Not All Passives Are Processed Equal: Verb Voice and Word Order in Idiom Comprehension

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1. Can idioms go passive?

- Most **idioms** (1) are said to not tolerate **passivization** and to lose their original meaning, unlike **compositional** phrases (2)
  - 1a) *John kicked the bucket.*
  - 1b) *The bucket was kicked by John.* (**just literal**)
  - 2a) *John read a book.*
  - 2b) *A book was read by John.*
- Facilitating role of **semantic analyzability** (Gibbs & Nayak 1989) and **pragmatic context** (Glucksberg 2001)
- **Constituent adjacency** (3b) shown to facilitate access to idiomatic meaning (example from **Dörre & Smolka 2016**):
  - 3a) *Der Kopf wurde ihm von ihr gewaschen.*
    'She gave him a piece of her mind'.
  - 3b) *Ihm wurde von ihr der Kopf gewaschen.*

2. A matter of adjacency and order?

- Italian syntax allows for a passive structure with both a **preverbal subject** (Passive I, **4b**) and a **postverbal subject** (Passive II, **4c**). Passive II keeps the **canonical verb-noun order** of the idiom in the active form.
  - 4a) *Gianni ha tagliato la corda perchè la festa era diventata noiosa.*
    'Gianni slipped away (lit. cut the rope) since the party had got boring'.
  - 4b) *La corda è stata tagliata da Gianni perchè la festa era diventata noiosa.*
    'The rope was cut by Gianni since...'
  - 4c) *È stata tagliata la corda da Gianni perchè la festa era diventata noiosa.*
    'Was cut the rope by Gianni since...'
- If **Passive II** is processed faster than **Passive I**, the actual issue with passive idioms is **canonical verb-noun order violation**
- Cf. **good-enough processing** (Ferreira et al. 2002): deep syntactic analysis is not always performed, sometimes shallower features like word order are used
- **Previous eye-tracking experiment** on verb-noun Italian idioms and compositional phrases (Senaldi et al. 2018)
  - passive longer to read regardless of idiomaticity and **Passive II longer than Passive I**!

3. Experimental question

Examples of idiomatic dialogues in the two passive conditions

Passive I

A: *Quale dei brani suonati all'esibizione di ieri sera ha impressionato di più la platea secondo te? Il quartetto di archi?*
B: *No, è stato con il concerto per due pianoforti che il segno è stato lasciato nel pubblico, a giudicare dalle reazioni degli spettatori.*
A: 'Which piece do you think has impressed the audience the most last night at the concert? The string quartet?'
B: 'No, it is with the concert for two pianos that the mark was left in the audience, judging from the reaction of the public'.

Passive II

A: *Quale dei brani suonati all'esibizione di ieri sera ha impressionato di più la platea secondo te? Il quartetto di archi?*
B. *No, è stato con il concerto per due pianoforti che è stato lasciato il segno nel pubblico, a giudicare dalle reazioni degli spettatori.*
B: 'No, it is with the concert for two pianos that was left the mark in the audience, judging from the reaction of the public'.

- Context is **pragmatically natural for both passives**
- Speaker A introduces idiomatic meaning and speaker B replies with de-focalized passive idiom in corrective cleft sentence

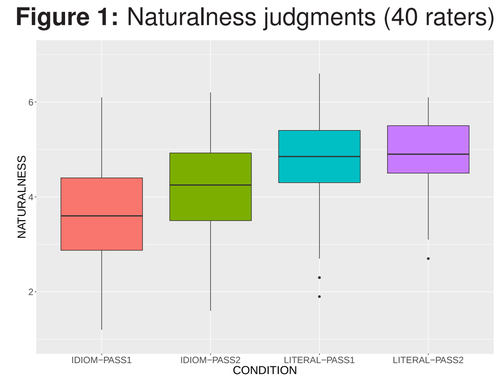
4. Materials and norming

- **60 verb-determiner-noun Italian idioms** (e.g. *tagliare la corda* 'to slip away' (lit. 'to cut the rope')) were selected;
- **Literal** condition with same verb and a new **length- and frequency-matched noun** (e.g. *tagliare la barba* 'to trim one's beard')
- **94 subjects** took part in the **norming tasks** (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
Literal Plausibility	10	3.71	1.27

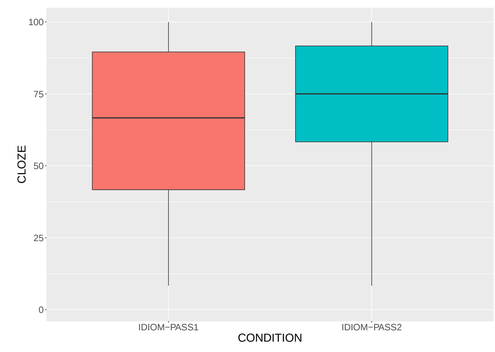
- **Naturalness** significantly higher for literals vs idioms ($p < .001$) and idiom passive II vs idiom passive I ($p < .01$); difference between literal passive I and II n.s.

