Complex syntax in SLI and ASD children

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1 – SLI & ASD: Differences and Similarities

- Similar performance in formal language tests in SLI and ASD children (Tager-Flusberg & Joseph, 2003).
- BUT different performance:

- oro-motor and speech skills, sentence repetition: SLI children – lower performances (Whitehouse, Barry, & Bishop, 2008).

- ASD children differed from SLI children in the production of wh-questions (Tuller, Prévost, Morin, & Zebib, 2011).

2 – Syntactic impairment in SLI & ASD

SLI:

- Syntactic complexity is an impaired area (Jakubowicz & Tuller , 2008).
- Structures involving multiple complex operations (subject verb agreement, WH-movement, complementizer agreement with SPEC) are difficult (Franck et al., 2004); object relatives are difficult (Novogrodsky & Friedmann, 2006; Costa, Lobo, Silva, & Ferreira, 2009).

ASD:

- Problems with some grammatical structures identified in ASD population, including relatives (Riches et al. 2010) and raising (Perovic & Janke, 2013).

We do not yet know anything about:

- Performance of ASD children in the comprehension and production of structures involving A' movement (e.g. relatives) and other types of complex structures.
- Performance of both SLI and ASD children in tasks involving the interaction of A' movement and deeper levels of embedding.
- Comprehension of control structures by syntactically impaired populations.

3 – The Study

Research Questions

(i) What are the similarities and differences between ASD, SLI and TD children (wrt. object relatives, relatives involving extraction from complement causes and subject control with an intervening DP)?
(ii) What does (i) tell us about the nature of ASD and SLI?
(iii) What does (i) tell us about the nature of control (movement or non-movement)?

Tasks: Sentence repetition (SRT) task ; Truth value judgment (TVJ) and Act-out task

- Subjects: **TD groups** - 15 3y.o. (mean 3;7), 11 4y.o. (mean 4;5), 26 5-7y.o. (mean 5;11), 30 8-11y.o. (mean 9;4); **SLI group** – 11 8-11y.o (mean 9;8); **ASD group** – 11 8-11y.o (mean 9;6).

- Test Conditions:

SRT & TVJ

Subject and object relative clauses with and without extraction from a complement clause;

Subject relative (SR): Este é o cavalo [que $\_\__i$ molhou o cão].
this is the horse [that $\_\__i$ wet the dog].

Object relative (OR): Este é o porco [que o cão lambeu $\_\__i$].
this is the pig [that the dog licked $\_\__i$]

Subject relative involving extraction from a complement clause (SRwE)
Este é o urso [que o porco disse [que $\_\__i$ lambeu o elefante]].
this is the bear [that the pig said [that $\_\__i$ licked the elephant]].

Object relative involving extraction from a complement clause (ORwE)
Este é o boi [que o elefante disse [que o porco empurrou $\_\__i$]].
this is the bull [that the elephant said [that the pig pushed $\_\__i$]]

Act-out task

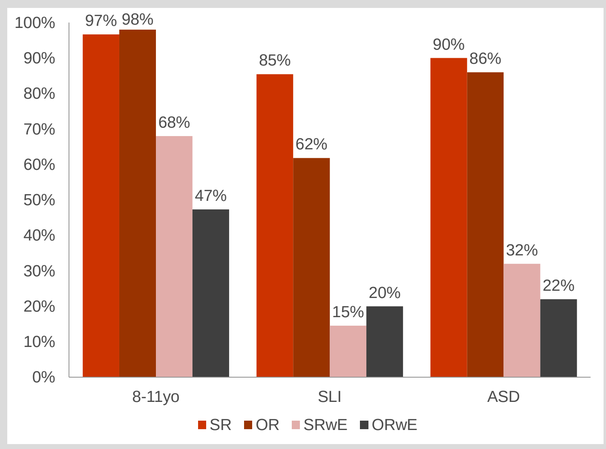
Subject and object relative clauses (the same as in SRT and TVJ) and control structures (verbs with two internal arguments.)

Object control (OC): O porco disse [ao cavalo] [para saltar].
the pig told the horse to jump.

Subject control (SC): O porco prometeu [ao cavalo] [saltar].
the pig promised the horse to jump.

