

Investigating the functions underlying short-term memory conjunctive binding through the study of aphantasia

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Introduction

- Objects are composed of a series of features, that need to be integrated to obtain a meaningful representation
- How do we encode and hold these complex conjunctive representations in memory?
- **Mental imagery** and **semantic memory/verbal coding** have been proposed as two main mechanisms
- We systematically manipulated the possibility to recruit one or the other

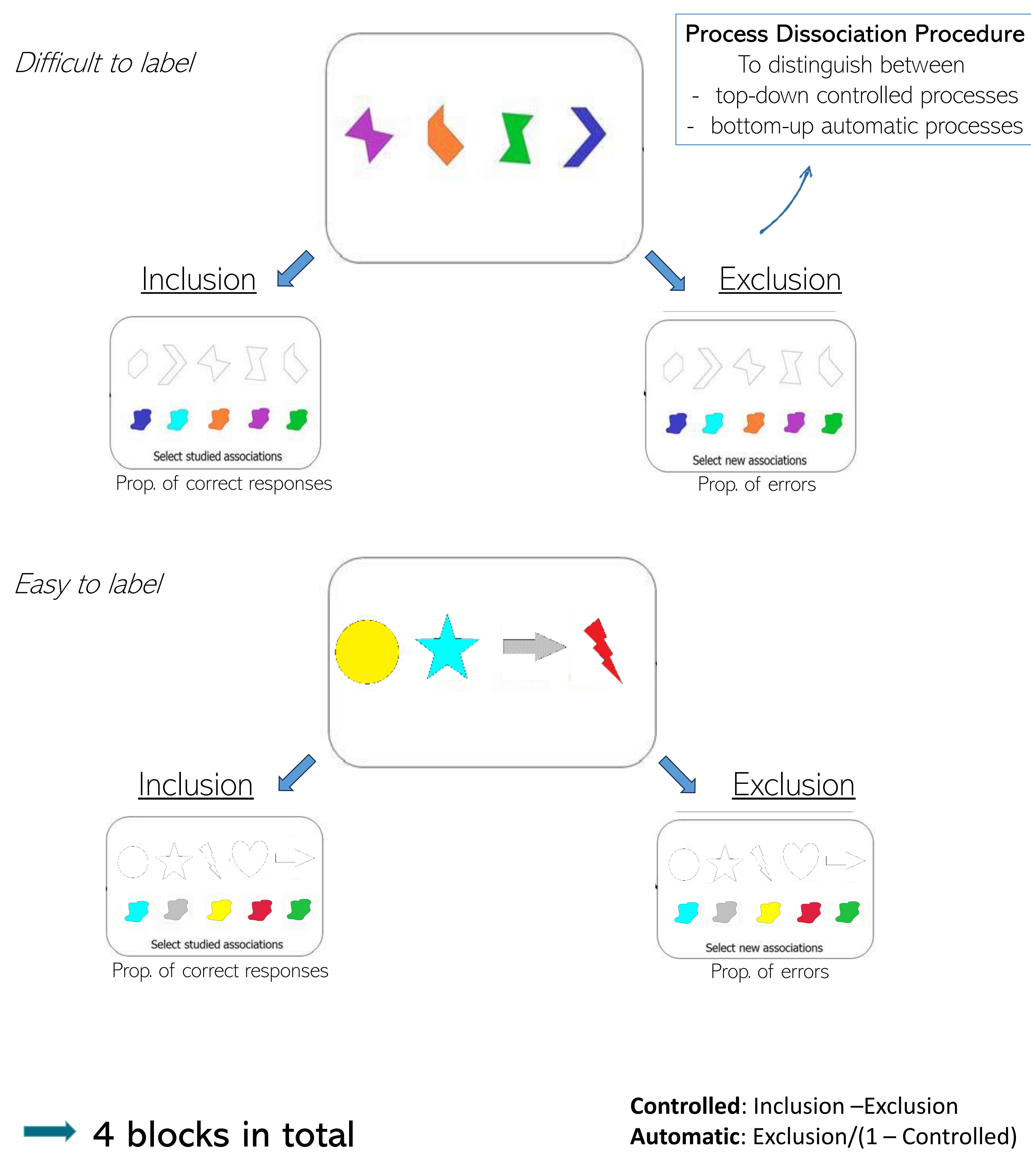
Methods

Participants

	Aphantasics	Controls
N	29	41
Age	38.86 (12.45)	29.30 (11.78)**
VIQ (/80)	16.62 (1.59)	61.39 (8.01)***
Object imagery	24.90 (14.29)	48.61 (12.95)***
Spatial imagery	29.38 (5.22)	33.73 (7.43)**
Verbal imagery	25.34 (3.59)	25.22 (3.61)

