

Cognitive perspective on production of third person dative and accusative clitic pronouns in Slovenian school-aged children

Maruša Brežnik Dornik
Center for Cognitive Science of Language
Faculty of Humanities
University of Nova Gorica
marusa.breznik@ung.si

Abstract

The paper investigates the production of third-person dative and accusative clitic pronouns in Slovenian school-aged children, focusing on whether cognitive factors influence their acquisition, despite the morphological similarities of these clitics in Slovenian. Previous research in Italian suggested that dative clitics in Italian are acquired earlier than the accusative due to their morphological differences, a pattern tested within the Slovenian context. Using elicited production tasks with 71 Slovenian children, the study reveals that in Slovene third person clitics are produced more frequently than third dative clitics, challenging the idea that acquisition is driven solely by morphological complexity. The research is framed within cognitive science, drawing on Universal Grammar and connectionist models to explore how cognitive processes, such as working memory and language processing demands, interact with linguistic structures.

Keywords

Language acquisition, Slovenian clitics, dative, accusative, pronouns

1 Introduction

Language acquisition is a fundamental aspect of cognitive development, providing a window into how and when the human mind processes and structures information. The acquisition of clitic pronouns, such as the third person dative (3DAT) and accusative (3ACC) clitics in Slovenian, involves complex cognitive processes that reflect both innate linguistic capacities and the influence of environmental factors. In the first part, this assignment explores these processes through the lenses of prominent cognitive science theories, including Universal Grammar and connectionist models, while also considering the role of working memory in language development. In the second

part, the conducted experiment, which tested proposed research hypothesis from Italian on Slovenian school-aged children, is presented.

2 Experiment

Cardinaletti et al (2021) claim that the Italian dative clitics are acquired faster than their accusative counterparts because of a morphological difference between Italian dative and accusative clitics. Since there is no comparable difference between Slovenian dative and accusative clitics, their proposal predicts that the observed difference in acquisition should be absent in Slovenian. I tested this prediction among Slovenian children. The prediction was not confirmed, since children produced 3DAT clitics significantly less often than 3ACC.

2.1 Goals and predictions of the study

This study aims to examine the production of 3DAT and 3ACC clitic pronouns among Slovenian school-aged children. Acquisition of the two clitic pronouns had been studied in Italian, where it was determined that the acquisition of the 3DAT clitics precedes the acquisition of 3ACC clitics [3]. The authors argue that the difference in the time of acquisition stems from different morphological makeup of the two sets of clitics. Italian dative clitics do not differentiate between gender (*gli* is a third dative pronoun used for both feminine and masculine gender), while accusative clitics differ for the two genders and are thus morphologically more complex. They argue that gender features, or better the lack of them, must be the reason why Italian children produced more 3DAT clitics than 3ACC clitics.

In Slovenian both 3ACC (*ga* “him”, *jo* “her”) and 3DAT (*mu* “to.him”, *ji* “to.her”) clitics are comparable in their morphological complexity as they both also spell-out the gender feature. Given the analysis in [3] it is predicted that there should be no difference in the production of 3ACC and 3DAT clitics in Slovenian. The purpose of this research is to test this prediction by exploring whether there is a difference in the production of 3ACC and 3DAT clitics among Slovenian school-aged children.

2.2 Methodology

The methodology for this study is structured around two main elicited production tasks, each tailored to evaluate the production

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

Information Society 2024, 7–11 October 2024, Ljubljana, Slovenia

© 2024 Copyright held by the owner/author(s).

<https://doi.org/10.70314/is.2024.coq.17>

of dative and accusative clitic pronouns in Slovenian. These tasks are adapted from those used in the study [3], ensuring consistency in approach while accommodating the unique aspects of Slovenian. Slovenian stimuli consist of translations, and where necessary, adaptations of the Italian sentences used in [3] and of mostly unmodified drawings also from [3].

2.3 Participants

71 Slovenian typically developing (TD) children took part in the study. They were divided into six age groups, as shown in the table 1. Written informed consent was obtained from the children's parents prior to testing. Parents provided information about the languages spoken at home, which enabled us to exclude bilingual and L2 Slovenian speakers from the study.

Table 1: Groups, age and mean age of tested children.

Groups	Age	Mean age
TD1	6.6-6.9	6.8
TD2	7.0-7.9	7.4
TD3	8.0-8.8	8.6
TD4	9.0-9.9	9.6
TD5	10.0-10.8	10.4
TD6	11.0-11.9	11.4

Elicited Production – Accusative Task

This task is designed to elicit the use of 3ACC clitic pronouns. Children were presented with a series of visual stimuli featuring one or two characters engaged in various actions. For each set of images, the initial scene was described to the child using a recorded narrative. Following this, a second image was shown, and the child was asked to describe the action occurring, specifically focusing on the interaction between the characters. The aim is to prompt responses that naturally incorporate accusative clitic pronouns, reflecting the child's understanding and use of these grammatical structures.

Example Stimulus for Accusative Task

The first drawing shows a boy (agent) destroying a sand castle (patient), (Figure 1). The narrative describes the first scene, and the child is asked, "What is the boy doing to the castle?" (Figure 2). The expected response should include the accusative clitic pronoun corresponding to the castle sand, indicating the action directed towards the patient.



Figure 1: "In this story there is a boy that wants to destroy a sand castle."



Figure 2: "Look, what is he the boy doing to the castle?"

Similar elicited production task was made for the dative.

2.4 Procedure

Each child participant was individually tested in a quiet room within their school, ensuring a comfortable and distraction-free setting. All responses were audio-recorded and subsequently transcribed for analysis, with verification by two separate reviewers to ensure accuracy.

