$

Results (control group)

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

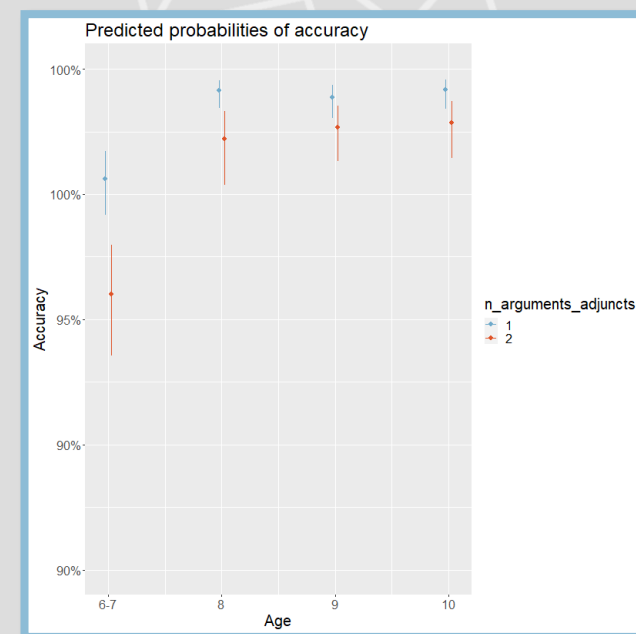
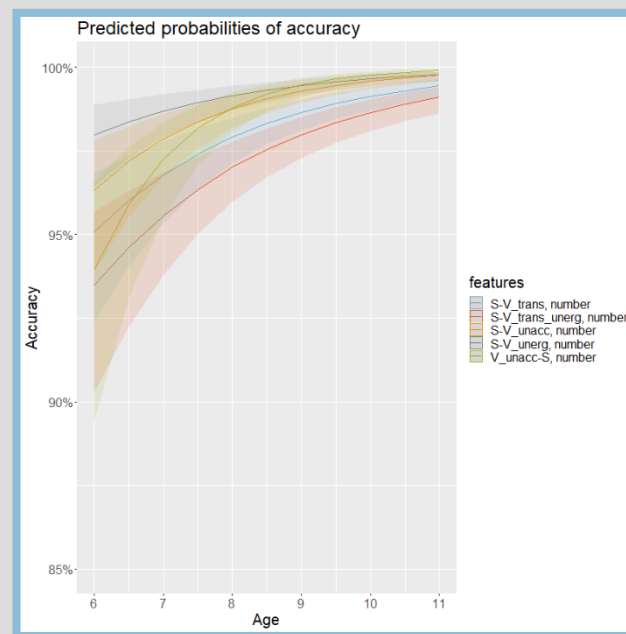
A4. Attraction

A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

- Significant interaction in Subj-Verb **type** between predicate type and **Age** (Ver. 4: $\chi^2(19)=138.296$, $p<0.0001$)



- Transitives < Unaccusatives and Unergatives
- Unaccusatives with post-V subjects \cong Unaccusatives and Unergatives with pre-V subjects
- The **number of arguments** is the significant factor, interacting also with age group ($\chi^2(39)=75.571$, $p=0.0004$): until **age 9**, 1-arg predicates > 2-arg predicates

Results (control group)

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

A4. Attraction

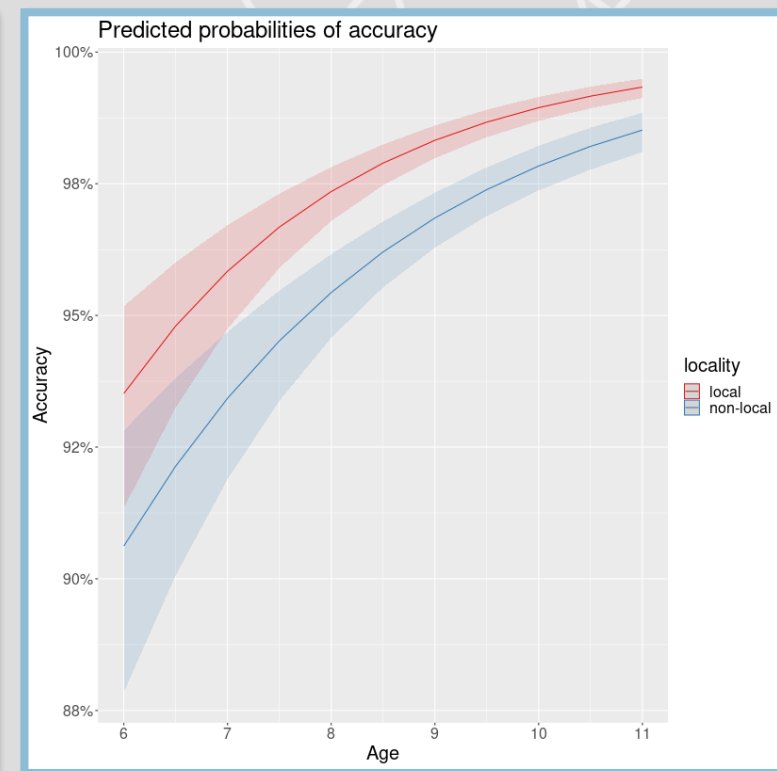
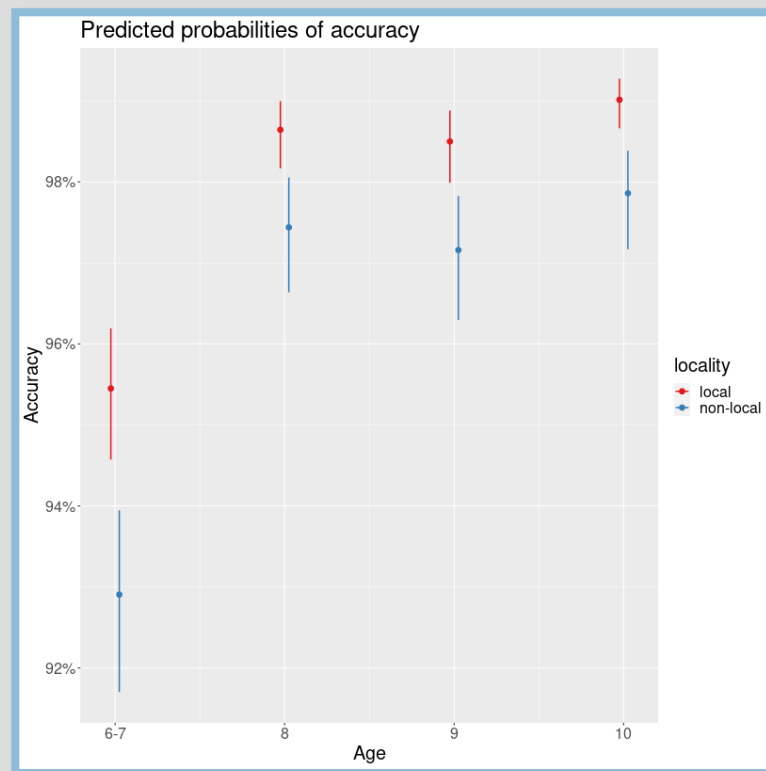
A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

Attraction in Agreement

- Significant *locality* X *age* effect ($\chi^2(6)=100.78$ $p<0.0001$)



Results (control group)

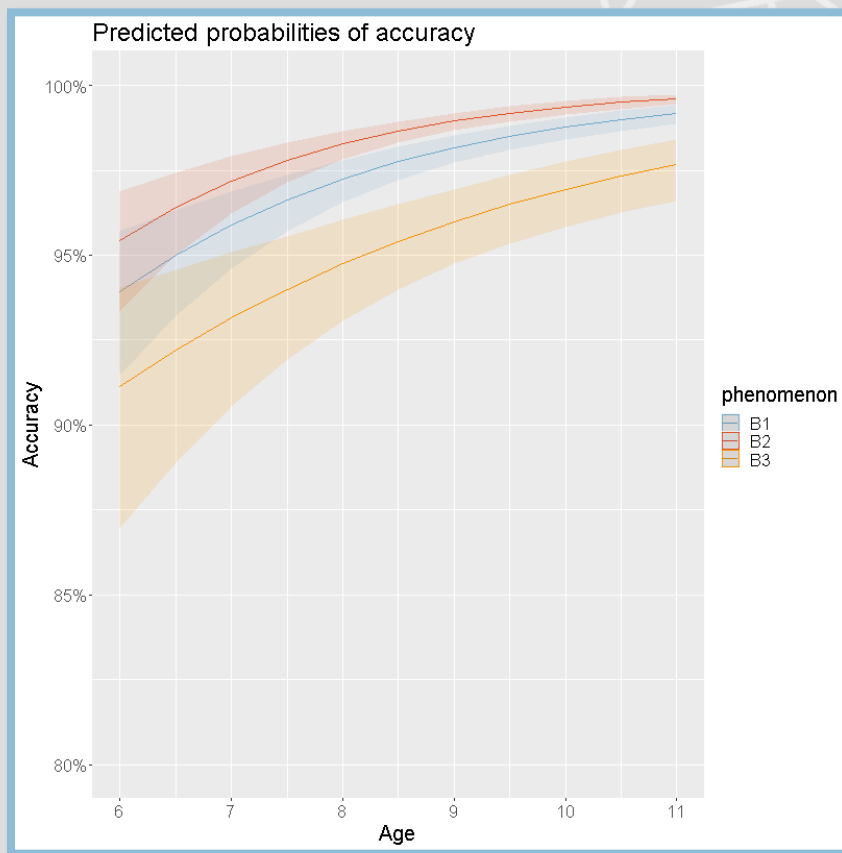
B. Thematic roles

B1. Argumental structure

B2. Auxiliary selection

B3. Passive diathesis

- Significant **age X** argument structure **type** interaction ($\chi^2(5)=108.786$, $p<0.0001$)



- B2 > B3
- B1 ≤ B2 (significant in 7-8 y.o. children)

Results (control group)

