

The agent bias holds in production too: Event descriptions in child Italian

Silvia Silleresi¹, Chiara Dal Farra¹, Yining Nie², Fabienne Martin³, Artemis Alexiadou^{3,4} and Maria Teresa Guasti¹

November 3-6, 2022 - BUCLD47

¹Università degli Studi di Milano Bicocca

²San José State University

³Humboldt-Universität zu Berlin

⁴ZAS Berlin

Goal of the present study

How Italian 3-6 y.o. children and adults describe different types of events with respect to **argument structure encoding**:

- active transitive
- passive transitive
- intransitive (anticausative)
- periphrastic causative

Meaning First Approach

- Children follow a one-to-one mapping principle between form and meaning (Slobin (1973); van Hout (2008); Sauerland and Alexiadou (2020); Guasti et al. (prep)).
- Children are prone to pronounce all parts of the underlying structure - especially core concepts.
- Agency may be a core concept and children tend to express it more overtly than adults.

Introduction

Background

- The presence and type of agent/initiator affects speakers' choice of argument structure (Anton-Mendez 2017; Gleitman et al. 2007).
- **Preference for active sentences** over passive ones (e.g., Slobin and Bever 1982; Bock 1986), since actives are:
 - Cross-linguistically more frequent (Keenan and Dryer 2007)
 - Less complex (Alexiadou et al. 2015; Bruening 2013; Belletti and Collins 2020)
 - Acquired earlier (Armon-Lotem et al. 2016; Guasti 2017)
- **Agent bias in children:** they are sensitive early on to agency and tend to infer an agent whenever possible (Keil and Newman 2015; Wu et al. 2016).
- Speakers' choice of argument structure encoding can be **modulated by linguistic and visual cues.**

Background: Linguistic cues

Belletti and Manetti (2019); Manetti and Belletti (2015); Manetti (2013), a.m.o found that after showing participants transitive events with a fully visible agent and theme:

- **Patient-oriented** (*What happened to X?*) **questions** trigger:
 - Systematic production of passive sentences in Italian **adults**
 - Production of passive sentences alongside alternative constructions (clitic left dislocation and active sentences) in Italian **children** from age 4
- **Neutral questions** (*What happened?*) do not trigger passive sentences (Tedeschi et al. 2009).

Background: Visual cues

Rissman et al. (2019) with English **adults** and a neutral (*what happened?*) question:

- A = Events with a **fully visible human agent** acting on an inanimate object
→ **mostly active** transitive descriptions.
- B = Events where the **body of the agent is mostly occluded**
→ significantly increased the production of **short passives**
- C = Events with no visible initiator
→ mostly anticausatives.



Research Questions (for today's talk)

- **Are children guided by visual cues** (in a similar way to adults)?
 - Are children sensitive to visual backgrounding of the agent (occlusion of the body)?
- **Are children guided by an agent bias?**
 - Type of structure (active vs. (long) passive)
 - Agent's referring expression

Method

Method - Design of the task

- We use a design similar to Rissman et al. (2019)
 - **Video narration task** with a neutral (*What happened?*) question
 - 3 initiator conditions: full body agent, occluded agent, no initiator
- Modifications:
 - We collect **oral** rather than written responses.
 - We extend the design to include a **4th initiator condition: non-agentive inanimate causer** (e.g. non-instrumental ball, wind).
 - We collect data from both **children and adults**.

Method - Design of the task

Within-subjects design with 2 factors:

- Event type
 - 6 changes-of-state (*open, close, turn on, turn off, tear, wake*)¹
 - 6 activities (e.g., *drink, eat, read, comb, pet, draw*)
- Initiator type
 - Body Agent (6 changes-of-state + 6 activities)
 - Hand Agent (6 changes-of-state + 6 activities)
 - No Initiator (6 changes-of-state)
 - Inanimate Causer (6 changes-of-state)

Total of 36 videos of 7 seconds each + training items.

