



Michaela Nerantzini¹, Spyridoula Varlokosta¹, Despina Papadopoulou²

Clitic comprehension and production in agrammatic aphasia. True syntax-discourse deficits or minimality effects?

Method

Cross-linguistic studies on clitic production have shown that clitic omission rates are prominent in agrammatic aphasia (Nespoulous et al., 1988; Reznik et al., 1995; Rossi, 2007; among others). Taking into account Avrutin's (1999) Syntax-Discourse model (SDM), Sanchez-Alonso et al. (2011) attributed the erroneous production of clitics to their referential properties. ▶ SDM predicts that clitics, as referential elements, would cause higher processing load to agrammatic speakers as opposed to other pronominal elements, such as reflexives, which are interpreted locally. Although several studies have shown that in clitic languages, clitics are typically well-interpreted (see Varlokosta and Edwards, 2002; Gavarró, 2008), Garaffa (2009) reports errors in the comprehension of clitics in Italian, which are interpreted within the Relativized Minimality approach (RM) to locality in syntax. ▶ RM predicts that local relations cannot be established between two elements when an intervening element carries the same morphosyntactic features, since this element will be recognized as a possible candidate for the establishment of the local relation. Garaffa argues that since clitics involve a step in their derivation where they give rise to a crossed chain, this would lead to minimality effects. Both SDM and RM make the same predictions regarding clitic impairment in agrammatism, although they provide different explanations. The present study aims at investigating whether the Greek agrammatic data can provide evidence in favor of these approaches.

Seven monolingual, right-handed, Greek-speaking agrammatic individuals, aged 18-59 years, participated in the study. Participants had suffered a left CVA and they were tested at least 1,5 year post onset. Participants were selected for inclusion on the basis of the Boston Diagnostic Aphasia Examination (BDAA) (Goodglass & Kaplan, 1983; Greek version by Papanasiou, Feidatsi, Katsantoni, Panagiotopoulou, & Malefaki, 2004).

Three tasks were employed. With respect to production, a computer based clitic elicitation task was designed, which contained 36 direct object clitics marked for the three gender values (masculine, feminine, neuter) in the singular and plural number. Participants were presented with pictures -one at a time- depicting an action and with an orally presented question, which aimed at triggering a response containing a pre-verbal clitic and a verb in the indicative mood.

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Experimenter: Ti kani stis domates?
what is doing_3SG to the tomatoes
Target answer: tis kovi
them_cl_female_acc cuts
"He cuts them"

Given verb: kovo
cut_1SG



With respect to comprehension, two tasks were employed.

a) a grammaticality judgment task, which contained 72 sentence with direct object clitics in total, 36 using verbs in the indicative (pre-verbal) and 36 in the imperative mood (post-verbal).

- (a) *To pjato itan vreytmeno ke skupise. (clitic omission error)
the dish was wet and dried_3SG
- (b) *To pjato itan vreytmeno ke skupise to. (clitic placement error)
the dish_neuter was wet and dried_3SG it_cl_neuter
- (a) *Vres ton xarti ke kapse. (clitic omission error)
find the map_masc and burn_3SG
- (b) *Vres ton xarti ke ton kapse. (clitic placement error)
find the map_masc and him_cl_masc burn

b) a picture selection task, which contained 32 simple transitive clauses in total, 16 with clitics and 16 with reflexive pronouns and 32 ECM structures, half with clitics and half with reflexives.