2.5 Response coding

We have classified the answers into three categories: target, production of full noun phrases (NP), clitic/NP omission. Every answer containing a clitic pro-noun was considered as target. Children have produced a good amount of target answers. In most of the answers they produced the same verbal form they had heard in the question, present tense, or sometimes produced sentences containing past tense. The most frequent non-target answer was the production of full NPs (in both, accusative and dative tests). The answers are grammatical, though redundant and pragmatically infelicitous, since the elicitation context requires clitic pronouns. There were some instances where clitics were omitted, either in the accusative or dative tests. In the accusative test, clitic omission led to ungrammatical sentences. In the dative test, ungrammatical responses occurred with verbs like *dati* "give," *podariti* "give," and *prinesti* "bring," all of which require a goal argument. Conversely, verbs such as *brati* "read" and *metati* "throw" resulted in grammatical sentences that were, however, contextually inappropriate for elicitation.

Table 2: Percentages of target answers for all groups

Groups	Target DAT	Target ACC
TD1	28,7	57,4
TD2	57,1	83,3
TD3	37,5	62,5
TD4	71,2	85,9
TD5	64,3	76,2
TD6	81,8	82,6

3 Results and discussion

All children's responses were compared using student t-test: the difference in the amount of 3DAT and 3ACC produced between the tested children is statistically significant ($p < .001$). Table 2 gives an overview of percentages of production of clitics, full NPs and omission in both tasks. Four instances of gender agreement error were found within the youngest group TD1 and two such errors within the TD3 group. Overall, children produced a good amount of target answers. The analysis within each group shows that the difference between 3DAT and 3ACC is noteworthy in all groups, except in TD6. The youngest groups produced significantly more 3ACC clitics than 3DAT clitics, namely TD1 28,7% more, TD2 26,19% more, TD3 25,0% more. As for the analysis between groups, we found significant differences for 3ACC, where the use of a 3ACC clitic is very low in TD1 group with 57,4%, TD3 group with 62,5% and TD5 with 76,19%. The omission was always higher with the 3DAT pronoun than 3ACC, TD1 omitted 3DAT with 16,67% more, TD2 with 25% more, TD3 with 8,34% more, in group TD4 no case of 3ACC omission was noted, TD5 omitted with significantly higher percentage of 20,23% more and TD6 with 4,54% more.

In this study the production of 3ACC and 3DAT clitic pronouns on Slovenian school-age children was tested, using two elicited production tasks. Differences between 3DAT and 3ACC clitics production were found in all groups. Children produced less 3DAT than 3ACC clitics in general. Which differs from what Italian kids (as reported in [1]) were producing, and also goes against the prediction based on [1]. Surprisingly the high omission is present in all age groups. Among the non-target answers, the production of full object instead of clitics was unusually high in the accusative task for the two oldest groups, while the four youngest groups produced fuller object in the dative task, which could be age related linked to the difficulty of the task. As Slovenian 3ACC and 3DAT clitics are morphologically comparably complex, the explanation provided in [1] cannot be used to explain the observed pattern.

The findings suggest that while innate linguistic capacities, as proposed by Universal Grammar, provide a foundation for language acquisition, the role of working memory and cognitive development cannot be overlooked. The results challenge the idea that the acquisition of clitic pronouns is driven solely by morphological complexity.

Acknowledgments

I am very grateful to Anna Cardinaletti, Sara Cerut and Francesca Volpato for sharing with me and allowing me to use their stimuli (drawings and Italian sentences) from [1]. I am grateful to the Elementary schools in Deskle and Celje that assisted me in running the experiment. This research was partially funded by ARIS grants N6-0314 and P6-03.

References

- [1] P Baddeley, A. (2003). Working memory and language: An overview. *Journal of Communication Disorders*, 36(3), 189-208.
- [2] Bialystok, E. (2009). Bilingualism: The good, the bad, and the indifferent. *Bilingualism: Language and Cognition*, 12(1), 3-11.
- [3] Cardinaletti, A., Cerutti, S., & Volpato, F. (2021). On the acquisition of third person dative clitic pronouns in Italian. *Lingue e linguaggio*, 20(2), 311–341.
- [4] Chomsky, N. (1981). *Lectures on Government and Binding: The Pisa Lectures*. Dordrecht: Foris.
- [5] Elman, J. L., Bates, E. A., Johnson, M. H., Karmiloff-Smith, A., Parisi, D., & Plunkett, K. (1996). *Rethinking Innateness: A Connectionist Perspective on Development*. MIT Press.
- [6] Garnham, A. (2013). *Mental Models and the Interpretation of Anaphora*. Psychology Press.
- [7] Gathercole, S. E., & Baddeley, A. D. (1993). *Working memory and language*. Psychology Press.
- [8] Hickok, G., & Poeppel, D. (2007). The cortical organization of speech processing. *Nature Reviews Neuroscience*, 8(5), 393-402
- [9] Toporišič, J. *Slovenska slovnica [Slovenian Grammar]*, 4th edition. Maribor: Obzorja (2000)
- [10] Patricia S. Abril and Robert Plant, 2007. The patent holder's dilemma: Buy, sell, or troll? *Commun. ACM* 50, 1 (Jan, 2007), 36-44. DOI: <https://doi.org/10.1145/1188913.1188915>.
- [11] Sten Andler. 1979. Predicate path expressions. In *Proceedings of the 6th. ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages (POPL '79)*. ACM Press, New York, NY, 226-236. DOI: <https://doi.org/10.1145/567752.567774>
- [12] Ian Editor (Ed.). 2007. *The title of book one* (1st. ed.). The name of the series one, Vol. 9. University of Chicago Press, Chicago. DOI: <https://doi.org/10.1007/3-540-09237-4>.
- [13] David Kosiur. 2001. *Understanding Policy-Based Networking* (2nd. ed.). Wiley, New York, NY