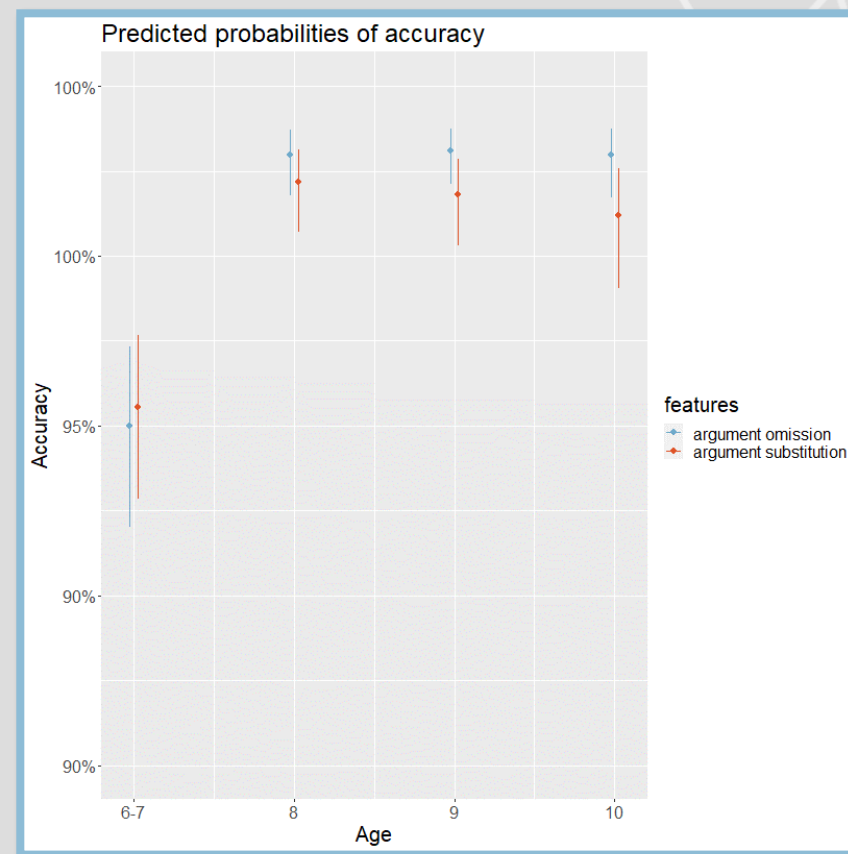
B. Thematic roles

B1. Argumental structure

B2. Auxiliary selection

B3. Passive diathesis

- Significant **age_group X features** interaction ($\chi^2(4)=18.1994$, $p=0.001$)



Results (control group)

C. Pronouns

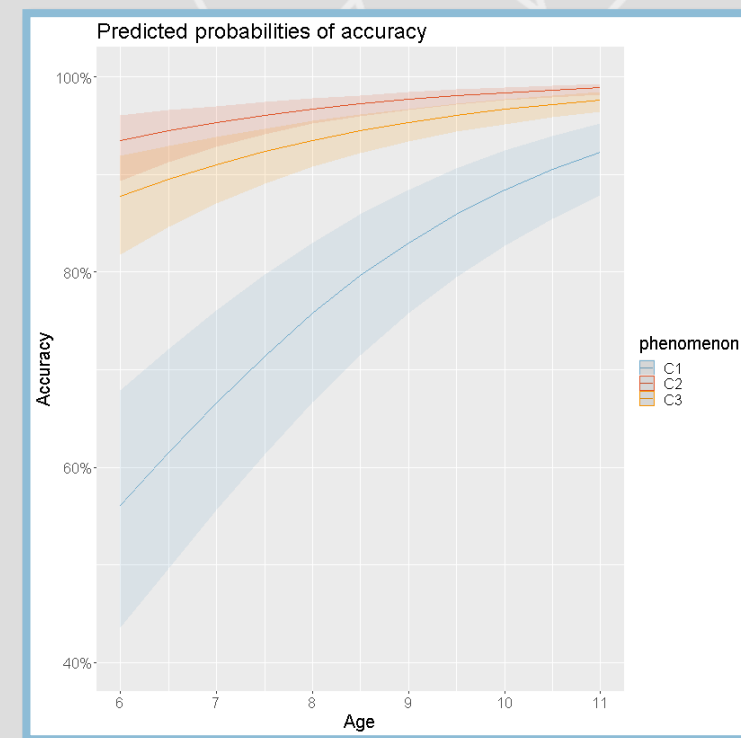
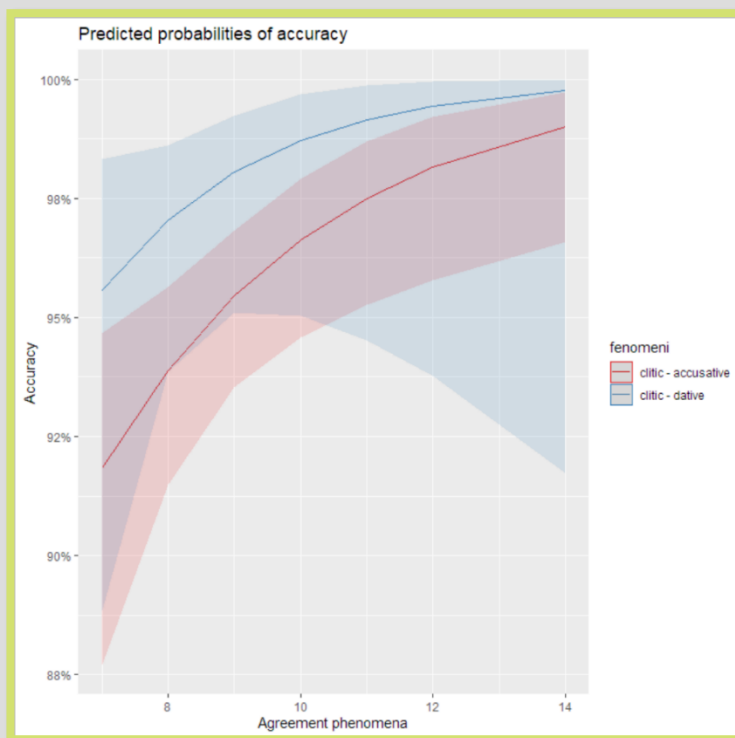
C1. I and II person pronouns

C2. Reflexives

C3. Clitics

Clitics

- Significant interaction *age* X *type* (**ver. 3** accusative vs dative) effect ($\chi^2(4)=9.4044$, $p=0.009$). **ver. 4** ($\chi^2(18)=123.82$, $p<0.0001$)



- C2 - C3: *estimate*=0.744, *SE*=0.257, *z*=2.901, *p*=0.0104

Results (control group)

D. Questions

D1. Questions on modifiers/adjuncts

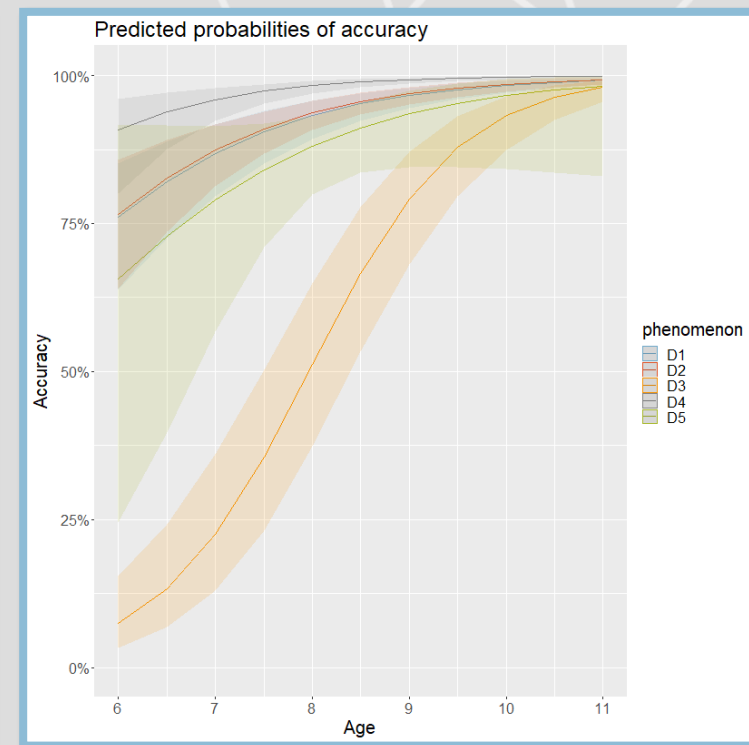
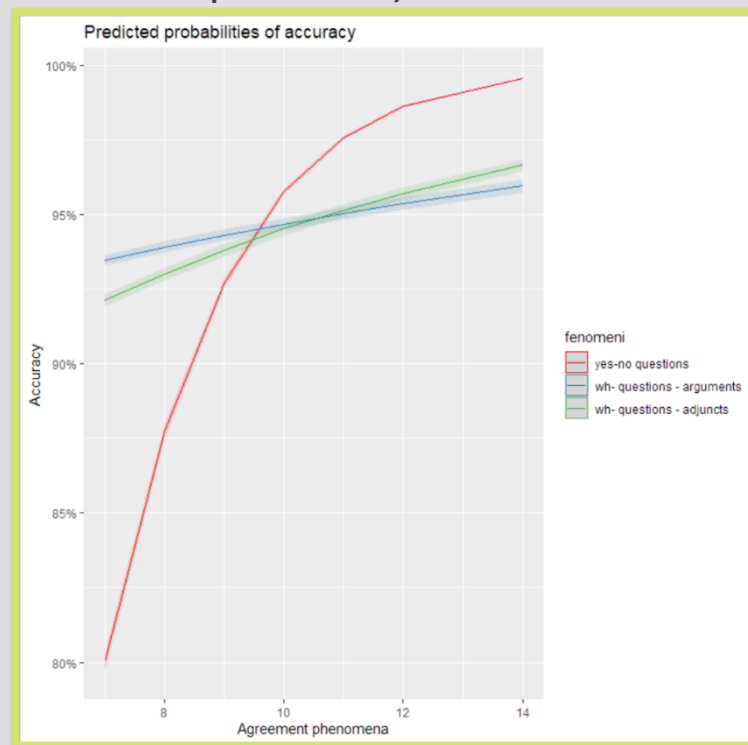
D2. Questions on arguments

D3. Polar questions

D4. Why questions

D5. Questions on subject/object
relatives

- A tendential interaction *age* X *type* (yes-no questions vs wh-arguments vs wh- adjuncts) effect in **version 3** ($\chi^2(3)=7.2862$, $p=0.06331$). A strong interaction in **version 4** ($\chi^2(45)=201.44$, $p<0.0001$)