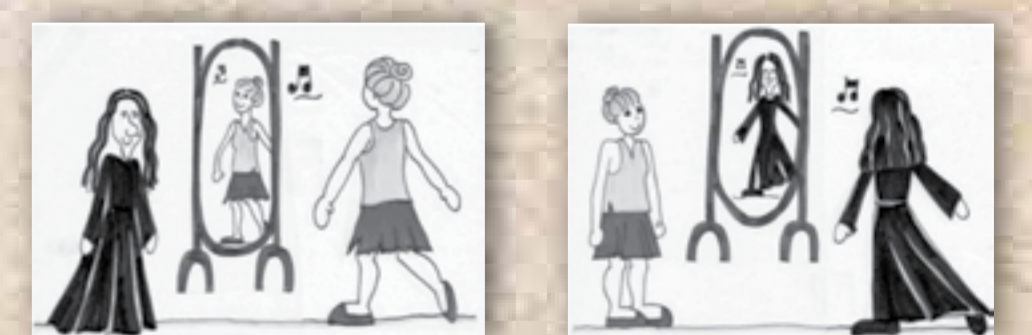
Introductory sentence: Eðo vlepume mia mitera ke mia jaja
Here there is a mother and a granny

- (1) I mama tin pleni
the mum her-CL is washing
"Mum is washing her"
- (2) I mama pleni ton eafto tis
the mum is washing the herself
"Mum is washing herself"



Introductory sentence: Eðo vlepume mia mayisa ke mia jaja
Here there is a witch and a granny

- (3) I mayisa tin vlepi na xorevi
the witch her-CL sees na-particle dance
"The witch sees her dance"
- (4) I mayisa vlepi ton eafto tis na xorevi
the witch sees the herself na-particle dance
"The witch sees herself dance"



