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### *Movement and Locality in Language Acquisition: Morphological Agreement in Italian*

oral presentation in workshop: 116 Linguistic theory and its applications: Comparative applied studies (Adriana BELLETTI & Cornelia HAMANN)

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# Movement and Locality in Language Acquisition: Morphological Agreement in Italian

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# Movement and Locality in Language Acquisition: Morphological Agreement in Italian

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## In this talk:



- ✧ A typology of agreement relations, ranked in accordance to two factors: movement and the target position of movement.
- ✧ The developmental trend of agreement in relation to the proposed typology.

# Introduction



(1) La ragazza è appena venuta  
the girl aux just arrived  
*“the girl has just arrived”*

# Introduction



(1) La ragazza è appena venuta  
the girl aux just arrived  
*“the girl has just arrived”*

a. la<sub>{s,f}</sub> ragazza<sub>{s,f}</sub>

# Introduction



(1) La ragazza è appena venuta  
the girl aux just arrived  
*"the girl has just arrived"*

a. la<sub>{s,f}</sub> ragazza<sub>{s,f}</sub>

b. [la ragazza]<sub>{3p,s,f}</sub> è <sub>{3p,s,}</sub>

# Introduction



(1) La ragazza è appena venuta  
the girl aux just arrived  
*“the girl has just arrived”*

a. la<sub>{s,f}</sub> ragazza<sub>{s,f}</sub>

b. [la ragazza]<sub>{3p,s,f}</sub> è <sub>{3p,s,}</sub>

c. [la ragazza]<sub>{s,f}</sub> ... venuta<sub>{s,f}</sub>

# Derivation



[<sub>AgrP</sub> La ragazza<sub>{s,3p}</sub> è<sub>{s,3p}</sub> [appena [<sub>PartP</sub> <la ragazza<sub>{s,3p}</sub>> venuta<sub>{s,3p}</sub> [<sub>VP</sub> <la ragazza>]]]]



- ✧ The same spec-head configuration is obtained at two different derivational stages:

# Derivation



[AgrP La ragazza<sub>{s,3p}</sub> è<sub>{s,3p}</sub> [appena [PartP <la ragazza<sub>{s,3p}</sub>> venuta<sub>{s,3p}</sub> [VP <la ragazza>]]]]]



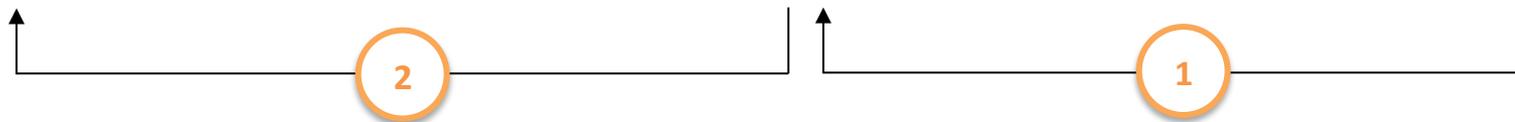
## ① Agreement “in passing”

- The spec-head relation is disrupted at PF

# Derivation



[<sub>AgrP</sub> La ragazza<sub>{s,3p}</sub> è<sub>{s,3p}</sub> [appena [<sub>PartP</sub> <la ragazza<sub>{s,3p}</sub>> venuta<sub>{s,3p}</sub> [<sub>VP</sub> <la ragazza>]]]]



## ② Agreement at the “landing site”

- The spec-head relation is stable at PF

# Working Hypothesis



- ✧ The distinction between overt and covert spec-head agreement relations is relevant in language development.
- ✧ Agreement “in passing” is more complex than agreement at the “landing site”.

# Derivational Theory of Complexity



*“Nowadays the basic idea behind the DTC is alive and well, but rather than seeking ways of capturing the aggregate processing demands for a sentence, researcher more commonly seek to identify the specific costs of individual elements or processes”*

*[C. Phillips 2012]*



A new study

# Overview



- ✧ The structures under investigation and a ranked typology
- ✧ An experimental hypothesis for language development
- ✧ Previous studies
- ✧ A new task: the Forced Choice of Grammatical Form
- ✧ Study 1 and 2

# Determiner - Noun



(1) [<sub>DP</sub> la<sub>[f,p]</sub> [<sub>NP</sub> finestra<sub>[f,p]</sub>]]  
“the window”

- ✧ No movement: phi-features spread bottom-up from N to D (Cardinaletti & Giusti 2011).

# Subject - Verb



(2) [<sub>AgrP</sub> Gianni<sub>[3,s]</sub> ama<sub>[3,s]</sub> [<sub>VP</sub> <Gianni> <ama> [il mare]]]  
"Gianni loves the sea"

- ✧ Movement and agreement in a Criterial Position: spec-head at the final landing site of movement (Rizzi 2006).

# Object - verb



(3) [<sub>AgrP</sub> Gianni le ha [<sub>PartP</sub> <le> viste [<sub>VP</sub> <Gianni> <viste> [<le>]]]]

- ✧ Movement and agreement “in passing”: the spec-head relation is established at an intermediate step of the derivation (Kayne 1986, Belletti 2006).

