

How Idiomaticity and Verb Voice Affect Sentence Reading: an Eye-tracking Study on Italian

1. PASSIVIZATION AND ADJACENCY

Passivization is among the least accepted transformations for idioms (1) with respect to compositional expressions (2) according to previous theoretical (Fraser 1970) and offline normative (Tabossi et al. 2011) studies:

- 1a) *John kicked the bucket.*
- 1b) *The bucket was kicked by John.* (loses idiomatic reading)
- 2a) *John read a book.*
- 2b) *A book was read by John.* (meaning stays unaltered)

Holsinger (2013) and Dörre & Smolka (2016, see example below) observe that the access to the figurative meaning of a syntactically altered idiom is easier if constituent adjacency is still preserved (3b):

- 3a) *Der Kopf wurde ihm von ihr gewaschen.*
'She gave him a piece of her mind'.
- 3b) *Ihm wurde von ihr der Kopf gewaschen.*

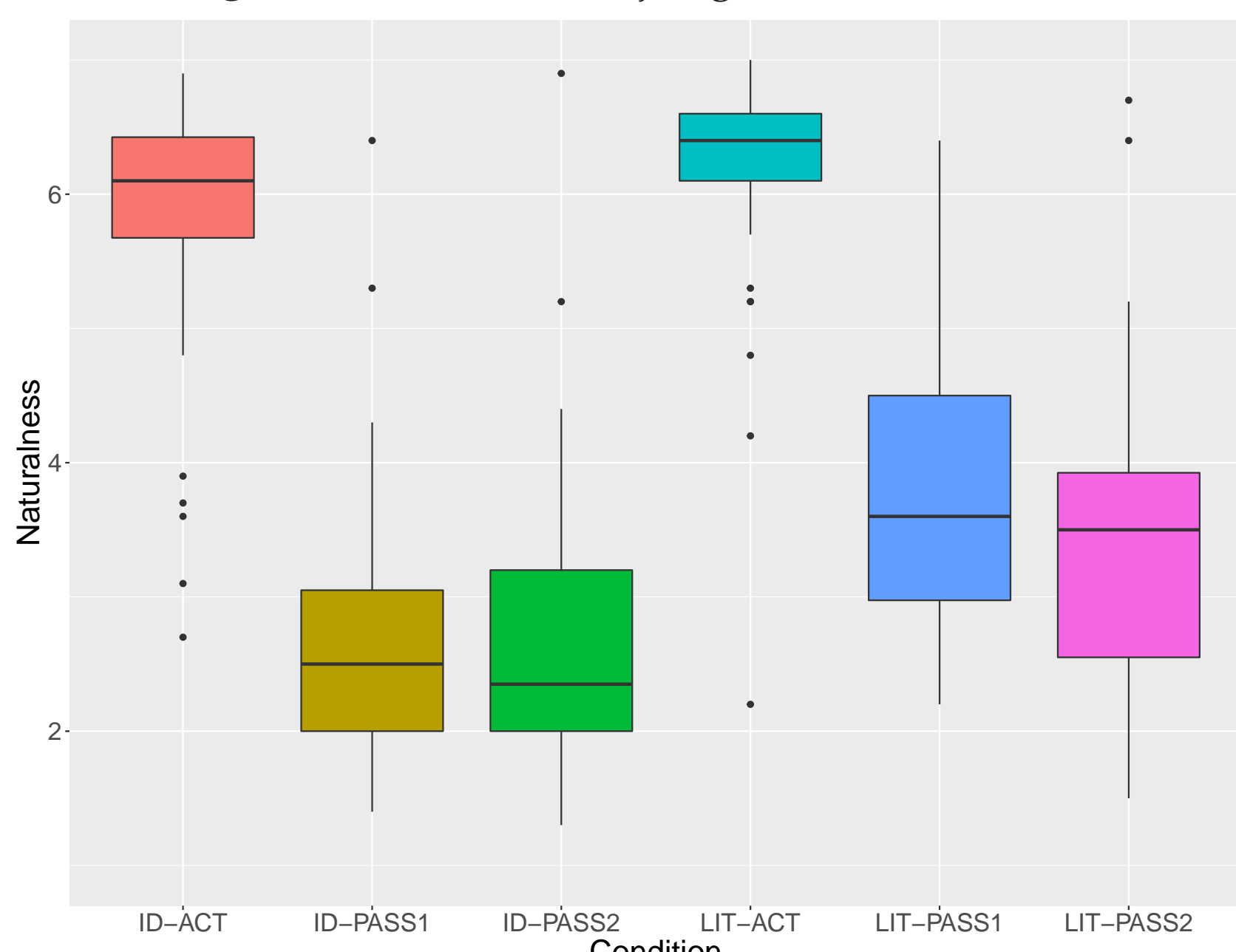
3. MATERIALS AND NORMING

- 60 verb-determiner-noun Italian idioms (e.g. *tagliare la corda* 'to slip away' (lit. 'to cut the rope')) were selected;
- in the **literal** condition, the idiom verb was combined with a new length- and frequency-matched noun (e.g. *tagliare la barba* 'to trim one's beard');
- 230 subjects took part in the **norming phase** (scores on a 1-7 Likert scale, except for Meaning Knowledge measured with paraphrase accuracy);

Variable	Raters	M	SD
Familiarity	30	5.71	0.96
Meaning Knowledge	30	88.43%	18.49%
Transparency	20	4.39	1.33

- Cloze probability** (120 raters) was significantly higher only for active idioms with respect to passive I idioms ($p < .001$) and passive II idioms ($p < .01$);

Figure 1: Naturalness judgments (60 raters)