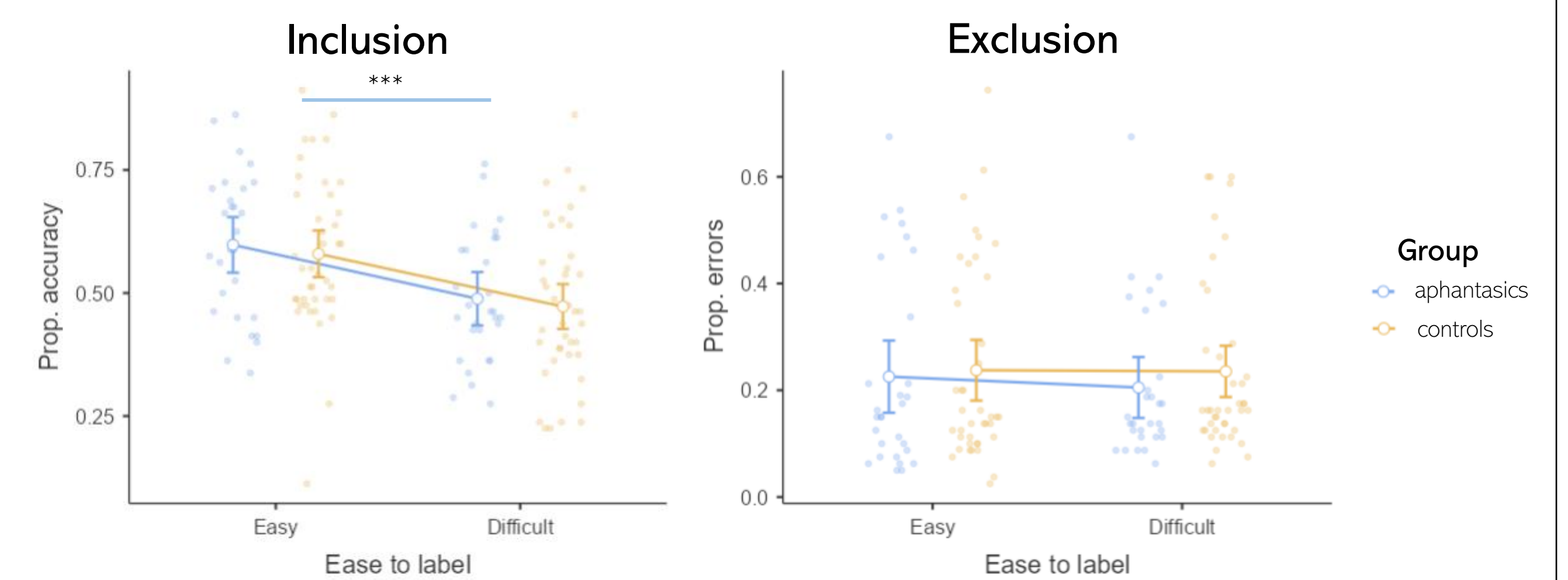
VIQ inclusion criteria : aphantasics ≤ 23 & controls ≥ 40

