

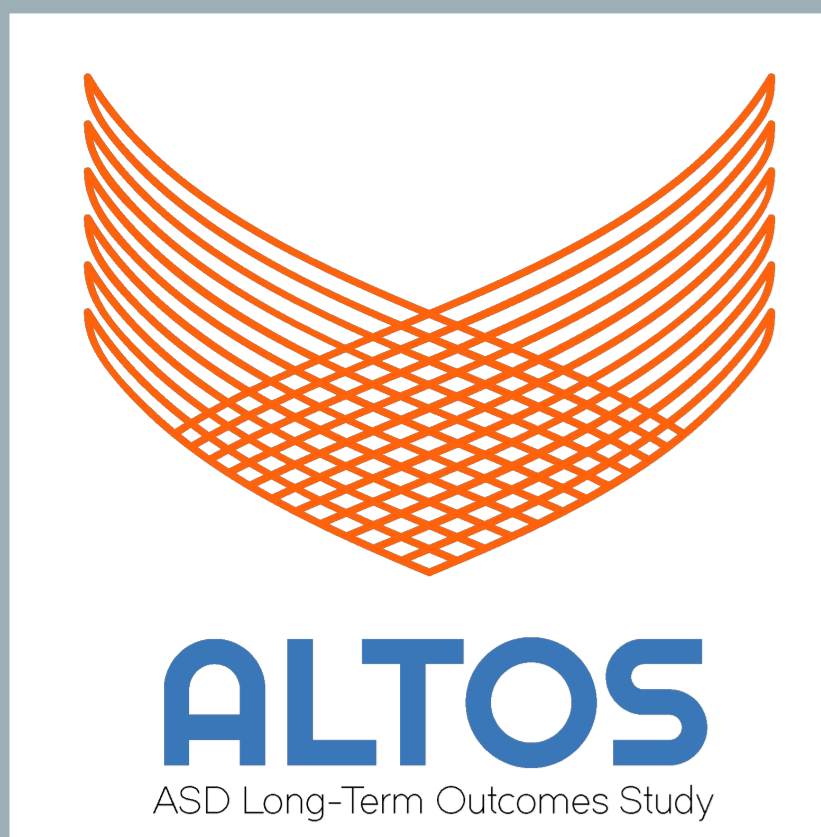
Grammaticality judgments provide evidence of morphosyntactic challenges in verbally fluent autistic speakers

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Introduction

- 67% of autistic individuals attain verbal fluency; difficulties are thought to reflect social processes

- E.g., Clinical Evaluation of Language Fundamentals (CELF) scores in the average range -> intact language¹

However

- Standardized testing may inflate autistic test scores²
 - Sequential single-item responses, quiet environment, limited time constraints, responsive interlocutor, clear visual supports: Draw on autistic strengths
- Online methods (e.g., eyetracking) may better capture language challenges³, but are cumbersome

This study used an off-line linguistic task to probe morphosyntactic and phonological processing

Methods

- Autistic ($n = 29$) & non-autistic ($n = 35$) groups; **Table 1**
- Groups not different on verbal IQ, nonverbal IQ, working memory (digit span)
- Grammaticality judgment (GJ) task⁴
 - 23 well-formed, grammatical sentences
 - 23 sentences with morphosyntactic violation
- Linear models compared GJ accuracy (A-prime) X group

Table 1. Participants

	AUT	NT	F / χ^2	p
Age (years)	21.20 (6.03) [12–32]	21.35 (5.33) [12–35]	0.01	0.917
Gender identity (male : female : other)	20:6:2	17:17:1	5.12	0.077
Race (white: Asian: multiracial: not reported)	24:1: 2:1	33: 1:0:1		
Ethnicity (Hispanic/Latinx: not Hisp/Lat)	26:2	32:3		
Verbal IQ (verbal analogies)	7.1 (2.4) [1.4–11.1]	7.4 (2.0) [2.7–9.8]	0.26	0.613
Nonverbal IQ (matrix reasoning)	8.3 (1.8) [2.7–10.5]	8.7 (1.3) [5.3–10.5]	1.02	0.316
Verbal memory (WAIS digit span)	11.8 (3.5) [6–19]	11.4 (2.8) [7–19]	0.21	0.646
ADOS Mod 4 total***	13.4 (4.0) [8–22]	1.4 (1.9) [0–7]	242.38	< .001

Note. Data are presented as M(SD), range, or as count variables. *** $p < .001$. ADOS = Autism Diagnostic Observation Schedule-2 Module 4. IQ scores: Computerized Neurocognitive Battery⁵