6. IDIOMS ONLY AS AOIS

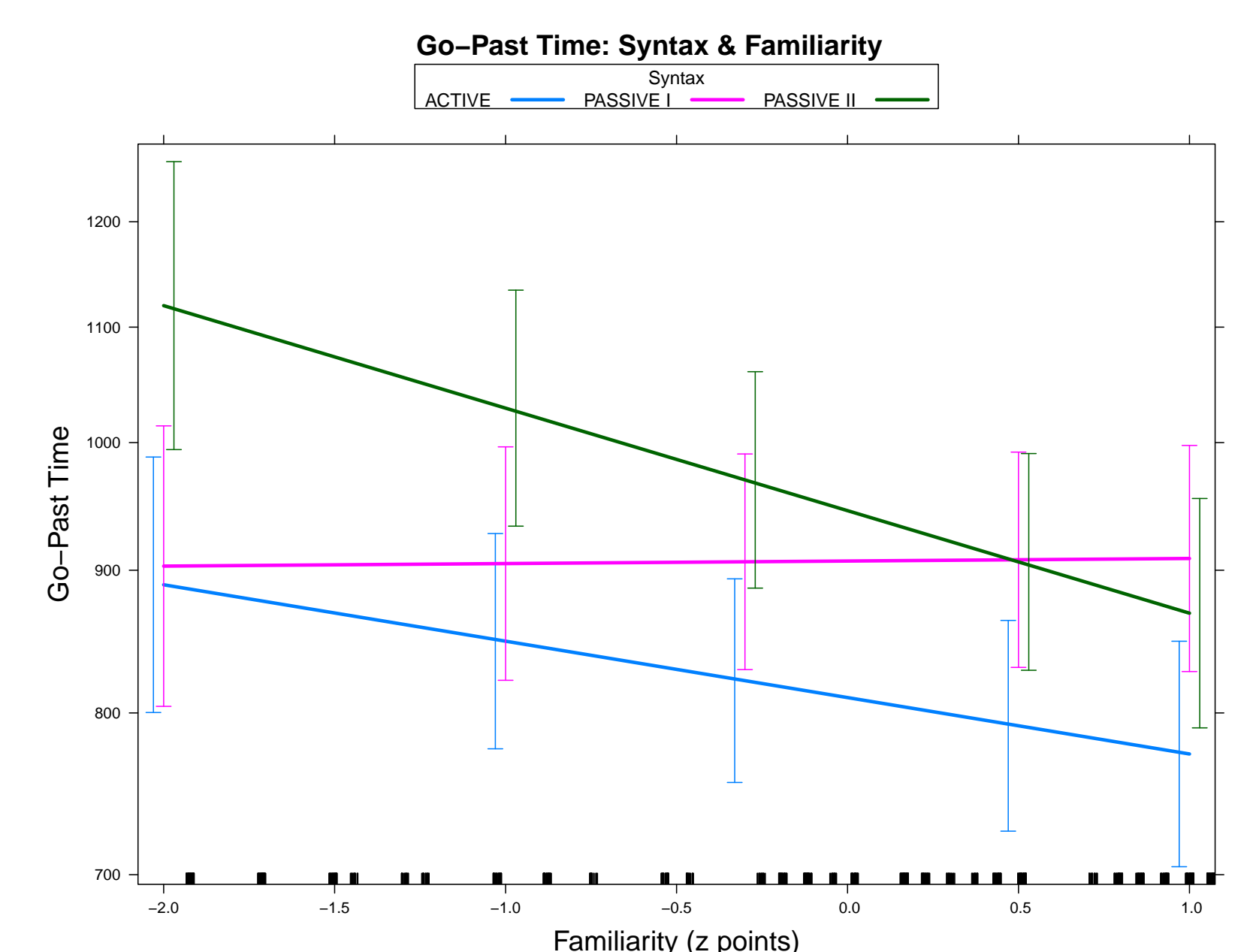


Table 3: Go-Past Time

Fixed Effects	β	SE	t	p
Control factors: Trial Num**, AOI Length***, Cloze Prob				
Familiarity	-.043	.013	-3.206	**
Transparency	-.023	.013	-1.776	.081
Syntax (Pass vs Act)	.134	.034	3.903	***
Syntax (Pass2 vs Pass1)	.041	.032	1.298	.196
Familiarity x Pass vs Act	.005	.017	.311	.757
Familiarity x Pass2 vs Pass1	-.087	.024	-3.649	***
Transparency x Pass vs Act	-.034	.017	-1.989	*
Transparency x Pass2 vs Pass1	.041	.024	1.690	.096

2. RESEARCH QUESTION

Italian syntax allows for a passive structure with both a **preverbal subject** (PASSIVE I) and a **postverbal subject** (PASSIVE II). PASSIVE II keeps the **canonical verb-noun order** of the active form.

EXPERIMENTAL CONDITIONS (a. = idiomatic, b. = literal)

Condition	Example
ACTIVE	a. <i>A quanto so, Giorgio ha tagliato la corda perchè la festa era diventata noiosa.</i> 'As far as I know, Giorgio slipped away (lit. cut the rope) since the party had got boring'. b. <i>Su mio consiglio, Giorgio ha tagliato la barba in vista del colloquio di lavoro.</i> 'Following my advice, Giorgio trimmed his beard (lit. cut the beard) for the job interview'.
PASSIVE I	a. <i>A quanto so, la corda è stata tagliata da Giorgio perchè la festa era diventata noiosa.</i> b. <i>Su mio consiglio, la barba è stata tagliata da Giorgio in vista del colloquio di lavoro.</i>
PASSIVE II	a. <i>A quanto so, è stata tagliata la corda da Giorgio perchè la festa era diventata noiosa.</i> b. <i>Su mio consiglio, è stata tagliata la barba da Giorgio in vista del colloquio di lavoro.</i>

- Are passive idioms actually read slower than passive literals?
- Is PASSIVE II processed faster than PASSIVE I due to the canonical verb-noun order being preserved?

4. THE EYE-TRACKING EXPERIMENT

- 41 subjects (24 females, mean age = 24.29, age range = 20-31) silently read for comprehension (> 80 % comprehension questions answered correctly);
- 20 subjects read Active and Passive I conditions, 21 subjects read Active and Passive II;
- 60 experimental sentences (15 per condition) + 100 filler sentences (including semantic and syntactic anomalies, cleft sentences, interrogatives and other literal active and passive sentences)