Materials and procedure

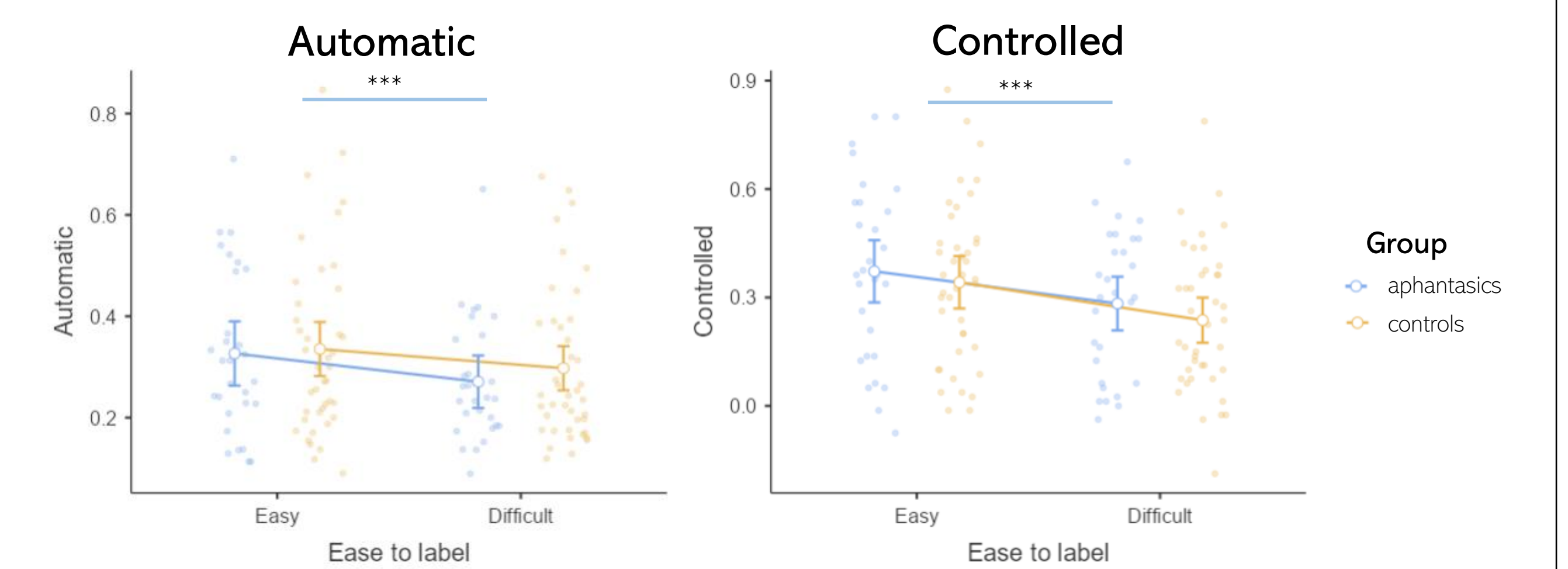


Results

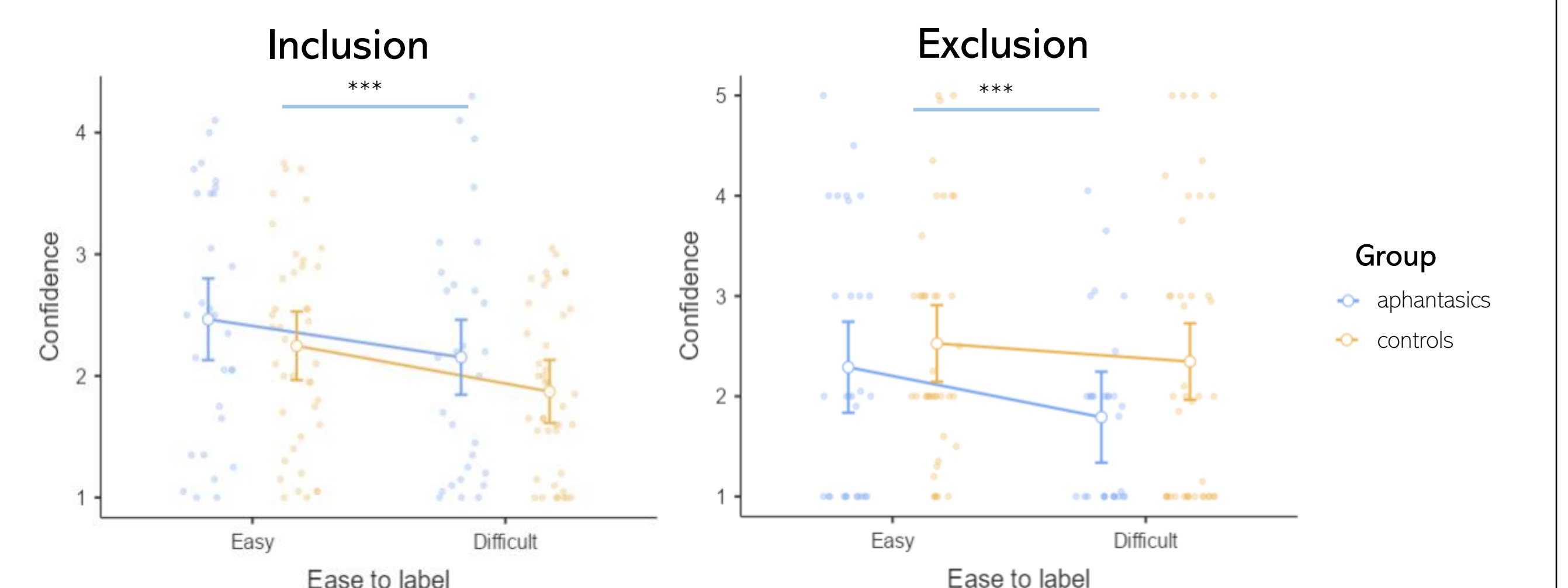
Performance



Processes



Confidence



Discussion

- No difference at all between aphantasics and controls
 - Visual mental imagery might not be necessary for conjunctive binding
 - Should be replicated using different tasks
 - There is always the possibility that the task used here did not target what it was aimed for
- Effect of the ease to use labels
 - But performance remains above chance even in the impossibility to use labels
 - Even in aphantasia, so in the impossibility to use visual mental imagery
- There might be other processes at play, to be accounted for in future studies