# A proposal



- ✧ Agreement involving movement is more complex than agreement configuration created without movement.
- ✧ Spec-head agreement “in passing” is more complex than spec-head agreement in a criterial position.
  - Agreement in a Criterial position :
    - no labelling mismatch: both the specifier and the head project the same syntactic label (Chomsky 2013)
    - The specifier is deactivated: no further feature checking.
    - Easier to parse: the spec-head does not have to be reconstructed

# A graded typology



❖ Moscati & Rizzi (*to appear, Lingua*)

Agreement	Complexity	
	Movement	Agreement in passing
	Involves movement to the Spec of the target of agreement	involves further movement from the agreement position
DN	-	-
SV	+	-
CI-Part	+	+

# A developmental prediction



✧ Languages with a rich inflectional system, like Italian, are expected to show the following order in language development:

(1) Det-N > S-V > Cl-Part



## Previous studies

# A snapshot of the previous results



Table 4. Proportions of feature mismatches as reported in previous studies at around age 3.

Configurations	Study			
	Caprin & Guasti (2009)	Pizzuto & Caselli (1992)	Caselli et al. (1993)	Moscatti & Tedeschi (2009)
DN	3%	-	<1%	-
SV	1-6%	0-5%	-	-
Cl-Part	-	-	-	20-25%

✧ Consistent with the ranking: D-N > S-V > CL-PArt

- ✧ Hard to make fine-grained comparisons between different studies.
  
- ✧ Alternative constructions with null-categories:
  - DETERMINERS (Caprin & Yoghà 2006, Ferrari & Matteini 2010, Bottari et al.1993)
  
  - CLITICS (McKee & Emiliani 1993, Scheffer 2000, Tedeschi 2008, Moscati & Tedeschi 2009)
  
  - AUXILIARIES/COPULAS (Franchi 2004, Moscati 2006)

A decorative graphic in the top-left corner consisting of a dense, overlapping pattern of light grey, rounded, interconnected shapes that resemble a network or a cluster of cells.

# Testing the Hypothesis

# Forced Choice of Grammatical Form



- ✧ a child-friendly version of grammaticality judgments combined with a forced choice paradigm.

*How would you say?*

a. La            mamma       raccoglie    la rosa  
    “*the* <sub>[+f,s]</sub>    *mother* <sub>[+f,s]</sub>       *picks*       *the rose*”

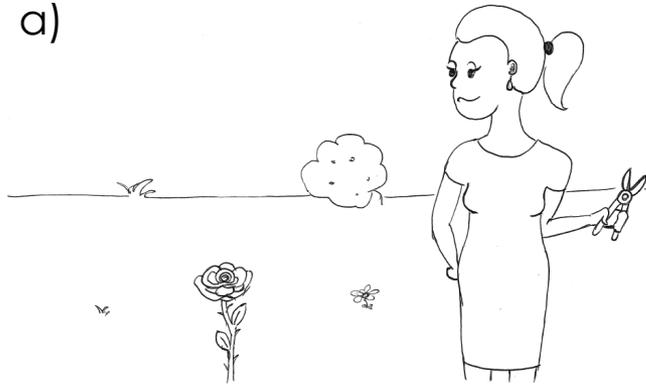
b. \*le            mamma       raccoglie    la rosa  
    *the* <sub>[+f,p]</sub>    *mother* <sub>[+f,s]</sub>       *picks*       *the rose*

# Forced Choice of Grammatical Form

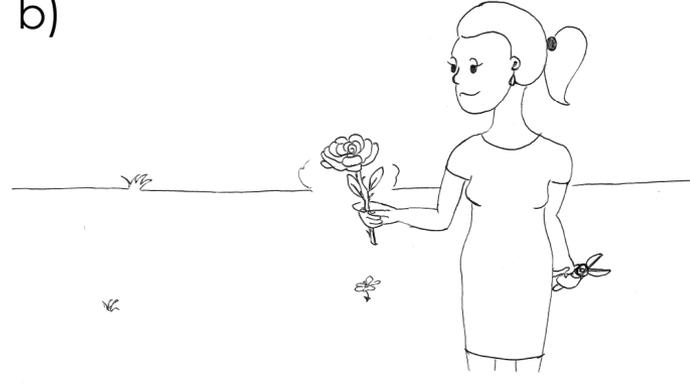


Visual display

a)



b)



drawings by E. Servidio



Look at the pictures...how would you say ?

Sentence A ✓

OR

Sentence B ✗

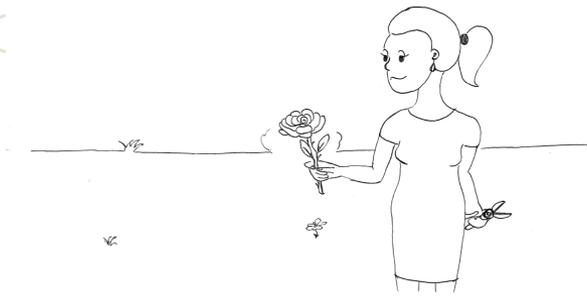
# Forced Choice of Grammatical Form



❖ Use of the FCGF to investigate the proportion of correct choices in the three agreement configurations:

1. D-N
2. S-V
3. CI-PPart

# Experimental Conditions: agreement



(1) (La rosa) la mamma l'ha raccolta  
“(the rose), the mother picks it”

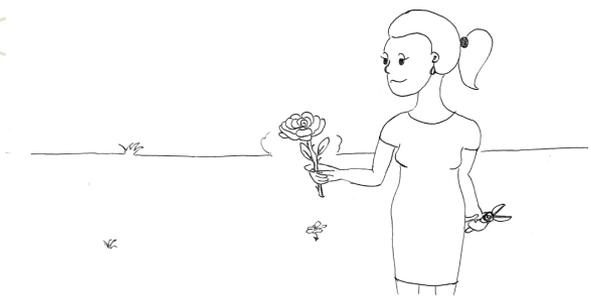
✧ Minimal pairs with a number mismatch:

(1a) (la rosa) \***le** mamma l'ha raccolta (DN)

(1b) (la rosa) la mamma l'\***hanno** raccolta (SV)

(1c) (la rosa) la mamma l'ha raccolt\***e** (CIP)

# Experimental Conditions: non agreement



(2) la mamma ha raccolto la rosa  
*“the mother picks the rose”*

- ✧ A non-agreement condition: included to observe the occurrence of overgeneralizations to unmoved post-verbal DP

(2a) la mamma ha raccolt\***a** la rosa (Part-DP)

# Method



✧ Warm-up: naming task.