○ **D1 wh- adjuncts** \cong **D2 wh- arguments**

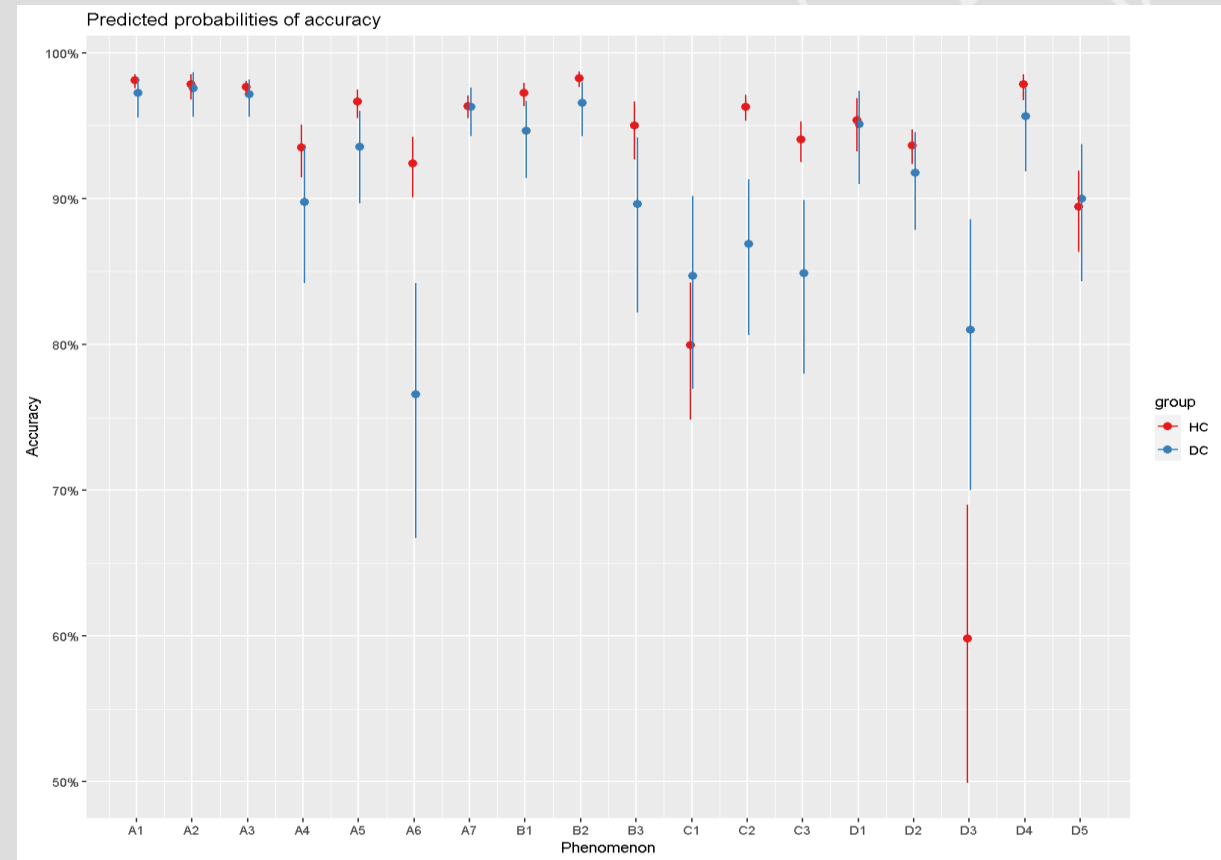
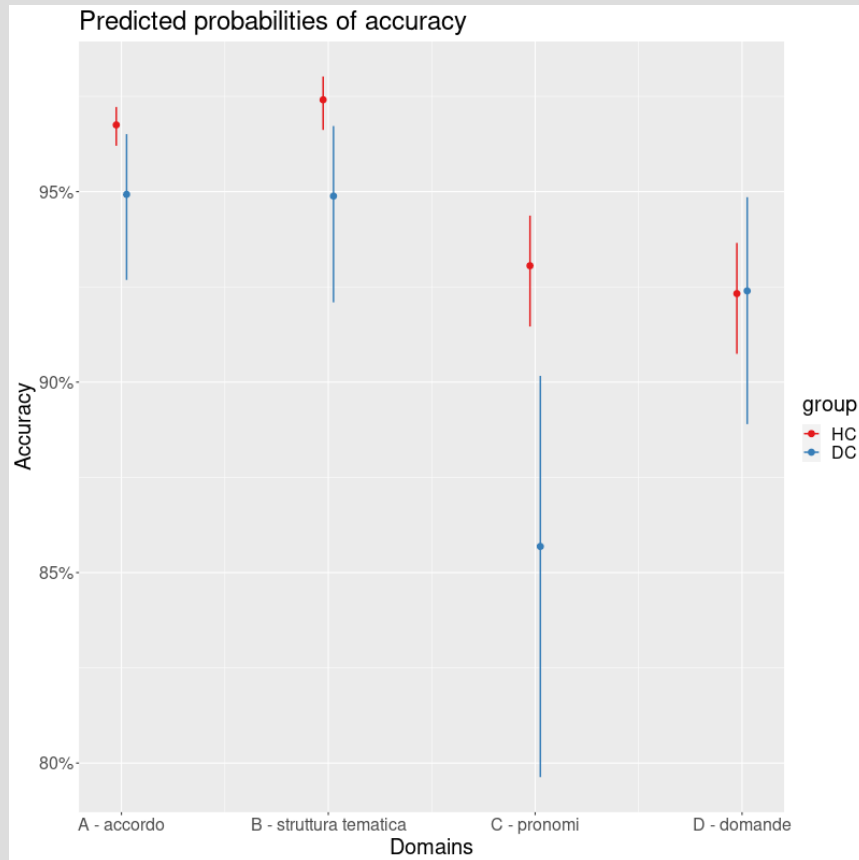
○ **object RC - subject RC**
estimate:-1.75, *SE*=0.608, *z*=-2.874, $p<0.0041$

Discussion (control group)

- The **CO_nVERSA** test is sufficiently sensitive to capture various relevant linguistic phenomena:
- **Attraction and intervention** (Franck et al. 2006, Friedman et al. 2009, Chesi & Canal 2019)
- **Asymmetries in agreement** (Moscati & Rizzi 2014)
- **Auxiliary selection vs passivization** (Belletti & Guasti 2015)
- **Clitic fragilities** (Hyams & Shaeffer 2007, Chesi 2000)
- **Wh-** questions (no difference between arguments and adjuncts) and discrimination between SR and OR in answering (cf. Guasti 1996)

Results

(deaf group: 54 subjects; *Age range*=6.6-72, *M*=15.84, *SD*=12.66)



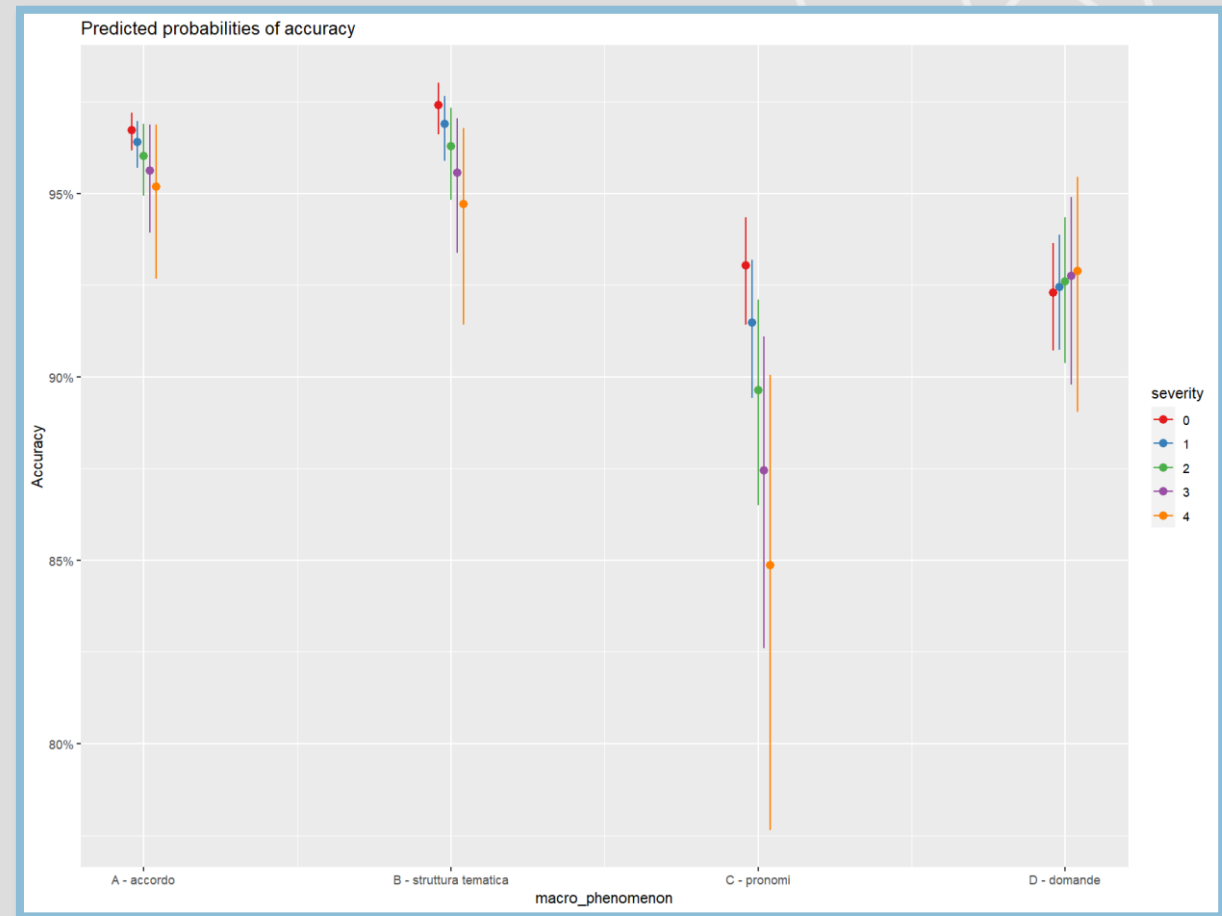
Results (deaf group)

Severity

- 0. Progressive: #1
- 1. Mild: #2
- 2. Moderate: #5
- 3. Severe: #8
- 4. Profound: #38

Severity

- Tendentally significant ($\chi^2(1)=3.5451, p=0.05$), very strong interaction with the tested domain ($\chi^2(4)=26.299, p<0.0001$)



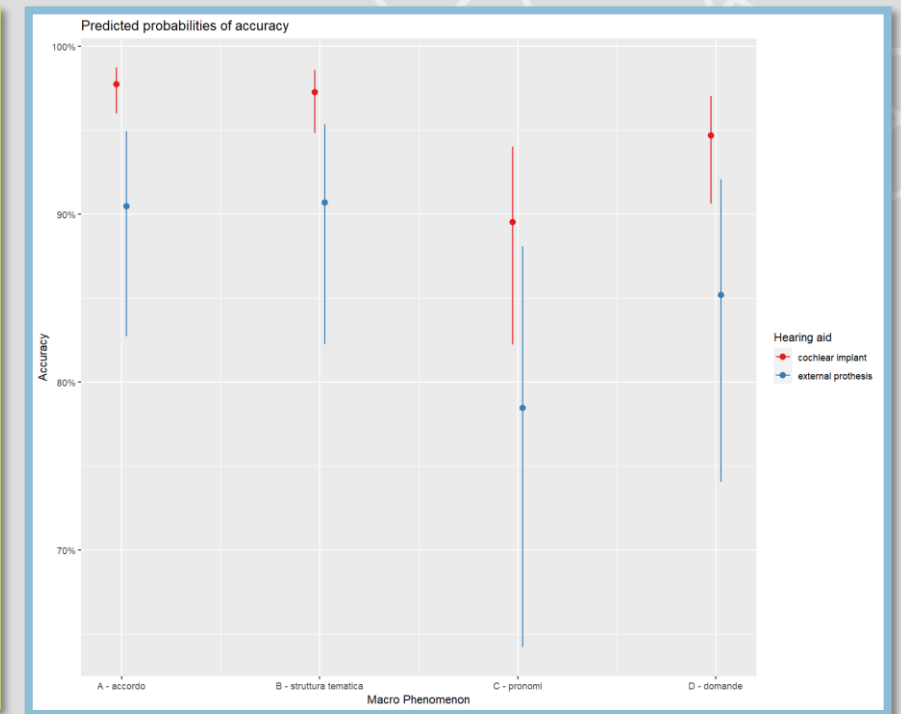
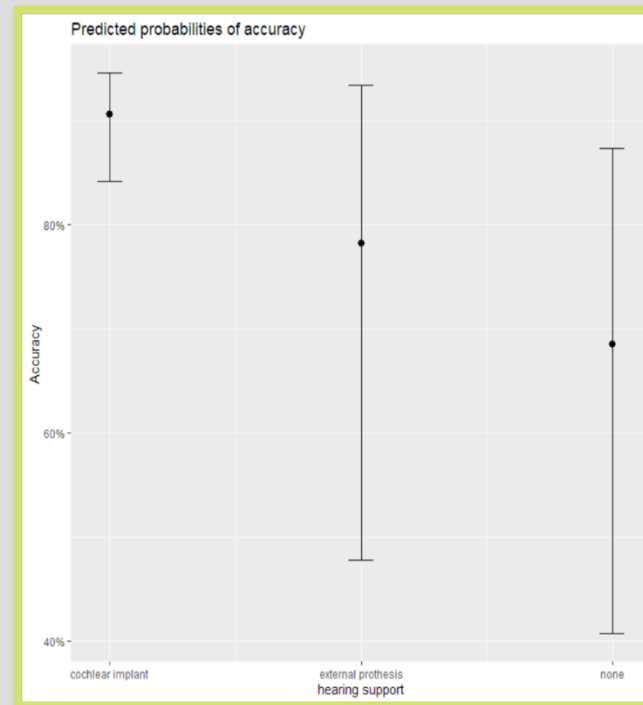
Results (deaf group)