¹These verbs are morphologically marked with the clitic *si* in the anticausative form.

Method - Design of the task

Initiator Type

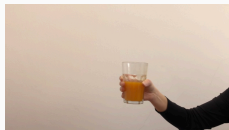
Change-of-state
(*accendere* 'switch on')

Activity
(*bere* 'drink')

Body Agent



Hand Agent



No Initiator



Inanimate Causer



Order of presentation of the items:

- Hand-agent > Inanimate Causer > Body Agent > No Initiator
- This order prevented participants' productions of the occluded agent and inanimate causer from being influenced by the prior appearance of a fully visible agent.

Coding

- Argument structure encoding
 - Active transitive (*The ballerina switched on the lamp*)
 - Passive transitive (*The lamp was switched on*)
 - Anticausative (*The lamp switched on*)
 - *Fare* + anticausative (periphrastic causative, *The ball made the lamp switch on*)
- Initiator referring expressions in active transitives (we will return to this)

Participants

- 33 TD children - Italian native speakers recruited from 2 kindergartens in the Milan area
 - F = 20 ; M = 13
 - Mean age 4;8 y.o. - SD: 1.1 (range 3;5 - 6;3 y.o.)
- 42 adults - Italian native speakers recruited through Prolific
 - F = 23 ; M = 18
 - Mean age 31;7 y.o. - SD: 9.6 (range 21 - 54 y.o.)

Predictions

Argument structure encoding: predictions

Initiator Type	Adults	Children
Body Agent	mainly active transitives	same
Hand Agent	active and passive transitives	??
No Initiator	mainly anticausatives	same

Focus on the Hand Agent condition

Adults

- We expect both active and passive transitive constructions.
- Across all conditions, passives should be mostly produced in this one (assuming that Italian adults will behave like Rissman's participants).

Children

- If they are sensitive to the visual cues, we expect:
 - Production of some passives in older children, since younger ones may tend to avoid these structures up to 4 y.o. (Volpato et al. 2016, a.o.)
- If they are guided by the agent bias, we expect:
 - Production of mainly active transitive constructions

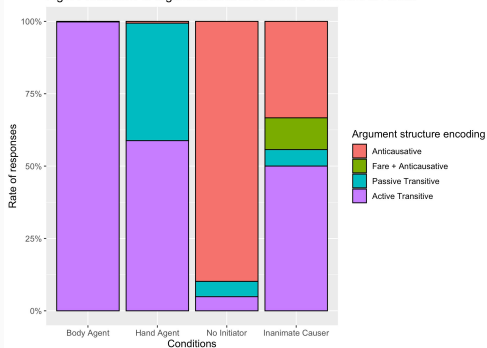
Results

Results

- 2700 utterances were collected: **2661** were entered into the analysis, taking into account
 - items where the verb used was target (N = 2519)
 - items where a different verb but of the same event type (change-of-state/activity) was used (e.g. *break* for *tear*) (N = 142)
- Analysis: GLMM with Initiator Type as a fixed effect and participants/item as random effects, to test the number of responses per argument structure encoding in the the two groups (Adults and Children).

Results: Adults

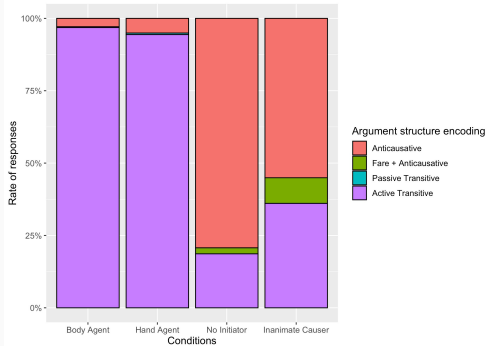
Fig1: Production of argument structures across conditions in Adults



- Effect of Initiator Type:
 - Body Agent: mostly active transitives
 - Hand Agent: active and passive transitives
 - No Initiator: mostly anticausatives