Q. what is this?

Children: ....

Puppet: an apple! Right or Wrong? (Q. what is it, then?)

# Method



## ✧ Session

- Four picture sets presented four times, one time in each condition
- Minimal pairs counterbalanced for the presentation order of the correct sentence.
- Four different presentation orders.

# Participants



- ✧ 55 Italian monolingual children (Age: 2;11 – 5;10)
  - Group 1 (2;11 – 3;9. N=30, M=3;4)
  - Group 2 (4;3 – 4;9. N=13, M=4;6)
  - Group 3 (5;2 – 5;10. N=12, M=5;4)

# General Results



## ✧ Type of answer in Group 1

Answer	DN	SV	CL-P
Forced C.	91%	89%	90%
no answer	3%	4%	5%
SVO	4%	2%	<1%
other	<1%	4%	4%

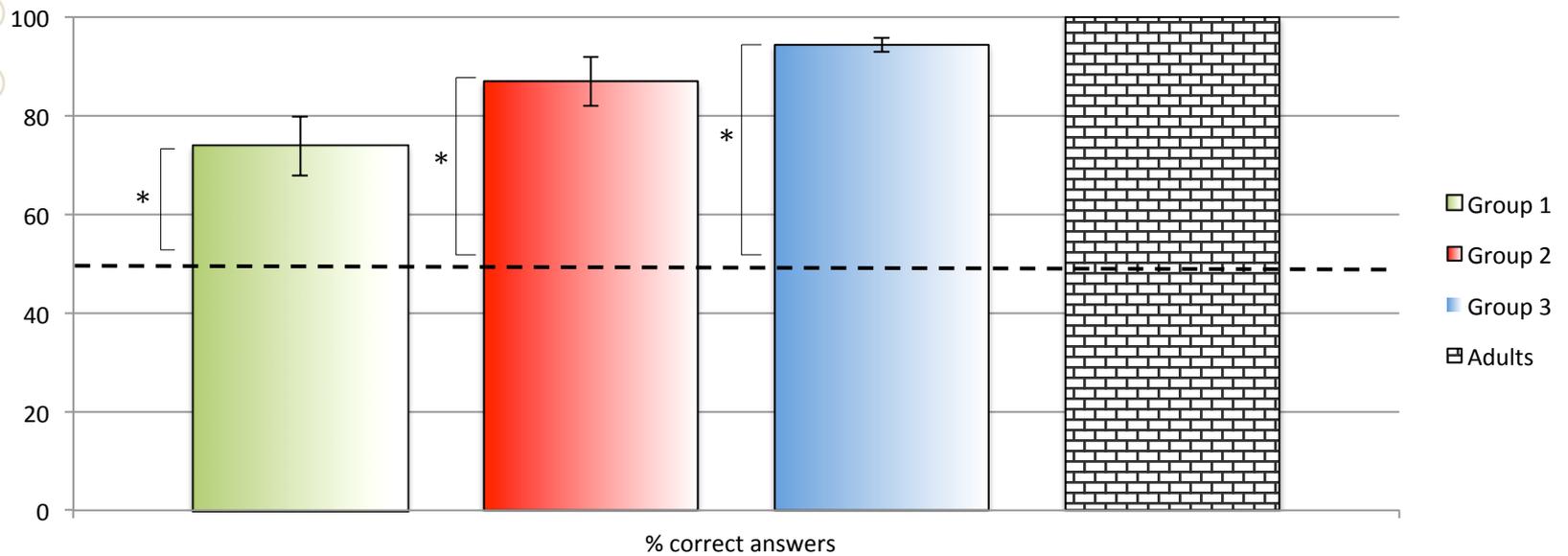
✧ Group 2: Forced Choices over 97%

✧ Group 3: Forced Choices over 99%

# General Results

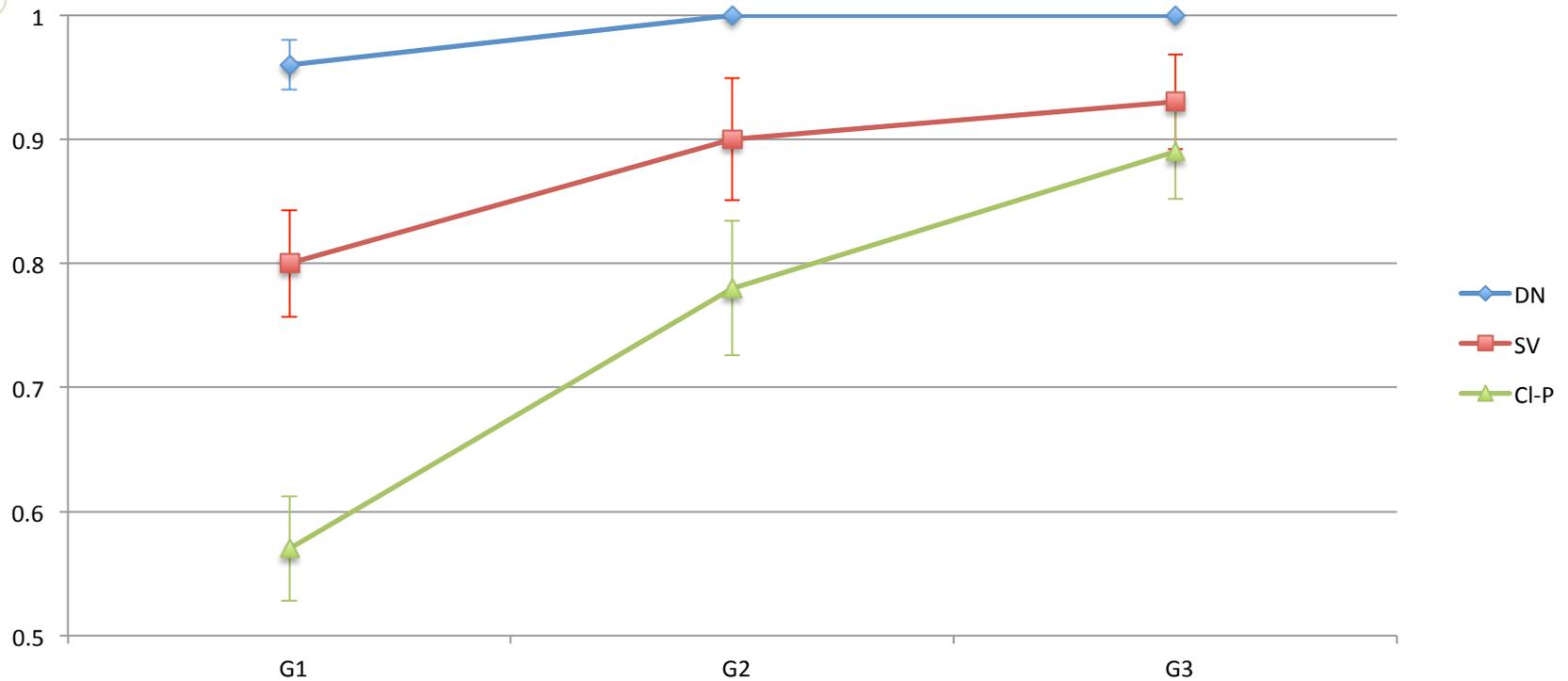