Hearing aid

Cochlear implant: #32
External prosthesis: #22

○ Hearing aid

- Tendentially significant effect of *hearing aid* in **Version 3** ($\chi^2=7.7339$, $p=0.080$)



- Strongly significant correlation of *hearing aid* x *tested domain* in **Version 4** ($\chi^2(6)=36.10$, $p<0.0001$)

Results (deaf group)

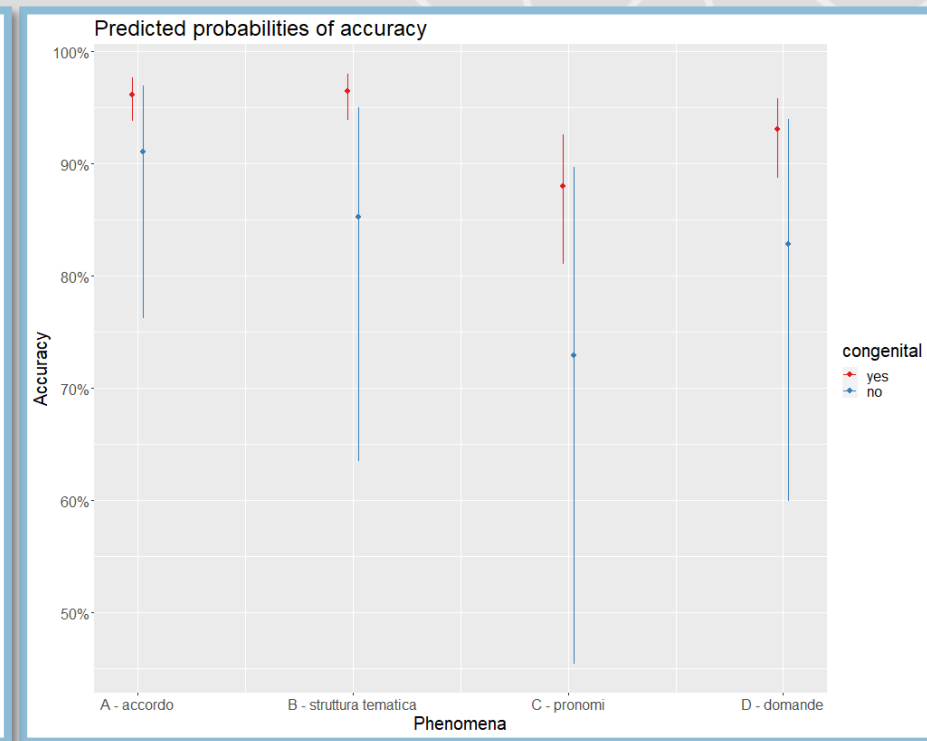
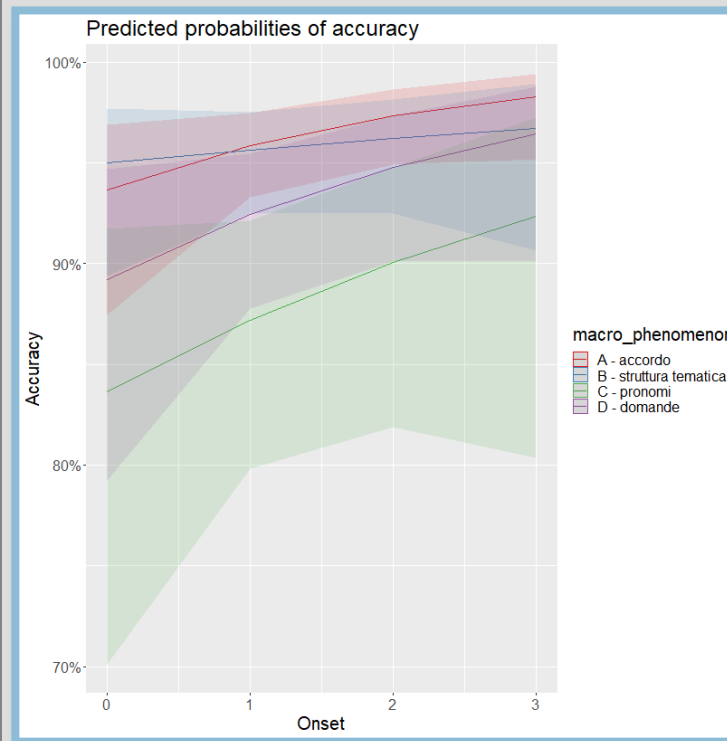
Onset

birth: #13
before 1 y.o.: #25
before 2 y.o.: #3
before 3 y.o.: #8

Congenital

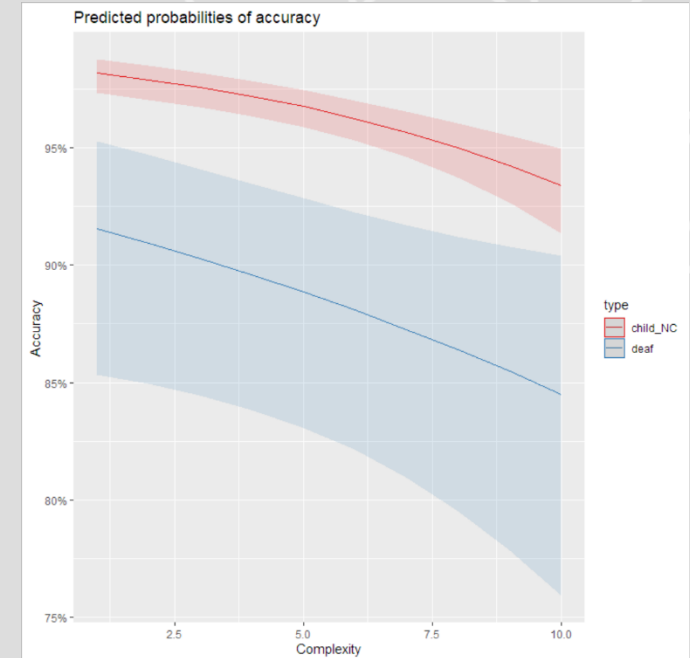
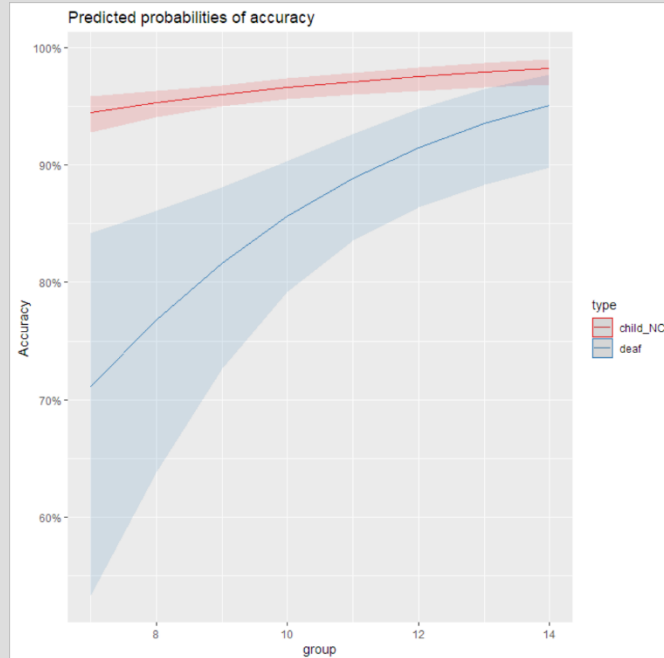
yes: #46
no: #8

- **Onset** and **Congenital** are **not** significant factors
- A mildly numerical interaction trend *onset x domain tested* emerge
- A significant interaction emerges *congenital x domain tested* ($\chi^2(4)=14.65, p<0.005$)



Results (deaf group)

- Age and **complexity** in comparison with the HC group
 - 34 deaf children (*Age range*=7-14, *M*=10.9, *SD*=2.14, all profound or severe deafness)



- Strongly significant *group* effect ($\chi^2=20.149$, $p<0.001$)
- Relatively significant *age* effect ($\chi^2=5.396$, $p=0.020$)
- Strongly significant *complexity* effect ($\chi^2=15.098$, $p<0.001$)

Results (deaf group)

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

A4. Attraction

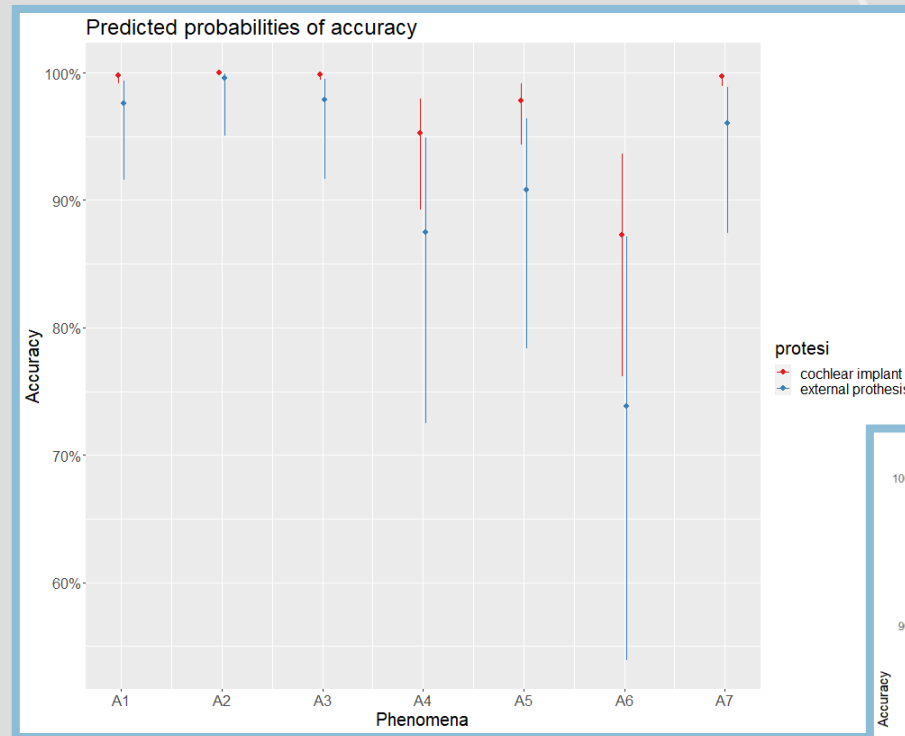
A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