Results: Children

Fig2: Production of argument structures across conditions in Children



- Effect of Initiator Type:
 - Body Agent and Hand Agent: mostly active transitives
 - No Initiator: mostly anticausatives, some transitives

Results: Children and adults compared

Fig1: Production of argument structures across conditions in Adults

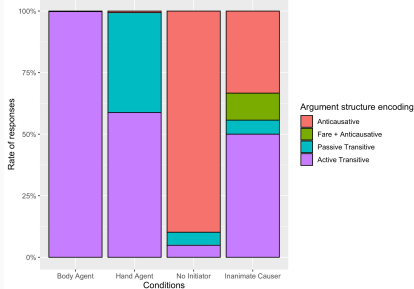
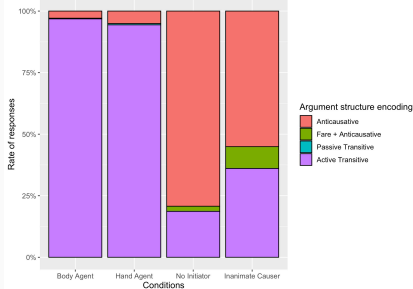


Fig2: Production of argument structures across conditions in Children



Summary of results

- Predictions confirmed for adults and children for Body Agent and No Initiator conditions
 - Body Agent: Mostly active transitives
 - No Initiator: Mostly anticausatives
- Predictions confirmed for adults in the Hand Agent condition: production of both active and passive transitives.
- In the Hand Agent condition, children produced mostly active sentences.
- Children treated the Hand-Agent condition as the Body Agent one.

Coding

- Agent referring expression in active transitives (agent type)
 - Human DP (e.g. *the clown*)
 - (Indefinite) pronoun (e.g. *somebody*)
 - Pro-drop
 - Body-part DP (e.g. *the hand*)
- Property used in the agent description
 - Specific property (e.g. *the mum, a woman*)
 - Generic property (e.g. *somebody, a person*)

Results: agent types in Hand Agent

Fig3. Agent types in active transitive: Adults

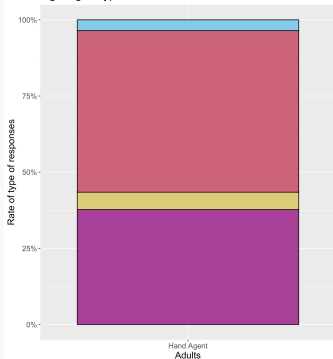
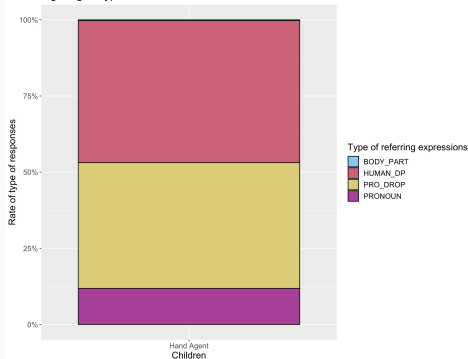


Fig4. Agent types in active transitive: Children



- Similar high rate of Human DP in children and adults, BUT:
 - Specific property
(*the mum, a woman*)
 - Generic property
(*a person*)

Adult	5%	95%
Child	87.7%	13.3%

Results: agent types in Hand Agent

Fig3. Agent types in active transitive: Adults

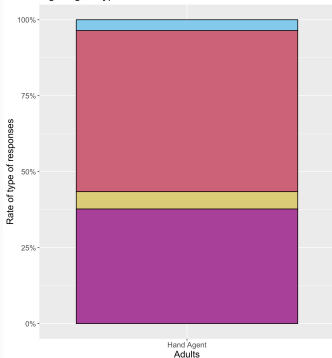
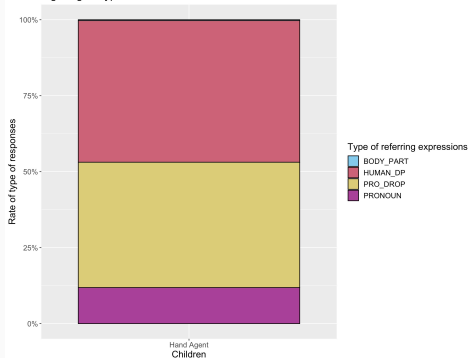