Results

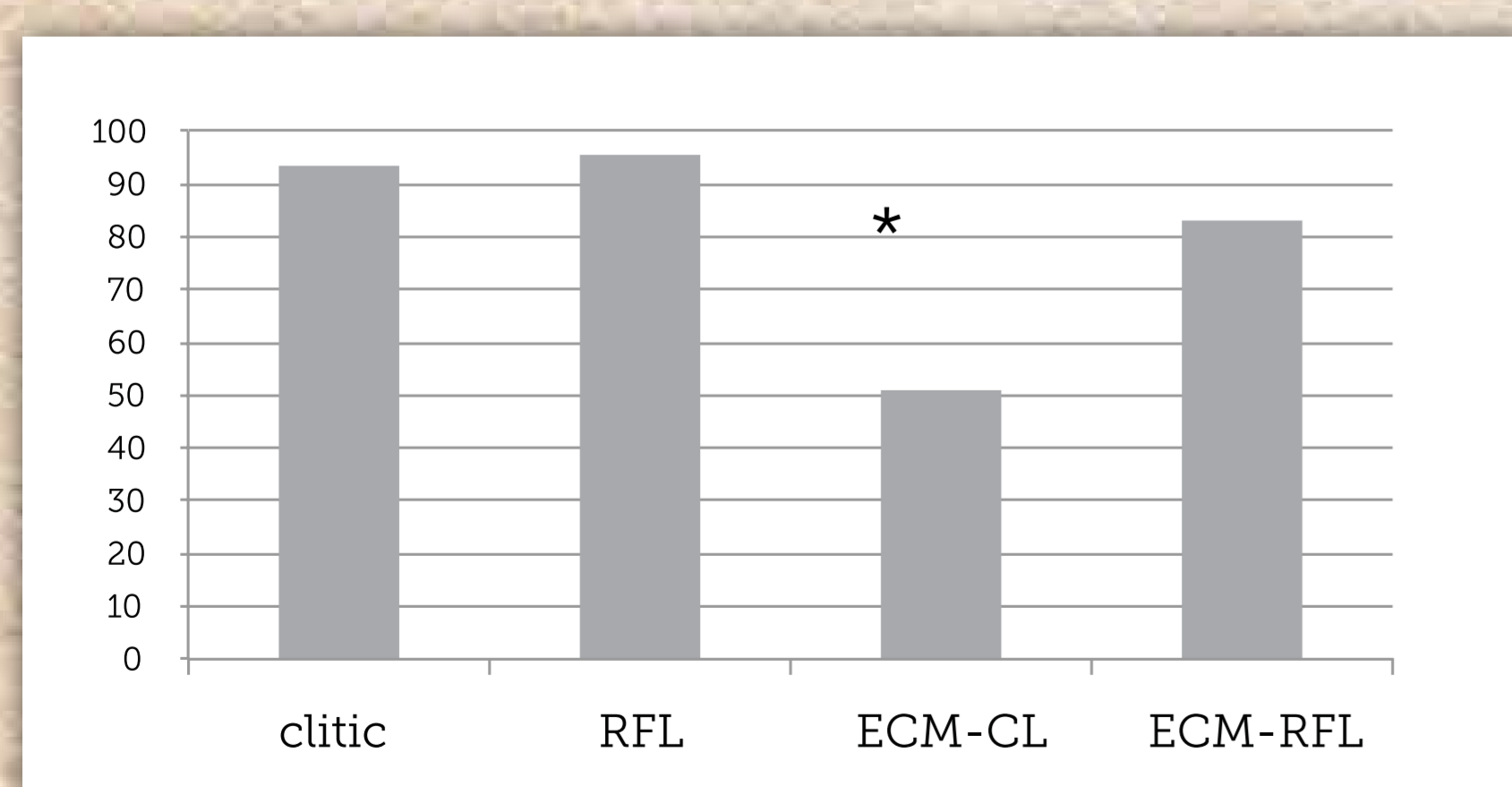
Clitic Elicitation

	Omission	DP-production	Agreement	Target clitic production	Accuracy %
P1	21	7	3	8	22
P2	26	5	0	5	14
P3	33	0	0	3	8
P4	6	6	0	24	67
P5	4	6	13	26	72
P6	15	17	2	4	11
P7	14	14	4	8	22
Total	68,30%	31,60%	8,70%	30,90%	

Grammaticality judgement

	Errors/omission	Errors/placement	Correct judgment	Accuracy %
P1	5	2	65	90
P2	2	1	63	88
P3	*	*	64	89
P4	2	3	66	92
P5	0	6	64	89
P6	8	2	62	86
P7	4	5	61	85
Total	25%(21/84)	22,6%(19/84)	88,29%(445/504)	

Picture selection



Clitic elicitation task: agrammatic participants omit direct object clitics to a great extent (68,3%), while clitic substitution with full DPs or agreement errors were also attested to a significantly lesser extent (31,6% and 8,7% respectively).

Grammaticality judgment task: clitics are on the whole well interpreted (88,3%). Participants were capable of correctly recognizing the ungrammaticality of the structures when the clitic was either omitted or misplaced.

Picture selection task: clitics are well interpreted in simple transitive clauses (94%), although chance level performance was obtained in ECM contexts (51%).

Discussion

Due to the high accuracy scores observed in clitic comprehension in simple contexts, we conclude that the referential properties of clitics as such cannot account for the erroneous performance observed in clitic production. The observed dissociation across modalities cannot be interpreted within RM either (contra Garaffa, 2009), since crossed chain and minimality effects would be predicted to arise across modalities. We rather suggest that the aphasic participants employ explicit rules to judge the (un)grammaticality of sentences, while automatic processes are more likely to emerge in production. On-line grammaticality judgment studies may shed light on this asymmetry since they will show whether the agrammatic speakers' on-line comprehension is sensitive to ungrammaticalities related to clitics (cf. Chondrogianni et al., 2010).

Selected References

- Chondrogianni, V., Marinis, Th., and Edwards, S. (2010). On-line processing of articles and clitic pronouns by Greek children with SLI. In K. Frannich, K. Iserman and L. Keil. (Eds.) *Proceedings of the 34th Annual Boston University Conference on Language Development*, Vol 1: 78-89.
- Garaffa, M. (2009). Minimal structure in aphasia: A study on agreement and movement in a non-fluent aphasic speaker. *Lingua*, 119: 1444-1457.
- Sanchez-Alonso, S., Martinez-Ferrero, S., and Bastiaanse, R. (2011). Clitics in Spanish agrammatic aphasia: A study of the production of unaccusative, reflexive and object clitics. In Hendrickx et al. (Eds.) *Lecture notes in Computer Science*, DAARC 2011, LNAI 7099, pp. 184-197, Springer-Verlag Berlin Heidelberg.