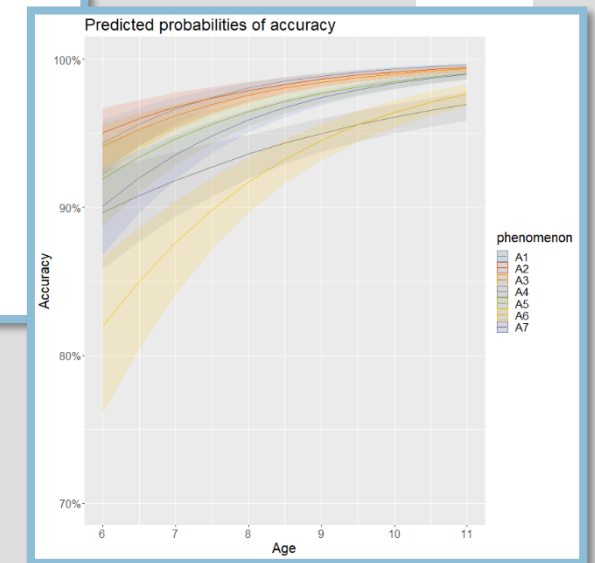
Agreement

- Strongly significant **agreement type** main effect and **Hearing aid x agreement type** interaction ($\chi^2(9) = 61.326, p < 0.0001$)



- HC: A1 \cong A2, A4 \cong A6, A5 \cong A7
- DC-CI: A1 \cong A2 \cong A3 \cong A7
- DC-EP: A1 \cong A2 \cong A3 \cong A4 \cong A5 \cong A7
- DC-CI A1, A2, A3, A7 >

DC-EP A2, A1, A2, A3, A7



Results (deaf group)

A. Agreement & Inflection

A1. D-N

A2. Subj-Adj Pred

A3. Subj-Verb

A4. Attraction

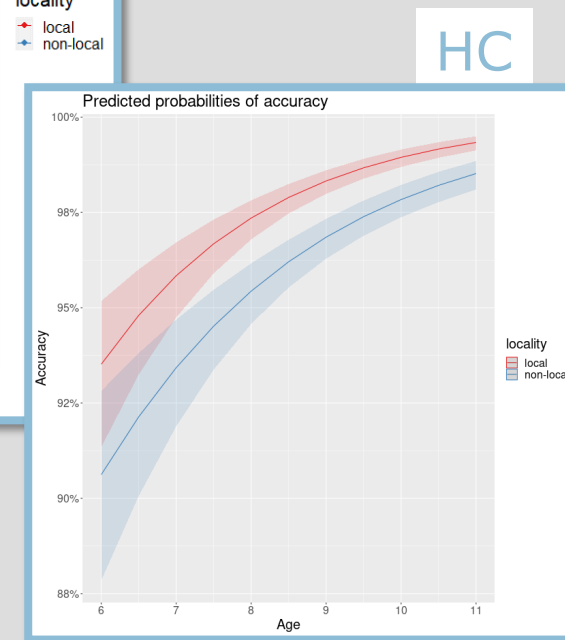
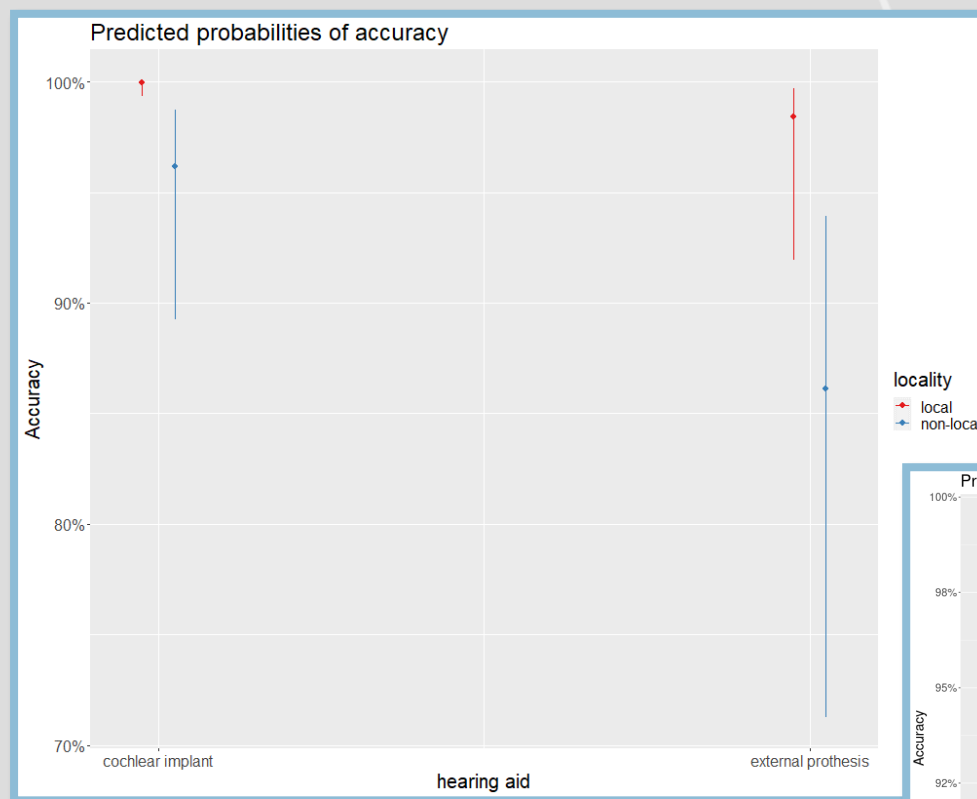
A5. Past-Participle

A6. Psych verbs

A7. Cumulative agreement

Attraction and Agreement

- Significant *locality* effect ($\chi^2(3)=109.019$, $p = 0.003$), but no interaction with hearing aid



Results (deaf group)

B. Thematic roles

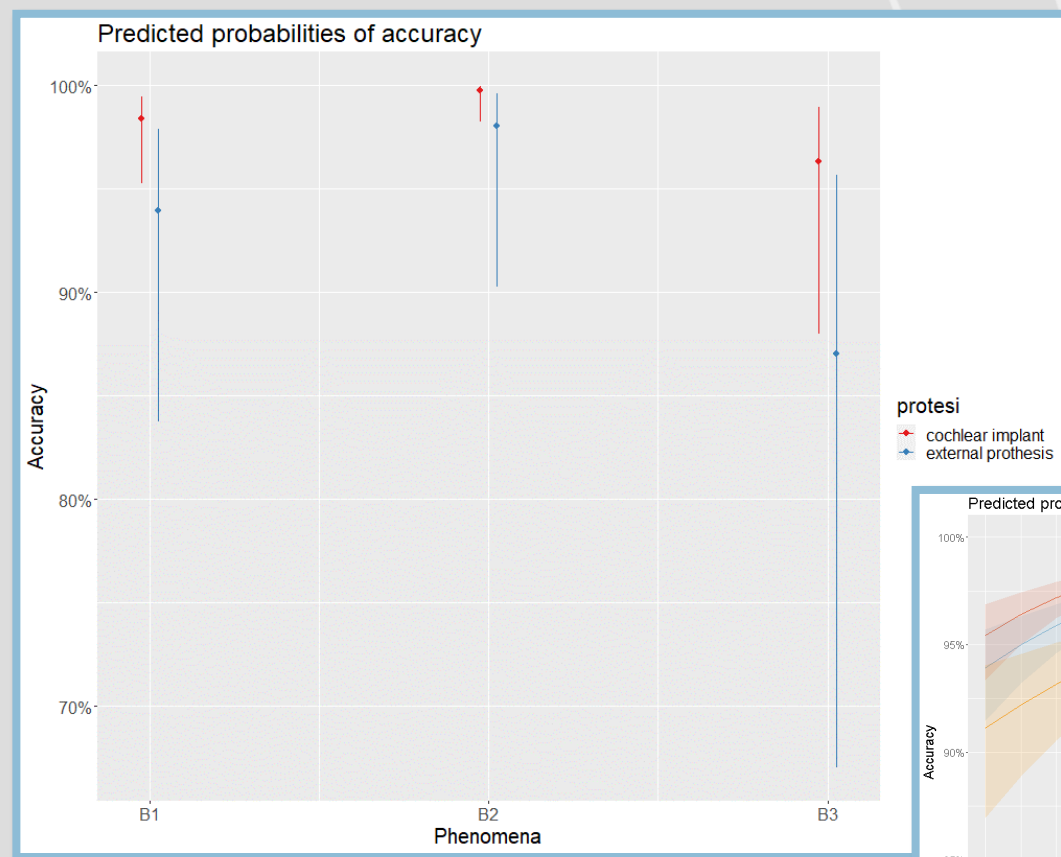
B1. Argumental structure

B2. Auxiliary selection

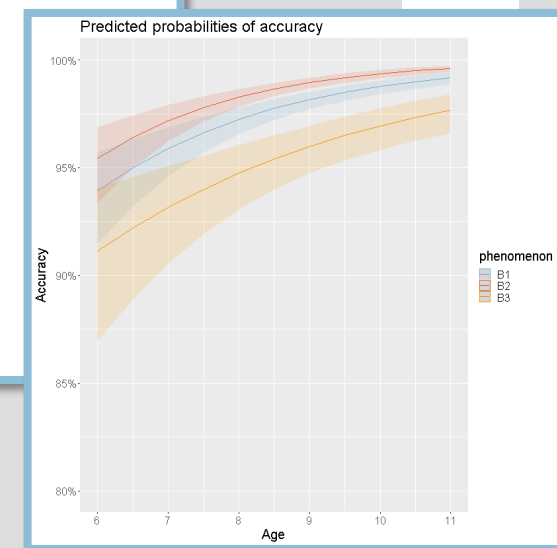
B3. Passive diathesis

Thematic roles

Mild *hearing aid* effect ($\chi^2(5)=9.8112$, $p=0.0807$)



HC



Results (deaf group)