Fig4. Agent types in active transitive: Children



- Other most produced strategies:
 - Adults: indefinite pronouns (37.7%)
 - Children: pro-drop (41%)

Results: agent types in Body Agent

Fig5. Agent types in active transitive: Adults

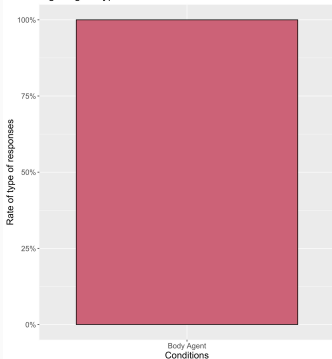
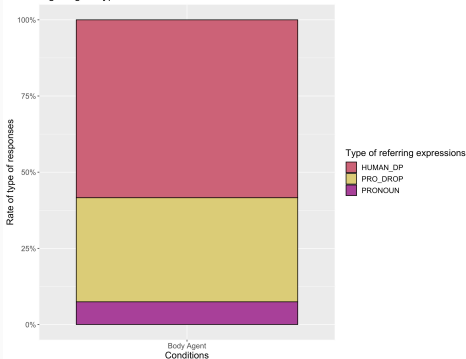


Fig6. Agent types in active transitive: Children



- Pro-drop seems to be a child strategy for active transitives, including in the Body Agent condition
 - Adults: Human DPs only
 - Children: pro-drop (34%) not a strategy for passives

- **Children overuse null subjects** in active transitive constructions
 - True for both Body Agent and Hand Agent conditions
 - Even in spontaneous speech of Italian children, subjects in discourse-new contexts are null up to 15%. (Serratrice, 2005)
- **Children assign specific properties to occluded agents** even without visual cues

Take home message

- Children are **not as sensitive** as adults to **(this kind of) visual manipulation/backgrounding**
 - children may need to be linguistically cued (i.e. by a patient-oriented question) in order to produce passives
- Children's production seem to reflect an agent bias: **agency = core concept (MF approach)**
 - argument structure encoding
 - agent encoding
 - the hand has the same role of a fully visible agent and it seems to go proxy for the full agent.

Acknowledgments

- Thanks to Uli Sauerland for his suggestion on the study design.
- Thanks to all the children, families and teachers from the kindergartens in Melzo and Cologno.
- Thanks to the Research Assistants and the Lab Manager of Milano Bicocca.

Thank you very much for your
attention!



This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 856421).