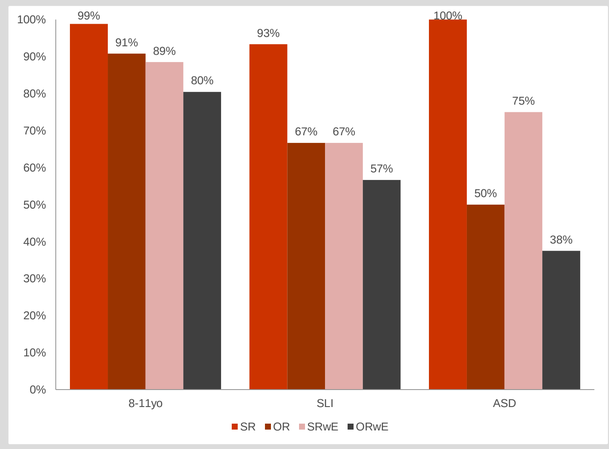
4 –Results

Sentence repetition



GLMM: subject (random), group ($p < .001$), grammatical relation ($p < .001$), level of complexity ($p < .001$).

Truth Value Judgment



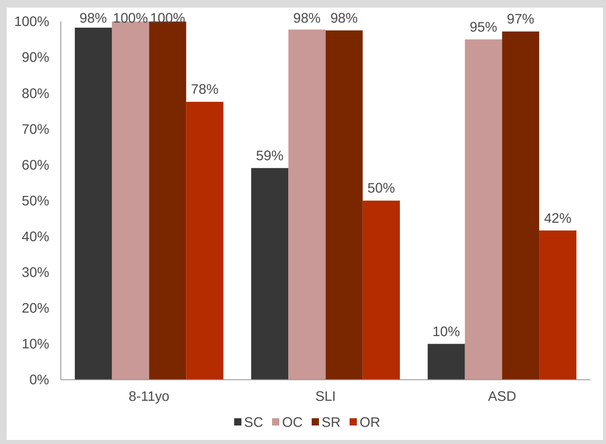
GLMM: subject (random), group ($p = .006$), grammatical relation ($p < .001$), level of complexity ($p < .001$); grammatical relation*level of complexity ($p = .014$); group*level of complexity ($p = .006$).

- Both SLI and ASD subjects show worse results than TD subjects;

BUT SLI children perform worse than ASD children.

↳ **SLI and ASD: different patterns**

Act-out task

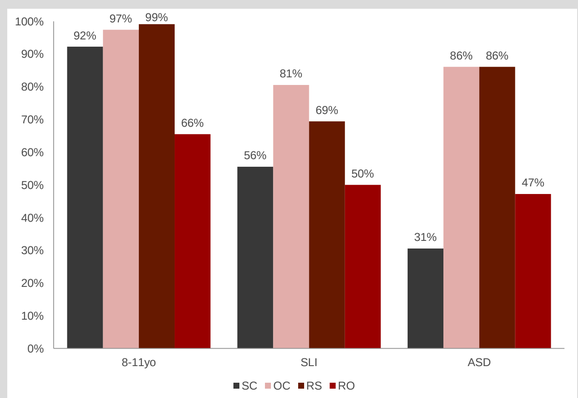


GLMM: subject (random), group * syntactic structure ($p < .001$).

- ASD children obtain worse results than SLI children in the act-out task: task effect expected in ASD.

BUT the task effect is particularly visible when associated with syntactic structures known to be problematic.

- ASD children behavior, even though low in the comprehension of both structures, is not equivalent in object relatives and in subject control with *prometer*;
- Difficulties with subject control (with *prometer*) are confirmed in a reference judgment task (see Martins, in prep.).



5 – Conclusions

- ASD children, depending on the task, may only show a subject / object asymmetry in cases of long extraction.

BUT both SLI and ASD children show effects of complexity.

- Both SLI and ASD children show lower performance than age controls in object relatives and in subject control with *prometer* 'promise'.
- Subject control with 'promise' seems to be delayed in atypical development (to this extent, ASD patterns with SLI.).

↳ **Subject control with 'promise' may be added to the list of delayed structures in atypical development.**

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