



## Negative Concord in Neglect Dyslexia

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August 28, 2021

## Negative concord in Neglect Dyslexia

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### Introduction

Neglect dyslexia (ND), mostly caused by a lesion in the right hemisphere, leads to difficulties in reading the left part of words or sentences. In this condition, the grammatical structure of a sentence seems to modulate the exploration of written material. Thus Abbondanza et al. (2020) showed an advantage for left periphery. In the present study negative concord is considered. Negative concord, in Italian, is a structure characterized by two negative elements leading to a negative overall interpretation. For example, a negative adverb (e.g., *mai* - never, *neanche* - neither, *nemmeno* - nor) requires sentential negation at the beginning of the sentence (e.g., *non* - not). If spatial exploration is modulated by negative concord, we expect that the second negative element would trigger the search for the first negative element on the left. As a result, according to this hypothesis, sentences containing negative concord would be better read in ND with respect to sentences with single negation or no negation. Two different kinds of verb were analyzed: transitive and unaccusative verbs. Transitive verbs are characterized by the presence of an agent and a theme expressed by a direct object. Unaccusative verbs have a non-agentive subject which bears the thematic role of a theme, corresponding to the one expressed by the object of a transitive verb.

### Methods

Patient ZE, a 61 y.o. businessman, with 8 years of education, had a tumor lesion in the right posterior temporal lobe, causing ND. He was asked to read sentences on a screen, one at a time. Sentences were matched for font and dimension, and they had a similar number of characters and words. There were 3 types of sentence: *negative concord*, *single negation* and *no negation*. Omissions of the left side of sentences were counted as neglect errors.

### Results

ZE performed better in the *negative concord* ( $n=30/50$ ) condition than in the other two conditions: *single negation* ( $16/50$ ) - Fisher exact test value 0.0094,  $p < .01$  -, and *no negation* ( $18/50$ ) - Fisher exact test value 0.0272,  $p < .05$  -, confirming the initial hypothesis. Only in the *no negation* condition the patient omitted fewer transitive verbs ( $8/24$ ) than unaccusative verbs ( $20/26$ ) - Fisher exact test value 0.0039,  $p < .01$  -.

### Conclusions

ZE neglected fewer words when reading sentences with *negative concord*, as predicted by our hypothesis. A negative adverb triggers the search for the corresponding initial negation as the grammatical competence of the patient requires. Moreover, in the *no negation* condition, ZE clearly omits more unaccusative verbs than transitive verbs. In some languages (e.g., German), though not in Italian, omission of semantically simple unaccusative verbs is allowed: a sentence as *Ich will nach Hause* (I want to home) is understood as *Ich will nach Hause gehen* (I want to go home). In conclusion both negation and verb type effects showed that the linguistic competence of a subject influences the exploration of written space, and that ND is not modulated by an impossible grammar.

### **References**

Abbondanza, M., Passarini, L., Meneghello, F., Laratta, S., Burgio, F., D'Imperio, D., & Semenza, C. (2020). The left periphery in neglect dyslexia. *Aphasiology*. 34:8, 1101-1110.

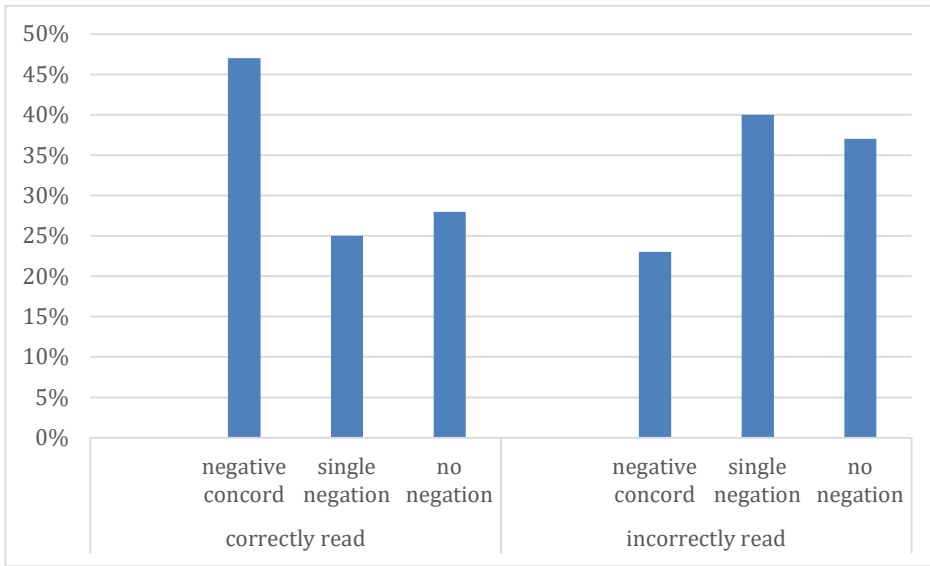


Figure 1. Rate of sentences correctly and incorrectly read.

Table 1. Rate of verbs read in the experiment.

<b>negative concord</b>		
transitive verbs		
	omitted	36%
unaccusative verbs		
	omitted	32%
<b>single negation</b>		
transitive verbs		
	omitted	8%
unaccusative verbs		
	omitted	16%
<b>no negation</b>		
transitive verbs		
	omitted	33%
unaccusative verbs		
	omitted	77%