References

- Alexiadou, A., E. Anagnostopoulou, and F. Schäfer (2015). External arguments in transitivity alternations: A layering approach, Volume 55. Oxford University Press, USA.
- Anton-Mendez, I. (2017). Visual salience effects on speaker choices: Direct or indirect influences on linguistic processing? Applied Psycholinguistics 38(3), 601–631.
- Armon-Lotem, S., E. Haman, K. Jensen de López, M. Smoczynska, K. Yatsushiro, M. Szczerbinski, A. van Hout, I. Dabašinskienė, A. Gavarró, E. Hobbs, et al. (2016). A large-scale cross-linguistic investigation of the acquisition of passive. Language acquisition 23(1), 27–56.
- Belletti, A. and C. Collins (2020). Smuggling in syntax. Oxford University Press.
- Belletti, A. and C. Manetti (2019). Topics and passives in italian-speaking children and adults. Language acquisition 26(2), 153–182.
- Bock, J. K. (1986). Meaning, sound, and syntax: Lexical priming in sentence production. Journal of Experimental Psychology: Learning, Memory, and Cognition 12(4), 575.
- Bruening, B. (2013). By phrases in passives and nominals. Syntax 16(1), 1–41.
- Gleitman, L. R., D. January, R. Nappa, and J. C. Trueswell (2007). On the give and take between event apprehension and utterance formulation. Journal of memory and language 57(4), 544–569.
- Guasti, M. T. (2017). Analytical causatives. In M. Everaert and H. van Riemsdijk (Eds.), The Wiley Blackwell Companion to Syntax. Hoboken, NJ: Wiley.
- Guasti, M. T., A. Alexiadou, and U. Sauerland (in prep.). Undercompression errors as evidence for conceptual primitives.
- Keenan, E. L. and M. S. Dryer (2007). 2 “passive in the world’s languages”. Clause Structure, Language Typology and Syntactic Description 1, 325–361.
- Keil, F. C. and G. E. Newman (2015). Order, order everywhere, and only an agent to think: The cognitive compulsion to infer intentional agents. Mind & Language 30(2), 117–139.
- Manetti, C. (2013). On the production of passives in italian: evidence from an elicited production task and a syntactic priming study with preschool children. In Boston University Conference on Language Development 37th Online Proceedings Supplement, pp. 219–240. Baiz, S., Goldman, N., and Hawkes, R. eds.

References ii

- Manetti, C. and A. Belletti (2015). Causatives and the acquisition of the Italian passive. In Language acquisition and development proceedings of GALA, pp. 282–298.
- Rissman, L., A. Woodward, and S. Goldin-Meadow (2019). Occluding the face diminishes the conceptual accessibility of an animate agent. Language, cognition and neuroscience 34(3), 273–288.
- Sauerland, U. and A. Alexiadou (2020). Generative grammar: A meaning first approach. Frontiers in Psychology 11, 571295.
- Serratrice, L. (2005). The role of discourse pragmatics in the acquisition of subjects in Italian. Applied psycholinguistics 26(3), 437–462.
- Slobin, D. (1973). Cognitive prerequisites for the development of grammar. In C. Ferguson and D. Slobin (Eds.), Studies of child language development, pp. 175–208. New York: Holt, Rinehart, & Winston.
- Slobin, D. I. and T. G. Bever (1982). Children use canonical sentence schemas: A crosslinguistic study of word order and inflections. Cognition 12(3), 229–265.
- Tedeschi, R. et al. (2009). Acquisition at the interfaces: A case study on object clitics in early Italian. Ph. D. thesis, LOT Nederlands Graduate School of Linguistics.
- van Hout, A. (2008). Acquiring perfectivity and telicity in Dutch, Italian and Polish. Lingua 11, 1740–1765.
- Volpato, F., L. Verin, and A. Cardinaletti (2016). The comprehension and production of verbal passives by Italian preschool-age children. Applied Psycholinguistics 37(4), 901–931.
- Wu, Y., P. Muentener, and L. E. Schulz (2016). The invisible hand: toddlers connect probabilistic events with agentive causes. Cognitive science 40(8), 1854–1876.

Appendix

Predictions for the Inanimate Causer condition

Adults

- We expect more anticausatives and *fare* + anticausatives than in the Body Agent and Hand Agent conditions.
- Adults produce more lexical causatives to describe intentional causation events and produce more (embedded or conjoined) anticausatives to describe non-intentional causation events (Song and Wolff 2005).

Children

- Children exhibit an adult-like sensitivity to the distinction between agentive vs. non-agentive causation events at an early age (Meltzoff 1995; Muentener and Lakusta 2011).
- We expect anticausatives and *fare* + anticausative productions.