## ❖ Overall rate of correct choices



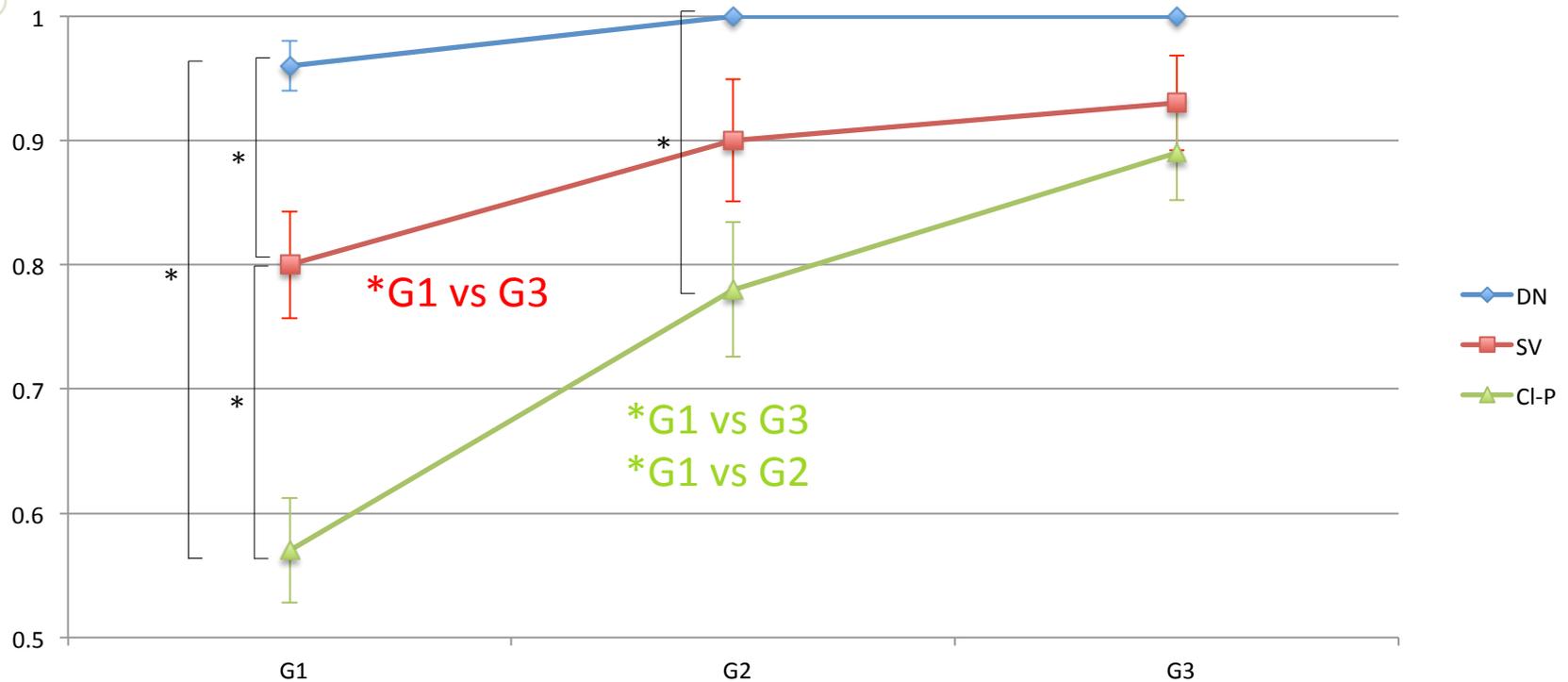
# Results: agreement conditions

- ❖ Proportion of correct choices in the three agreement conditions



# Results: agreement conditions

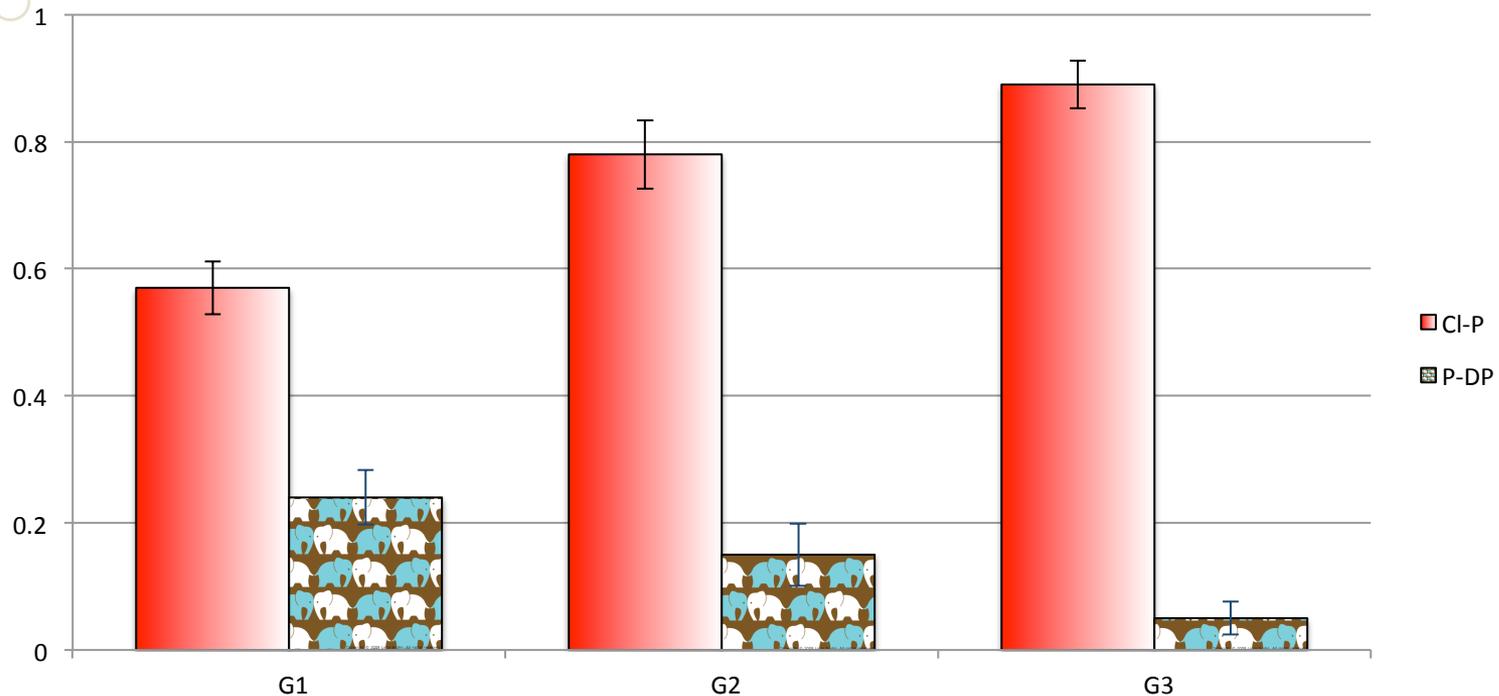
✧ Proportion of correct choices in the three agreement conditions



- log. regression, Condition
- log. regression, Group

# Past-Participle agreement

- ❖ Comparison of Past-Participle agreement in the clitic and in the post-verbal DP condition



# Results: Experiment 1



- ① Overall good performance in the FCGF Task
- ② No developmental trend with D-N agreement: G1 already adult-like
- ③ The proportion of correct choices for Cl-Part and the S-V agreement increases at different speeds.
- ④ Difference in the past participle agreement in function of the type of object: lower agreement with unmoved DP.

# A Potential Confound



✧ A general issue related to serial presentations: Working Memory is biased toward the first and last item in a list.

- **Primacy effect**: the first item of a list is better stored in memory

1. DN: la/\*le    mamma    la ha                      raccolta
2. SV: la            mamma    la ha/\*hanno    raccolta
3. CLP: la            mamma    la ha                      raccolta/\*e



# A potential Confound



✧ Is our result due to a primacy effect?

## Follow-up. Experiment 2

# Clausal position



- ✧ If the task is sensitive to primacy (a linear-order related factor), the proportion of correct choices would correlate with clausal position.
- ✧ DN agreement violations can be moved within the clause: lower detection of agreement mismatches in clause-final position.