5. IDIOMATIC AND LITERAL PHRASES AS AOIS

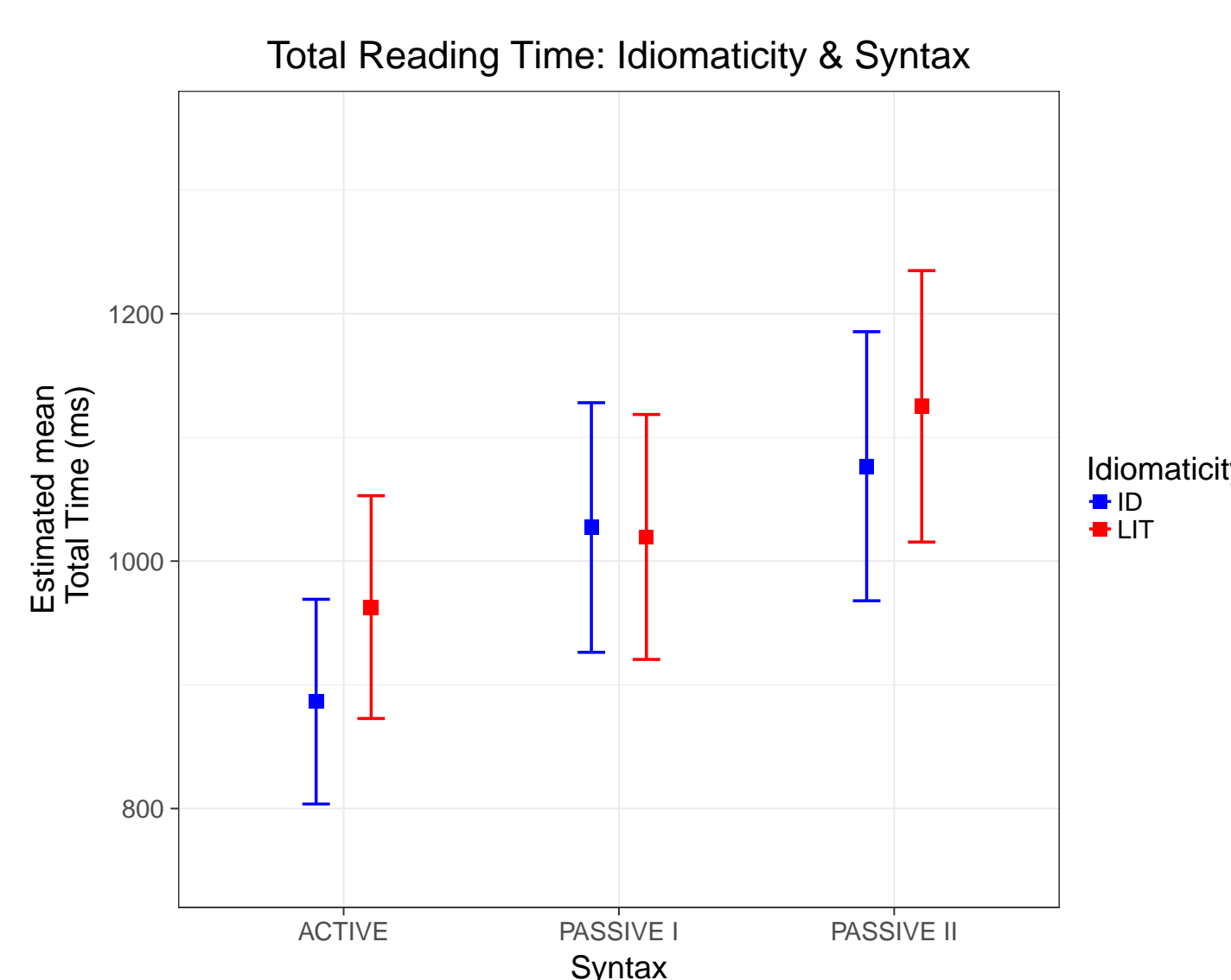


Table 1: Total Reading Time

Fixed Effects	β	SE	t	p
Control factors: Trial Num***, AOI Length***, Cloze Prob				
Idiomaticity (Id vs Lit)	-.042	.019	-2.197	*
Syntax (Pass vs Act)	.152	.030	4.980	***
Syntax (Pass2 vs Pass1)	.083	.027	3.114	**
Idiomaticity x Pass vs Act	.077	.029	2.692	**
Idiomaticity x Pass2 vs Pass1	-.042	.043	-.968	.337