Results: Focus on Inanimate Causer

Fig1: Production of argument structures across conditions in Adults

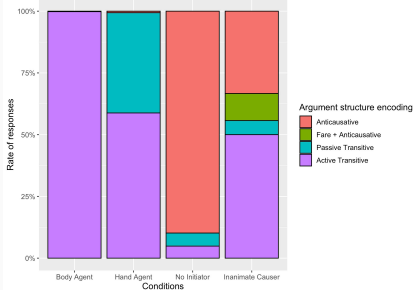
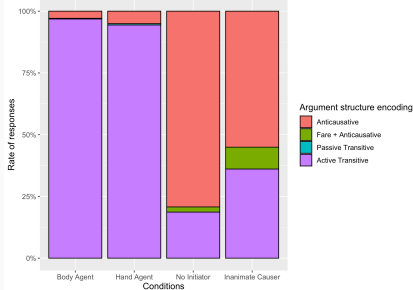


Fig2: Production of argument structures across conditions in Children



- Predictions confirmed for adults and children:
 - More anticausative and *fare* + anticausative than Body Agent and Hand Agent conditions
 - Significant production of active transitive structures (lexical causatives)
 - Children produce mainly anticausative constructions and a similar rate of *fare* + anticausative to adults
 - Production of active transitive constructions

Agent types in Inanimate Causer

Fig9. Agent types in active transitive: Adults

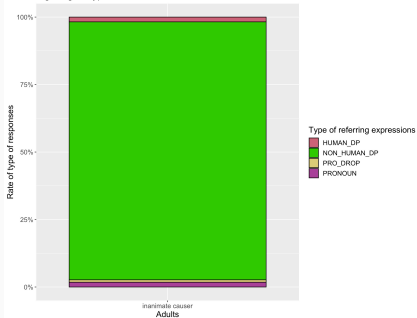
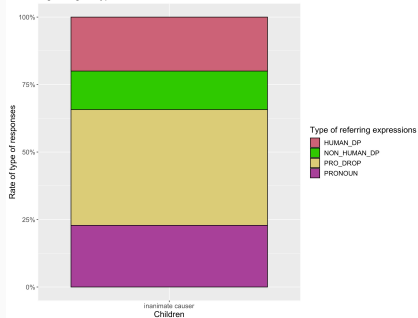


Fig10. Agent types in active transitive: Children



Active transitives in adults = 114

Active transitives in children = 57

Agent types in No Initiator

Fig7. Agent types in active transitive: Adults

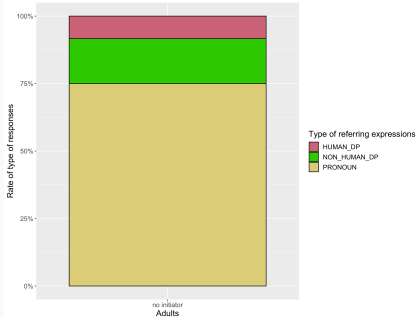
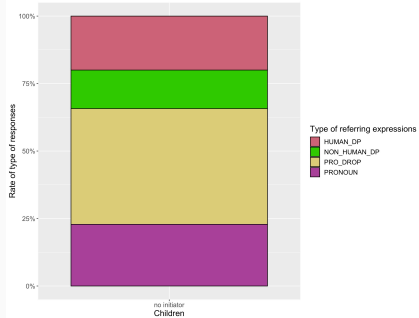


Fig8. Agent types in active transitive: Children



Active transitives in adults = 9

Active transitives in children = 35

Passives in adults

	short passive	long passive
hand-agent	184	10
no initiator	13	0
causer	5	8
total amount	202	18

Effects of Participants and Items

Participants

- Slight effect of Participants in Adult ($p = .022$) and Children ($p = .028$)

Items

- Adult = effect of item in No Initiator (tear $p < .001$) and Inanimate Causer (Turn off $p < .001$)
- Children = effect of item in No Initiator (turn off $p = .024$, wake $p = .002$), Inanimate Causer (open $p = .021$, turn off $p < .001$), Hand-agent (wake $p = .048$)