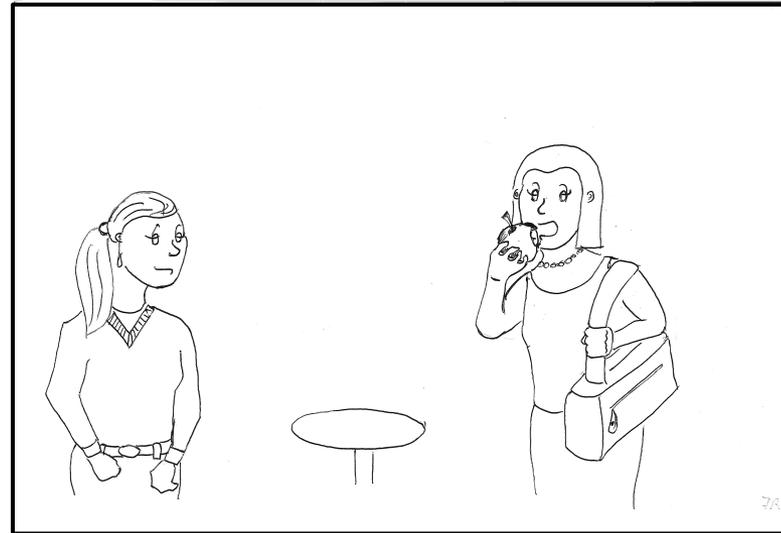
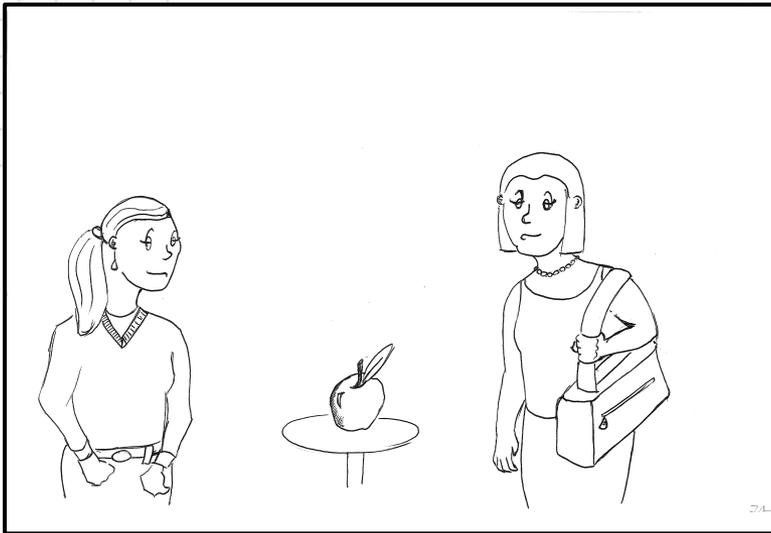
# Experiment 2



- ✧ Experiment 2: same procedure as in Experiment 1
  
- ✧ Three conditions testing the various kinds of agreement
  1. DN (x6)
  2. SV (x6)
  3. CI-P (x6)
  
- ✧ Three conditions testing D-N agreement in different clausal positions
  4. DN-pos.1 (x6)
  5. DN-pos.2 (x6)
  6. DN-pos.3 (x6)

# Mismatch Position

*“the lady with the handbag has eaten the apple”*



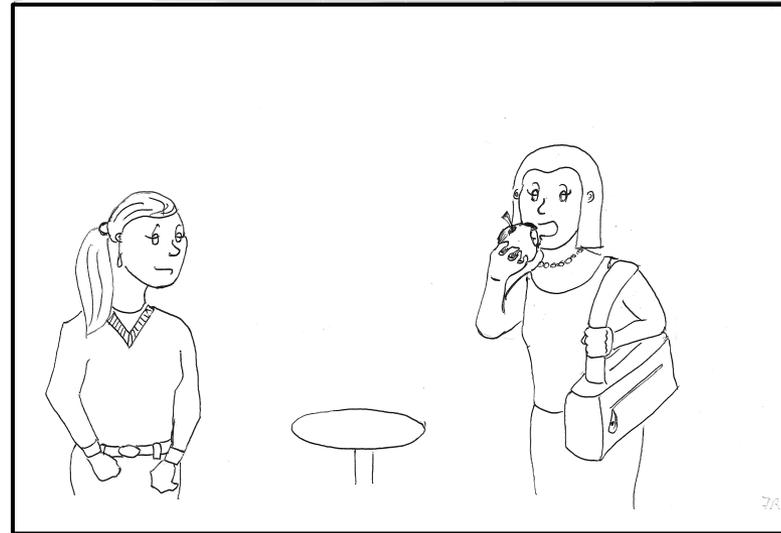
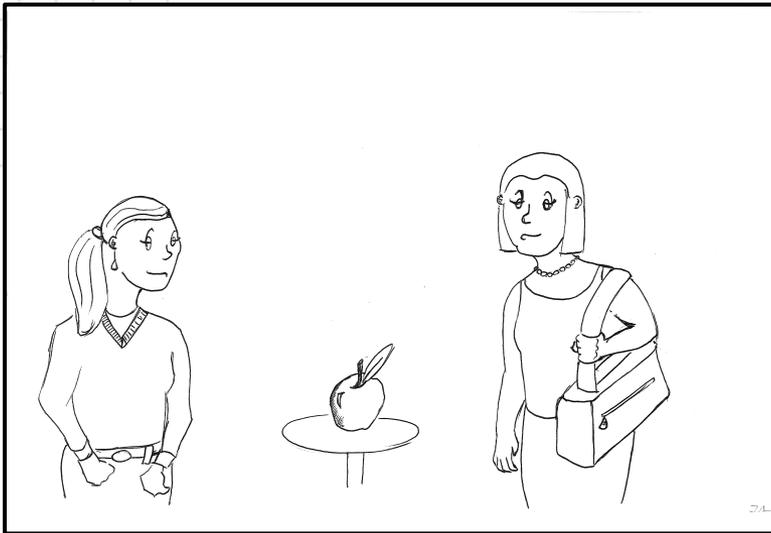
Mismatch in Position 1:

[la/\*le signora] con la borsa ha mangiato la mela

*“the lady with the handbag has eaten the apple”*

# Mismatch Position

“the lady with the handbag has eaten the apple”



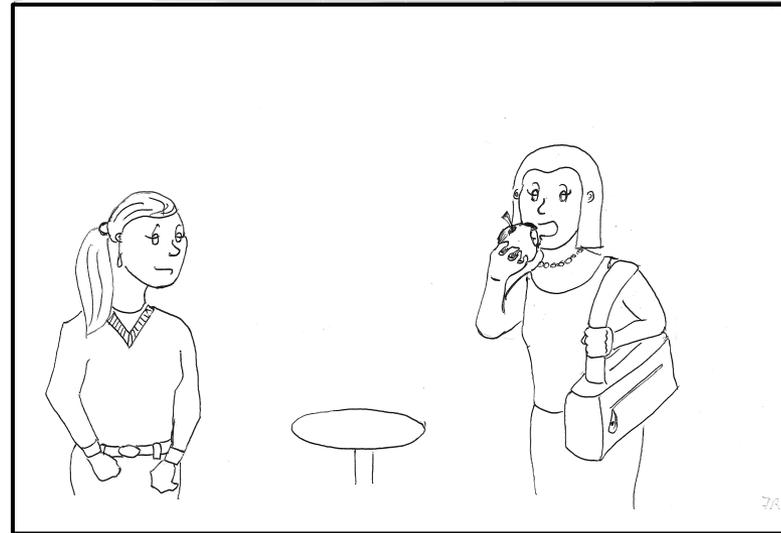
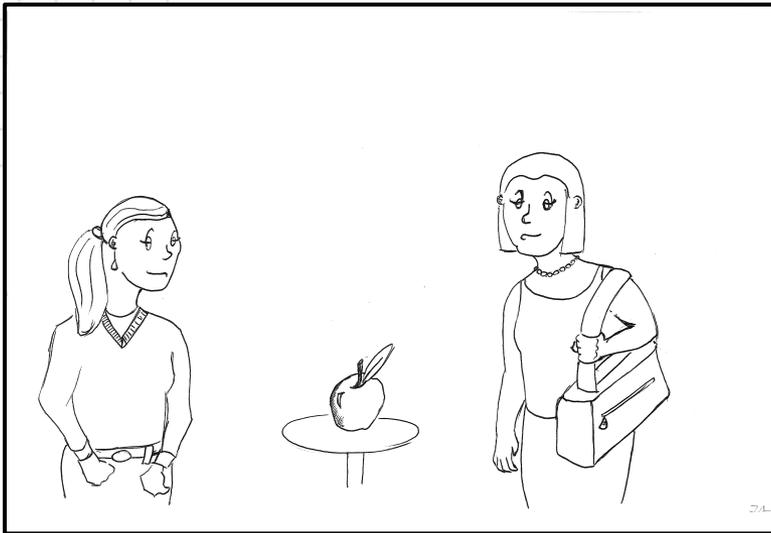
Mismatch in Position 2:

la signora [con la/\*le borsa] ha mangiato la mela

“the lady with the handbag has eaten the apple”

# Mismatch Position

*“the lady with the handbag has eaten the apple”*



Mismatch in Position 3:

la signora con la borsa ha mangiato [la/\*le mela]

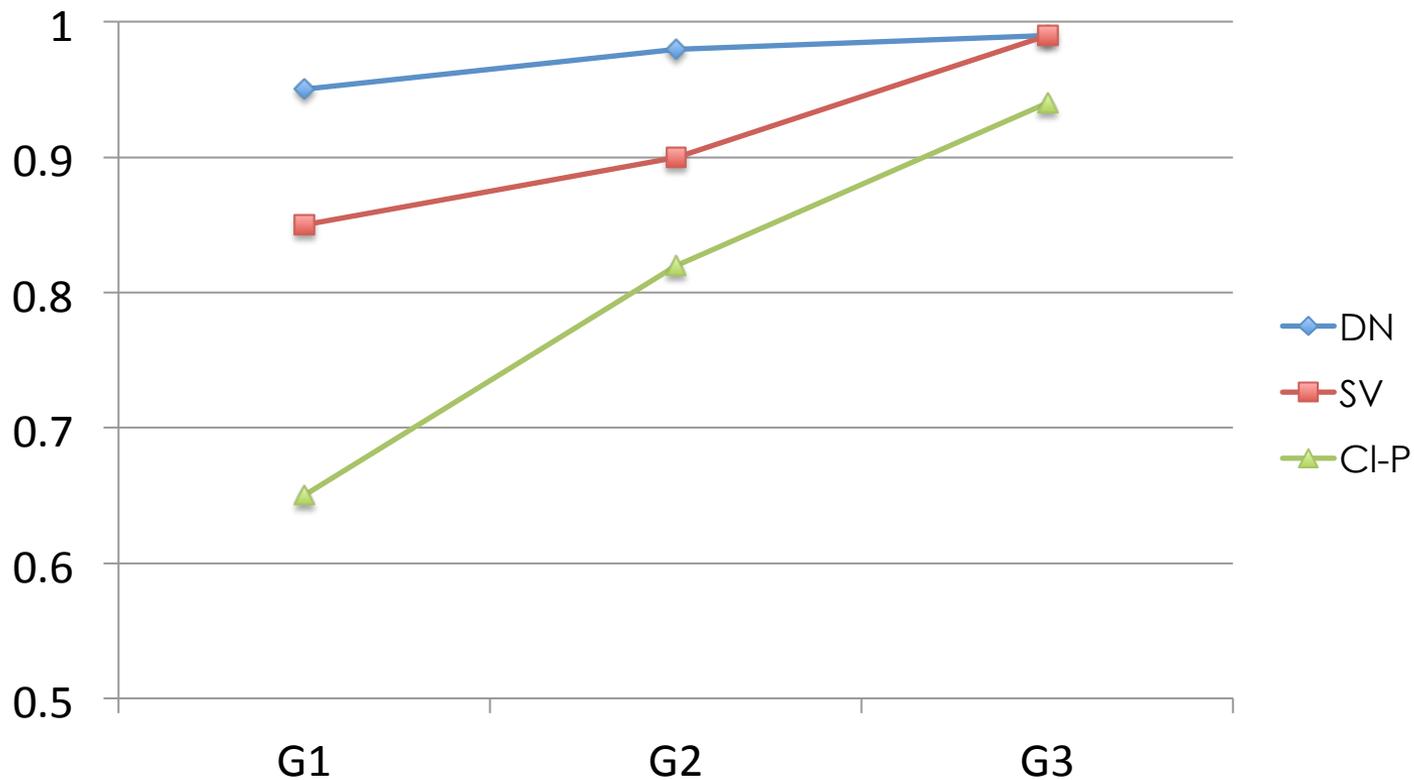
*“the lady with the handbag has eaten the apple”*