B. Thematic roles

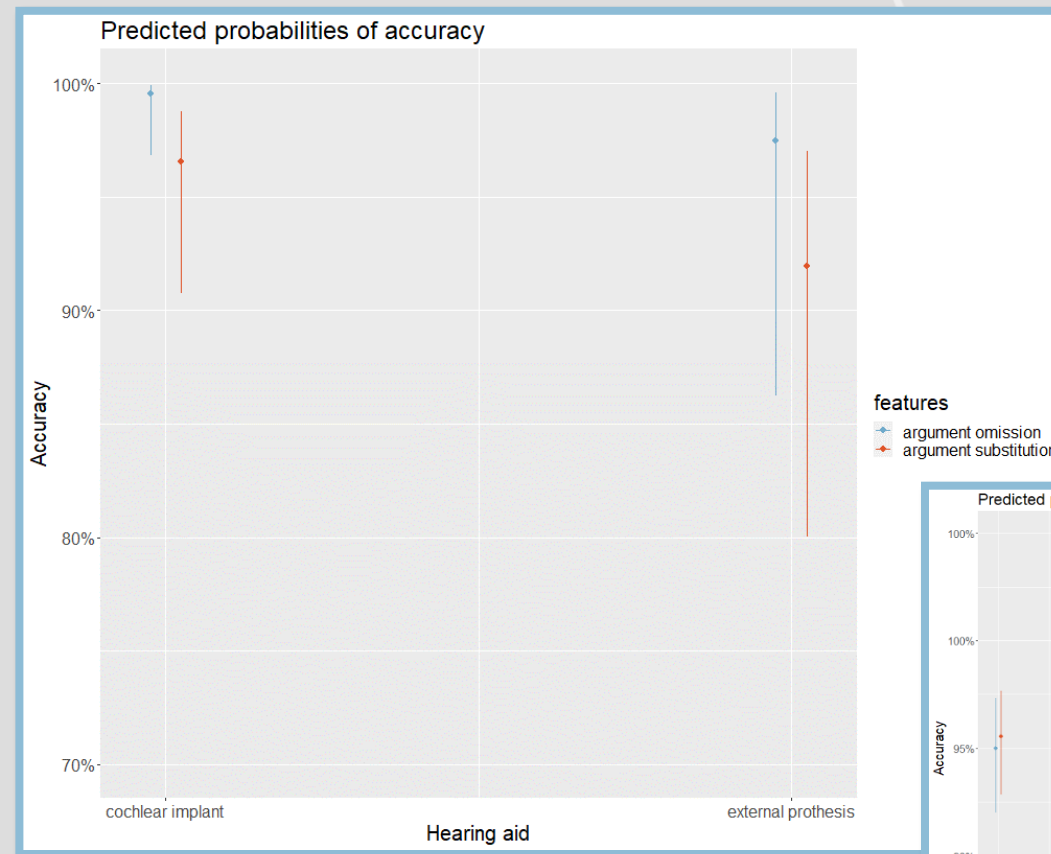
B1. Argumental structure

B2. Auxiliary selection

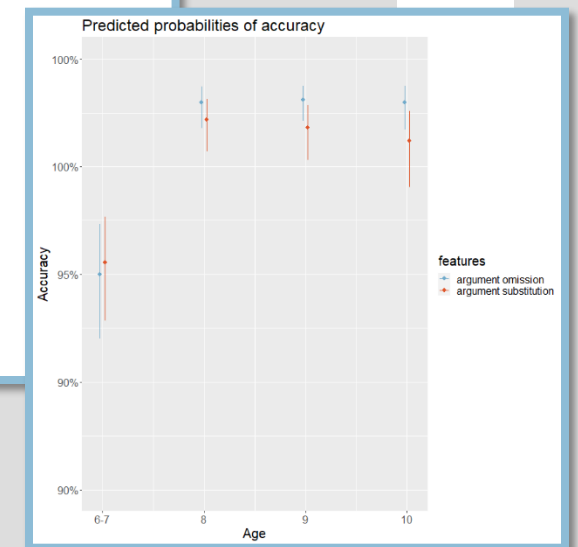
B3. Passive diathesis

Thematic roles

- No sensitivity to argument omission vs substitution



HC



Results (deaf group)

C. Pronouns

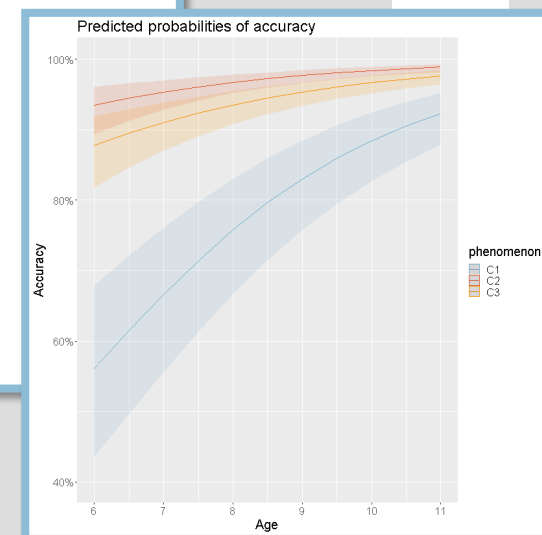
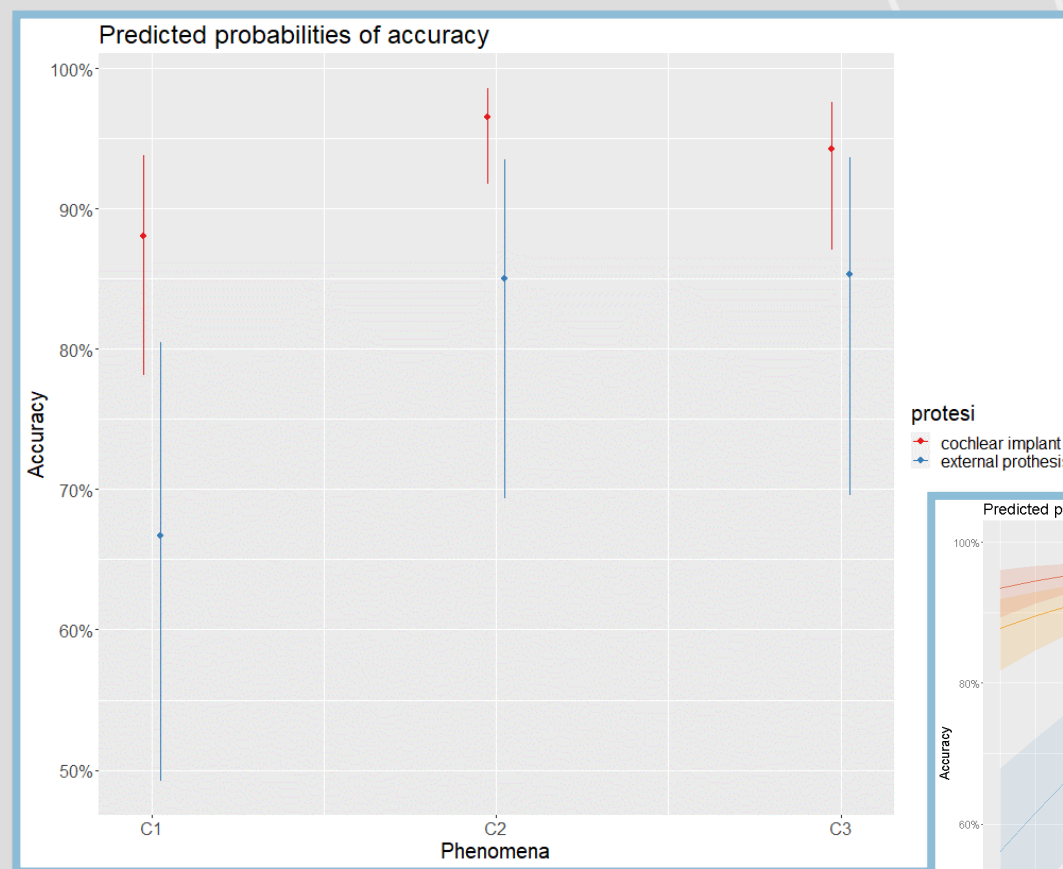
C1. I and II person pronouns

C2. Reflexives

C3. Clitics

○ Pronouns

- Strongly significant **type** main effect and **Hearing aid X type** interaction ($\chi^2(18)=29.061$, $p=0.0476$)



Results (deaf group)

D. Questions

D1. Questions on modifiers/adjuncts

D2. Questions on arguments

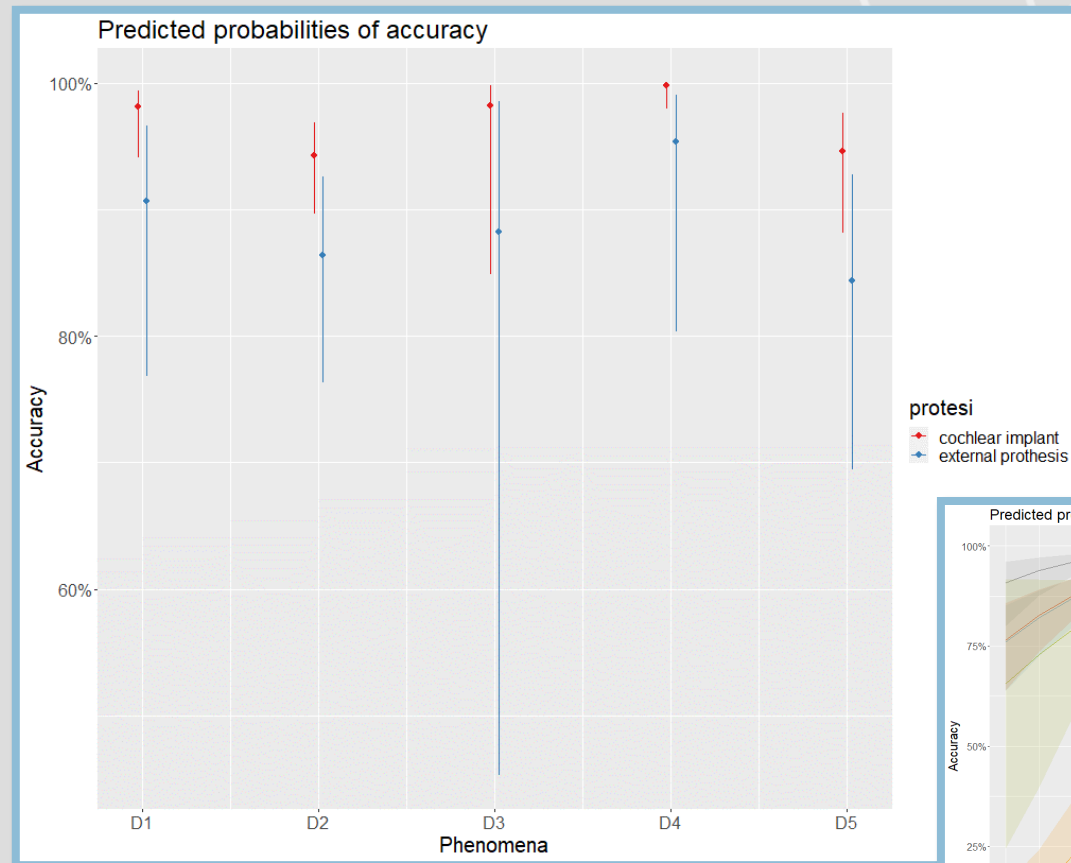
D3. Polar questions

D4. Why questions

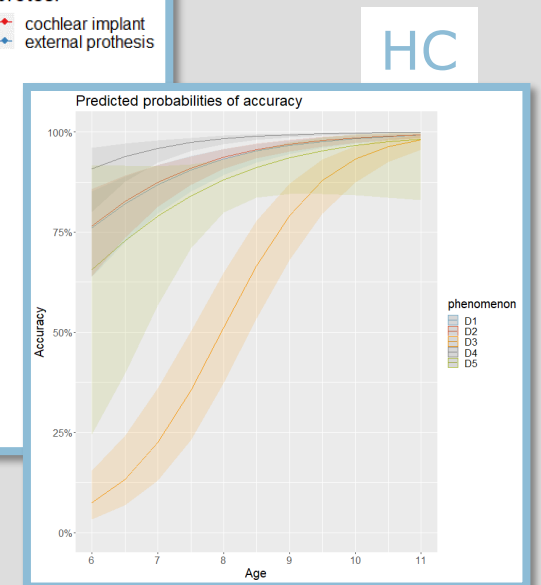
D5. Questions on subject/object
relatives