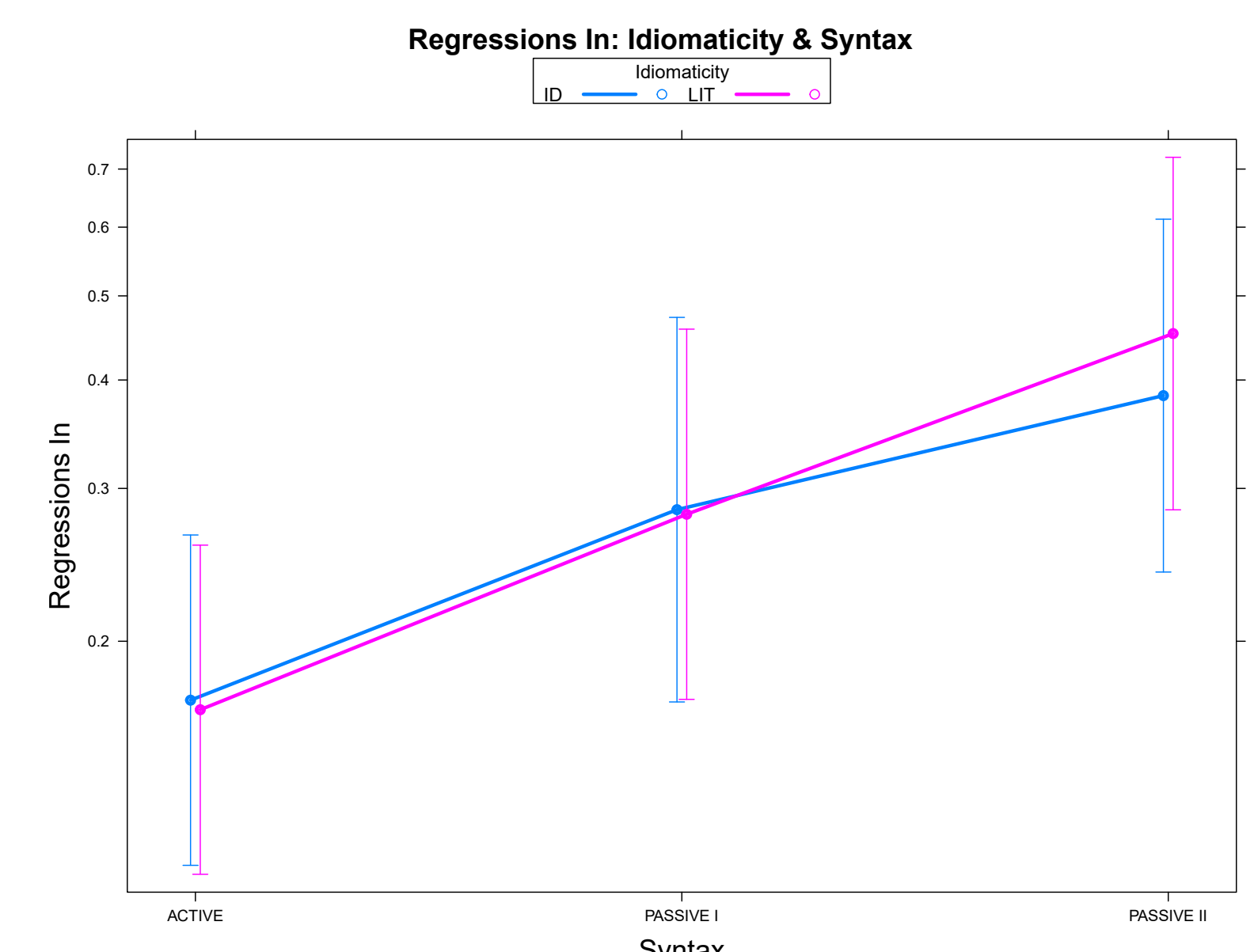


Table 2: Regressions In

Fixed Effects	β	SE	t	p
Control factors: Trial Num***, AOI Length, Cloze Prob**				
Idiomaticity (Id vs Lit)	-.042	.127	-.333	.739
Syntax (Pass vs Act)	.707	.206	3.435	***
Syntax (Pass2 vs Pass1)	.391	.210	1.859	.063
Idiomaticity x Pass vs Act	-.102	.218	-.465	.642
Idiomaticity x Pass2 vs Pass1	-.177	.280	-.632	.528

7. CONCLUSIONS

- "hybrid" processing mode (cf. McGlone et al. 1994);
 - idioms advantage in the active lost with passivization
 - no significant idioms-literals difference in passive I and II
 - idiom advantage in the active does not entail holistic retrieval though; rather, it may just reflect a faster word-by-word computation (Siyanova-Chanturia 2015);
- passive more disruptive to read regardless of idiomaticity;
- at odds with predictions, **passive II takes longer to read!** (contra Dörre & Smolka (2016))
 - less frequent structure?
 - different organization of information structure?
- facilitating role of familiarity on passive reading;
- facilitation of broad-sense transparency over and above Gibbs & Nayak's (1989) isomorphic decomposability

REFERENCES

- Dörre & Smolka. *AMLaP 2016* 2016. • Fraser. *Found Lang* 1970, 6, 22. • Gibbs & Nayak. *Cogn Psychol* 1989, 21, 100. • Holsinger. *Lang Speech* 2013, 56, 373. • McGlone et al. *Discourse Process* 1994, 17, 167. • Siyanova-Chanturia. *Corpus Linguist Ling* 2015, 11, 285. • Tabossi et al. *Behav Res Methods* 2011, 43, 110.