# Results

# Agreement by type

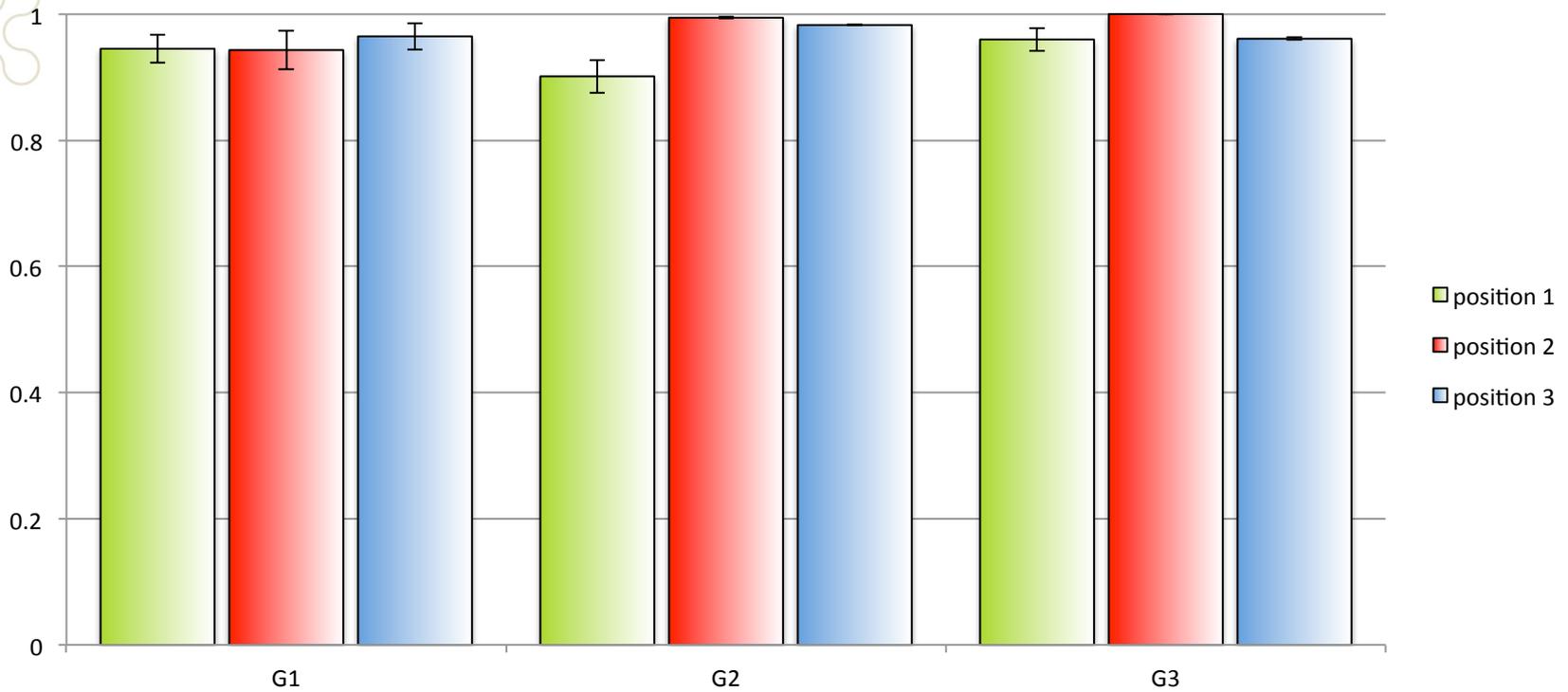
- ✧ Proportion of correct choices in the three agreement conditions: Same as in Experiment 1



# Position of the D-N mismatch



✧ Proportion of correct choices: clausal position



# Conclusions



- ✧ At age three, children are already sensitive to minimal mono-morphemic variations in a forced-choice task.
- ✧ The proportion of feature mismatches detections varies in relation to different agreement configurations.
- ✧ The relative complexity can be captured by the interplay of two derivational factors: movement and its target position.

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Thanks for your  
attention!

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