Questions

- Strong *hearing aid* effect ($\chi^2(5)= 19.75, p=0.002$)
- Mild interaction *hearing aid* X *type* ($\chi^2 (26)= 198.7103, p=0.092$)

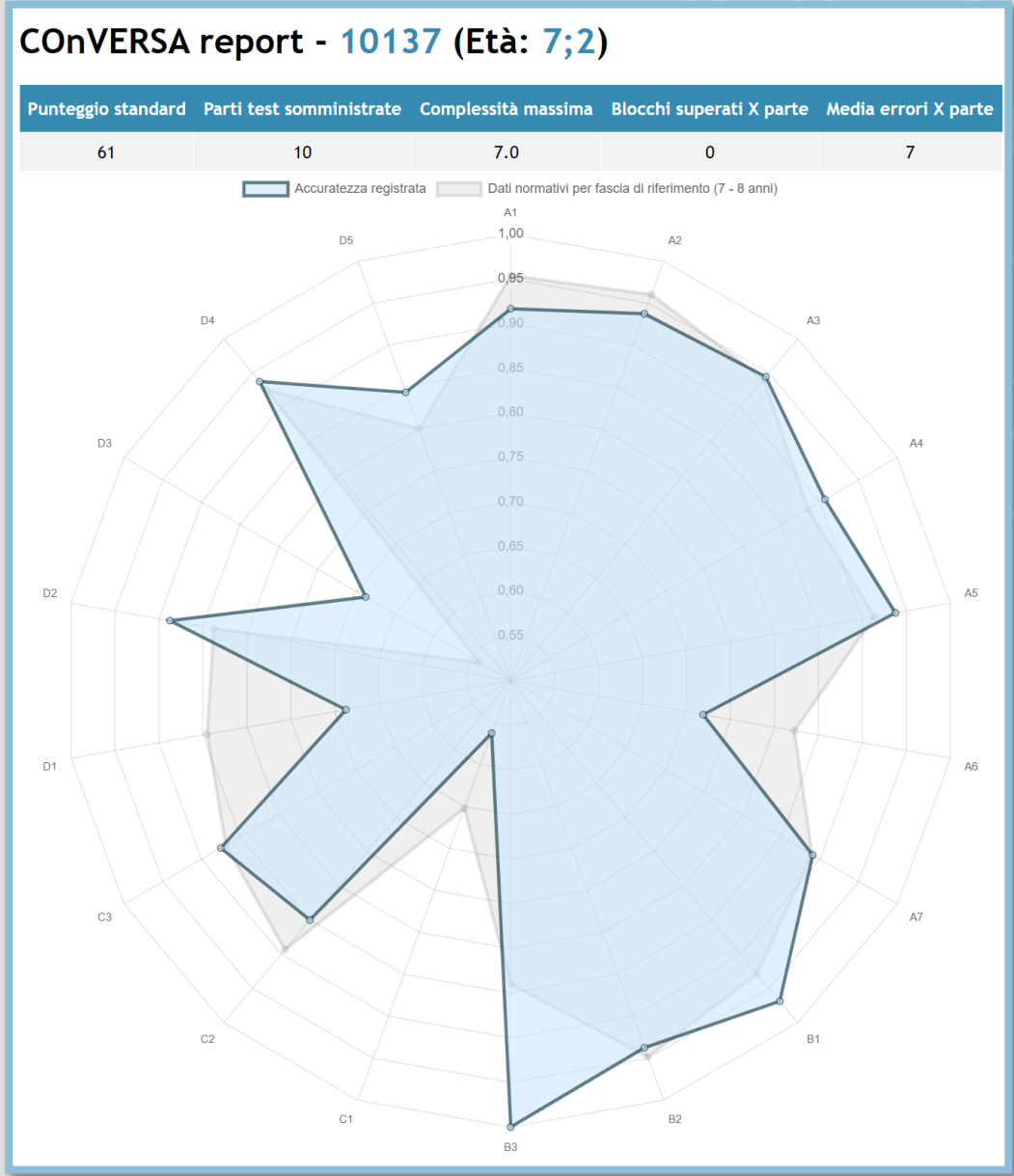


- SR \cong OR**
(in CI: SR - OR estimate=1.512,
SE=0.629, z=2.404, p=0.1547)



Standard Report

Hearing Child



Detailed Report

Hearing Child

Working memory:
performance on items with more
than 1 DP or PP

Features sensitivity:
discrimination between local and
non-local dependencies

Vocabulary:
rt of items including
less frequent words

Parametri generali di sensibilità grammaticale valutati

Fenomeni di Accordo	Ruoli tematici	Pronomi	Dipendenze non locali
89.45% (40° percentile)	96.43 (25° percentile, normale per i 6 anni)	81.73 (55° percentile)	84.38 (40° percentile)
Valori di controllo			
Memoria di lavoro / livello di attenzione valore di attenzione (88.76)	Sensibilità ai tratti sensibilità normale (85.42)	Ricchezza lessicale lessico povero (84.62)	

Accuratezza registrata nei parametri linguistici degni di attenzione

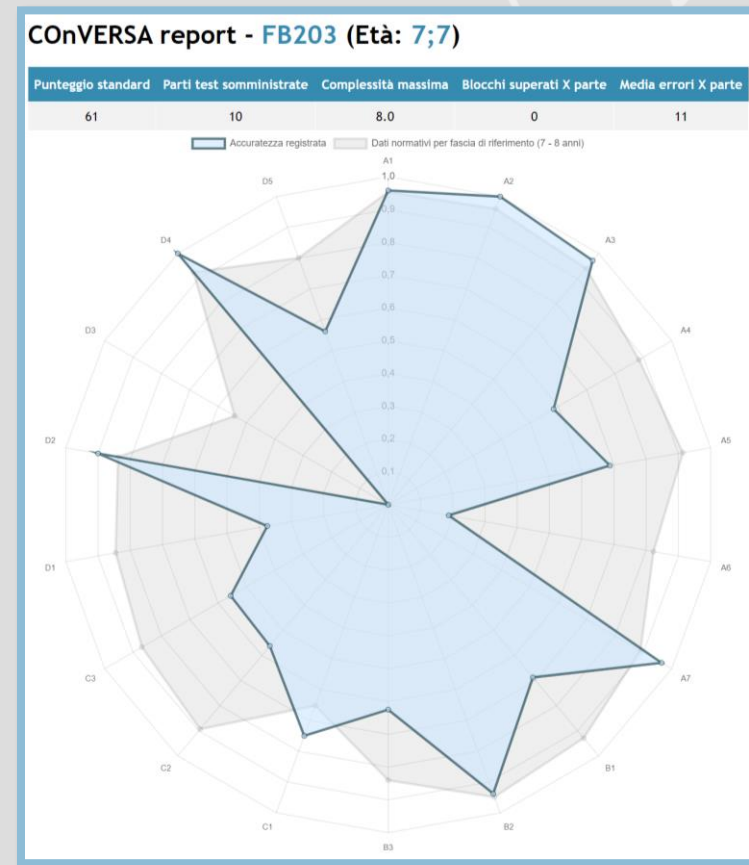
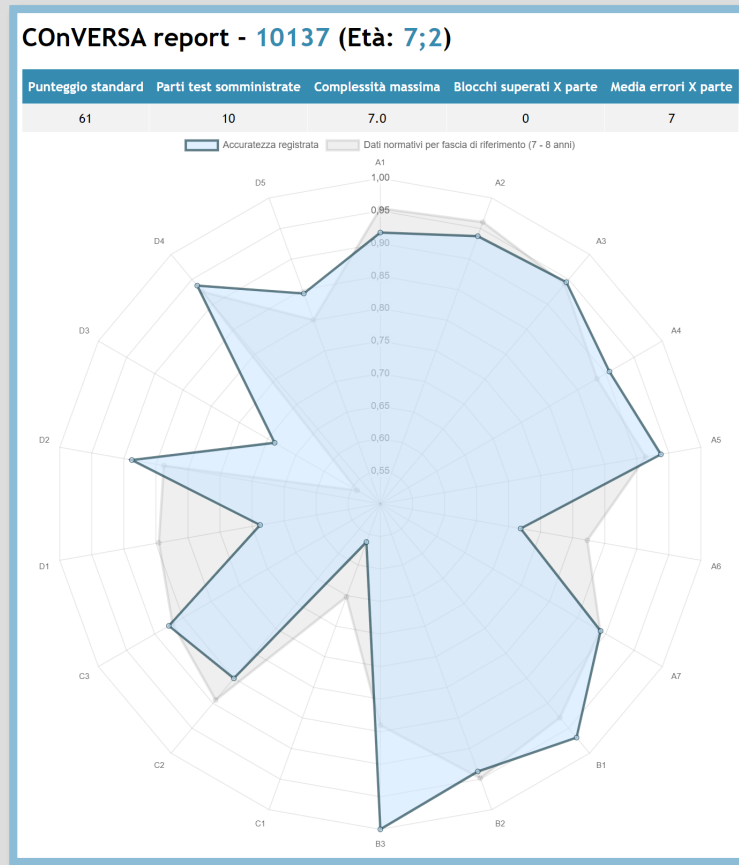
(rispetto ai valori di riferimento per fascia d'età)

- A1 91.67% (valore di riferimento = 95.39%)
- A2 93.75% (valore di riferimento = 96.05%)
- A6 71.88% (valore di riferimento = 82.27%)
- B2 93.75% (valore di riferimento = 94.86%)
- C1 56.25% (valore di riferimento = 65.21%)
- C2 85% (valore di riferimento = 89.35%)
- D1 68.75% (valore di riferimento = 84.54%)

Items valutati scorrettamente (*' indica l'opzione agrammaticale)

- A1 Della sabbia. vs. *Delle sabbia.
- A1 Delle palle. vs. *Della palle.
- A2 Il bambino è malato. vs. *Il bambino è malata.
- A6 I topi preoccupano il cuoco. vs. *I topi preoccupa il cuoco.
- A6 La verifica preoccupa gli studenti. vs. *La verifica preoccupano gli studenti.
- A6 Le malattie preoccupano il dottore. vs. *Le malattie preoccupa il dottore.