Figure 1. Grammaticality Judgment

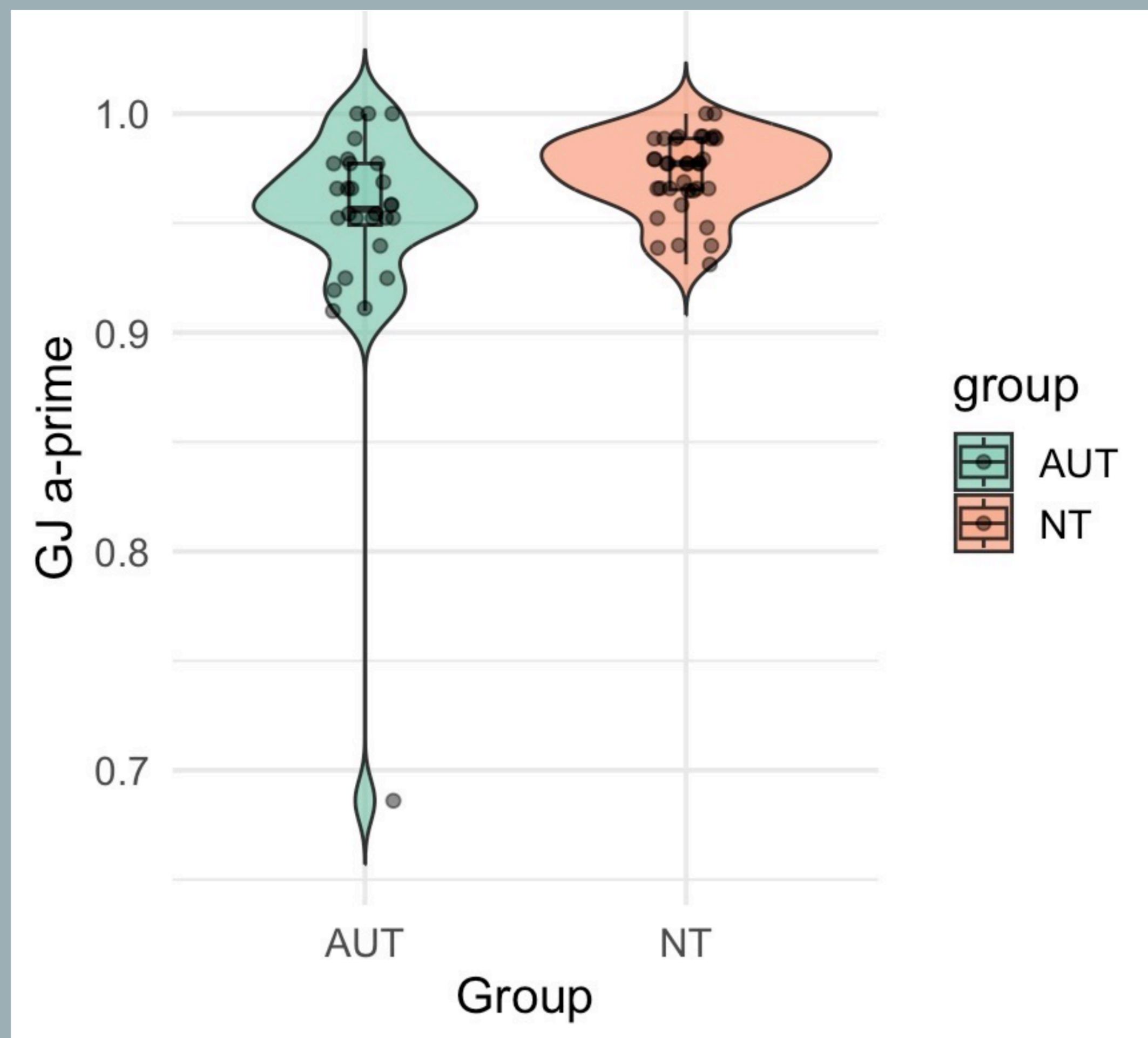


Figure 2. Grammaticality Judgment x VIQ

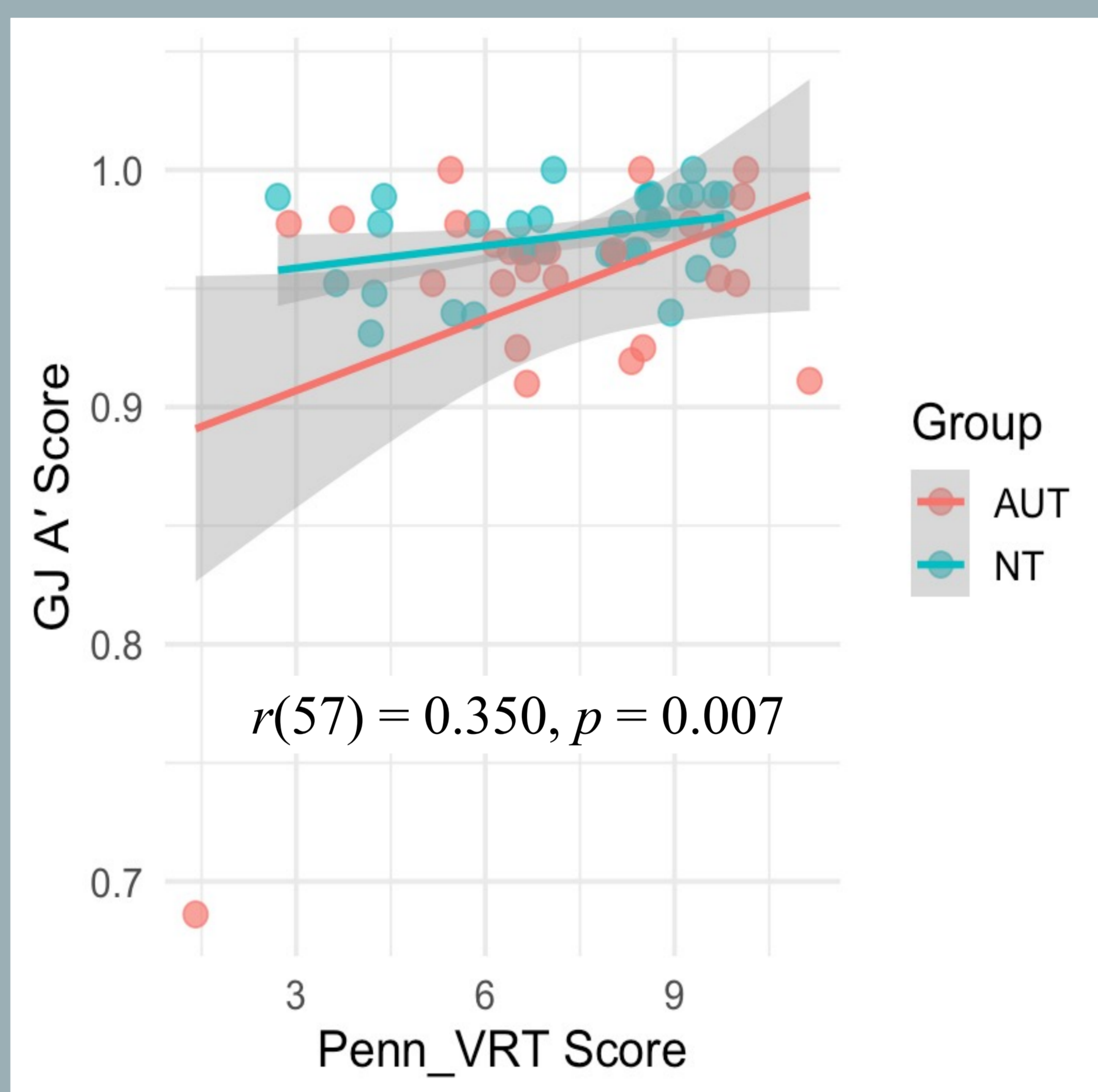


Table 2. Grammaticality Judgment scores

	AUT	NT	F / χ^2	p
GJ % correct	91 (7) [60–100]	95 (3) [87–100]	6.32	0.015
GJ A-prime	0.95 (0.06) [0.69–1.00]	0.97 (0.02) [0.93–1.00]	5.34	0.024

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Results

- Significantly lower accuracy in autism group, .897 versus .947, $p = .01$; **Figure 1, Table 2**
- Sig after removing outlier, $F(1,60) = 5.863$, $p = 0.019$

Correlations:

- GJ A-prime and VIQ; **Figure 2**
 - But not Digit Span, $r(55) = -0.017$, $p = 0.898$
 - and not NVIQ, $r(58) = 0.191$, $p = 0.143$

Conclusions

- Even fluent autistic speakers may struggle with structural language, independent of social pragmatic abilities
- Findings: consistent with morphosyntactic errors in spontaneous language of autistic adolescents⁶
- Grammaticality judgement tasks: an efficient and valid measure of language skills
- Clinical implications: Even fluent individuals with age-typical cognitive skills may benefit from speech-language supports.

Limitations

- Sample was primarily white and well-resourced; findings may not generalize

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