Comparing reports



Report

ChatGPT

Control Values

Working Memory < 6 y.o.
(**L2** generally perform better,
DC worse)

Featural sensitivity < 6 y.o.
(both **L2** and **DC** generally
perform better)

Lexicon = 6 y.o.
(**L2** generally perform better,
DC worse)

COnVERSA report - ChatGPT (Età: 1)

Punteggio standard Parti test somministrate Complessità massima Blocchi superati X parte Media errori X parte

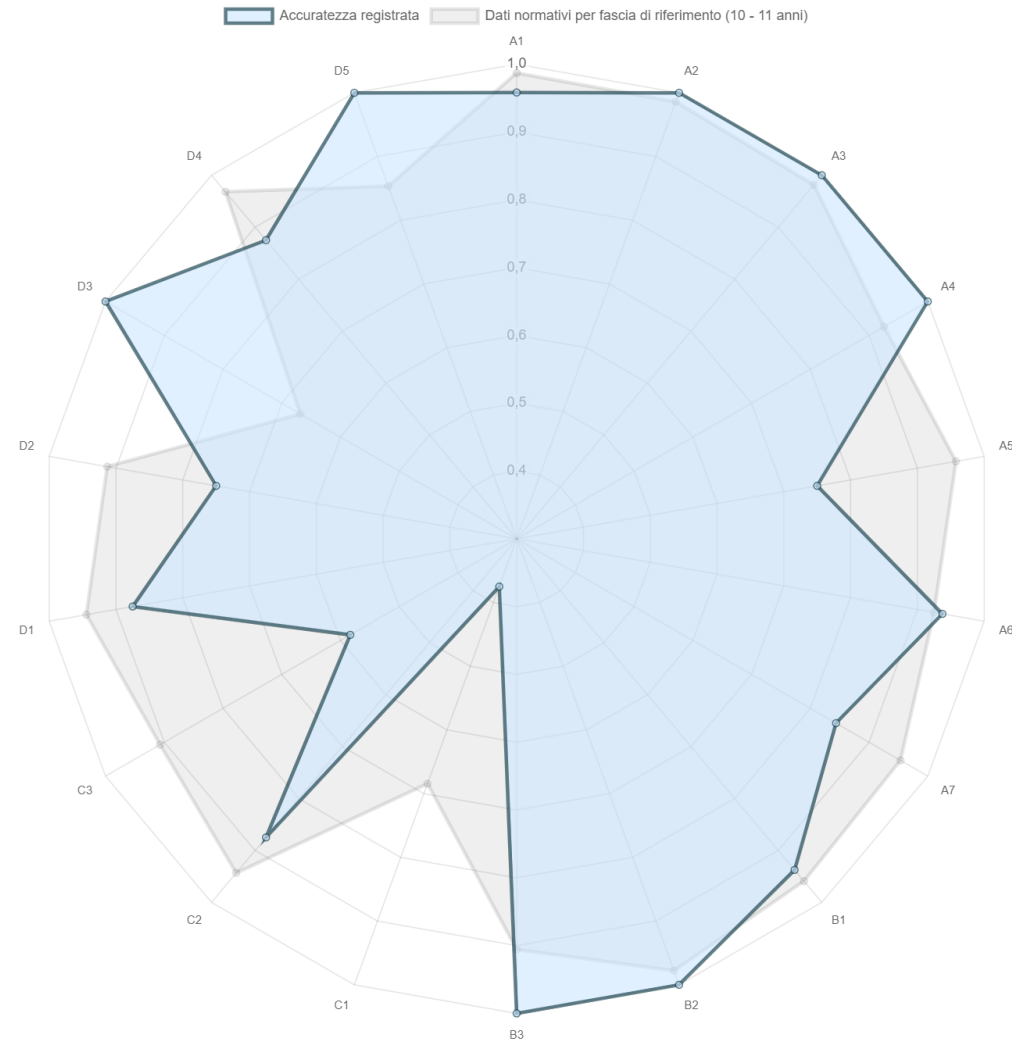
78

8

9.0

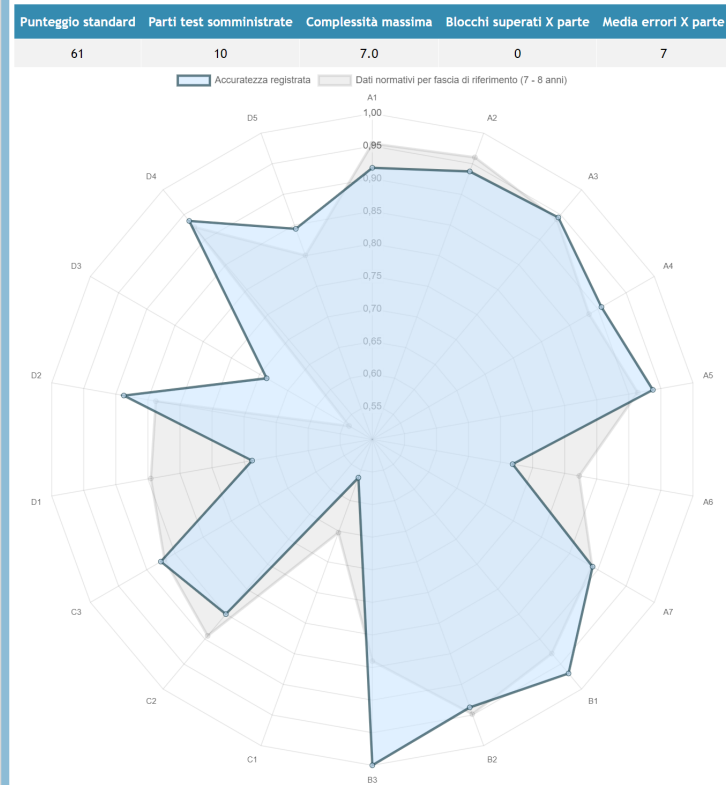
1

6

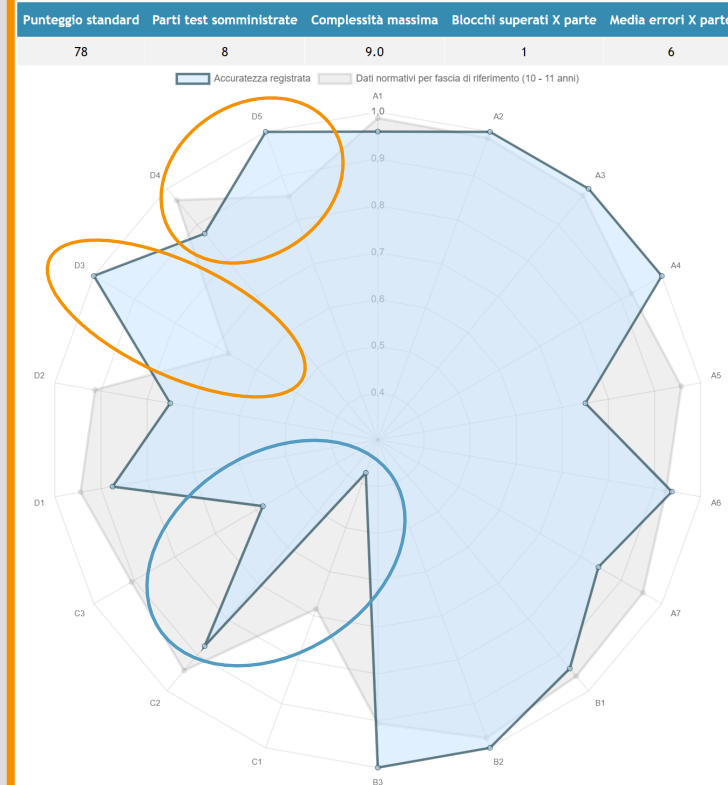


Comparing reports

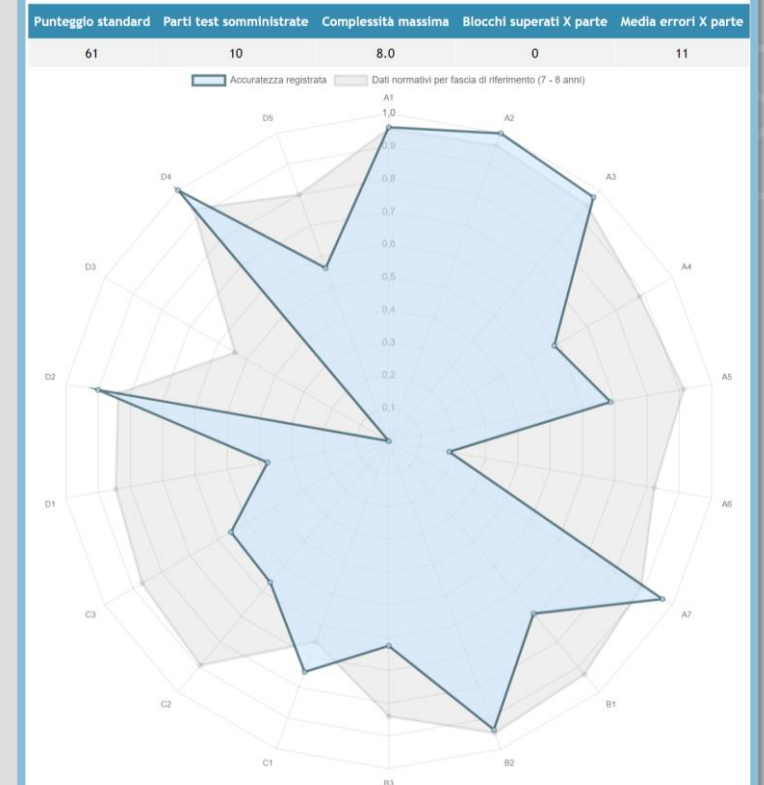
CONVERSA report - 10137 (Età: 7;2)



CONVERSA report - ChatGPT (Età: 1)



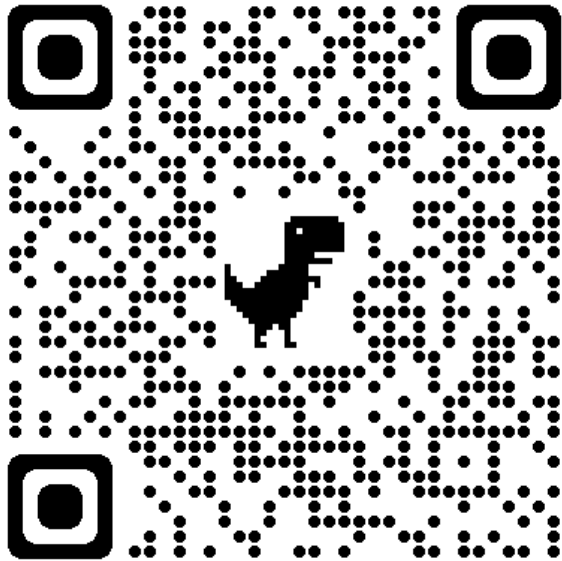
CONVERSA report - FB203 (Età: 7;7)



Conclusion

- ◉ The **COnVERSA** test confirms a systematic difference in performance between Deaf and Hearing Children of the same age (cf. Chesi 2006 a.o.).
- ◉ **Age** seems is a relevant factor for predicting the linguistic developmental pattern in HC, but, generally, not in DC
- ◉ **Hearing aid** is a crucial factor: DC with cochlear implant significantly show a much better performance in all area (confirming Guasti et al. 2014, Friedmann & Szterman 2006, 2011 a.o.), but still, less discriminative ability than HC.
- ◉ We conclude that **COnVERSA** and, more generally, the **forced choice task** based on minimal pairs, is a valid method for assessing linguistic competence also in the deaf population.

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