Figure 1: Naturalness judgments (40 raters)



- **Cloze probability** significantly higher for idiom passive II vs idiom passive I ($p < .01$)

Figure 2: Cloze probability ratings (24 raters, idioms only)



5. The eye-tracking reading experiment

- **Experimental condition: idiomatic passive I vs idiomatic passive II**
- **30 subjects** (13 females, mean age = 24.23, age range = 20-30, 92.79% comprehension questions answered correctly on average)
- **60 experimental dialogues** (30 per condition) + **90 filler dialogues**

6. Reading Idiomatic Passive I vs Passive II (Idiom as AOI)

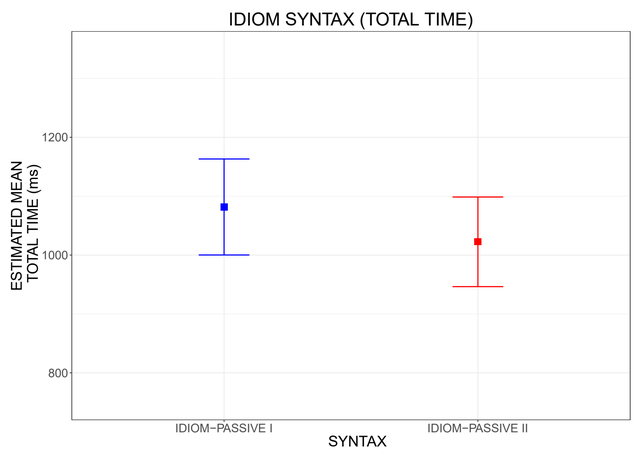


Table 1: Total Reading Time

Fixed Effects	β	*SE*	*t*	*p*
Control factors: Trial Num***, AOI Position, AOI Length***, Cloze				
Familiarity	-56.306	16.053	-3.508	***
Transparency	-39.340	15.412	-2.553	*
Syntax (Pass1 vs Pass2)	59.343	16.0895	3.688	***
Transparency x Syntax	-33.938	15.397	-2.204	*

Random Effects	Variance	*SD*
Item	10466.4	102.31
Syntax | Item	622.8	24.96
Subject	36568.8	191.23
Syntax | Subject	103.8	10.19
Residual	95689.3	309.34

7. The role of Literal Plausibility, Familiarity and Transparency

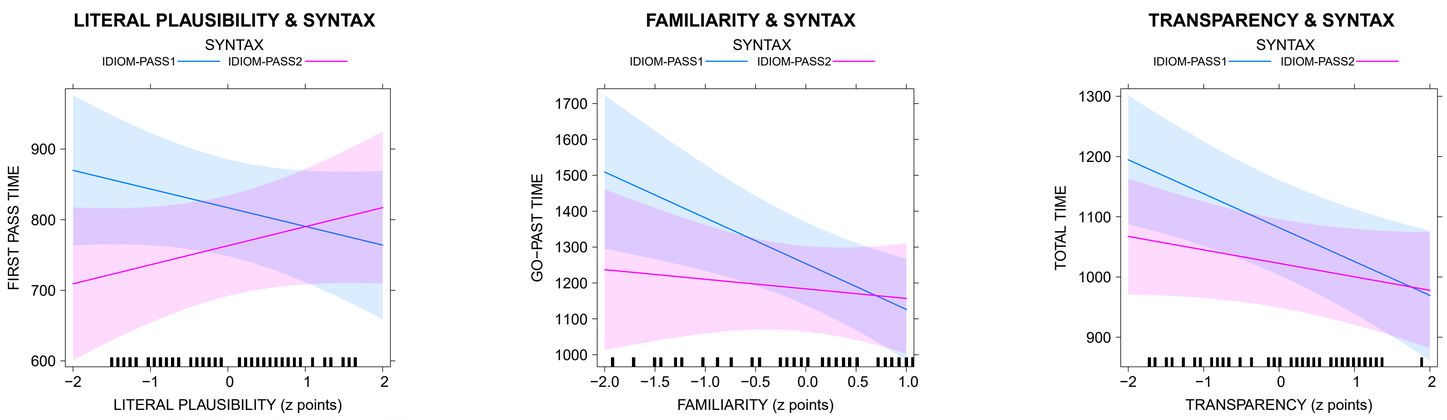


Table 2: First Pass Time

Fixed Effects	β	*SE*	*t*	*p*
Control factors: Trial Num, AOI Position, AOI Length, Cloze*				
Familiarity	-43.947	18.912	-2.324	*
Transparency	.258	18.410	.014	.989
Syntax (Pass1 vs Pass2)	53.629	18.782	2.855	**
Familiarity x Syntax	30.198	18.347	1.646	.100
Lit. Plausibility x Syntax	-53.429	18.437	-2.898	**

Random Effects	Variance	*SD*
Item	12940	113.769
Syntax | Item	7.021	2.650
Subject	26540	162.896
Syntax | Subject	59.79	7.733
Residual	138000	371.548

Table 3: Go-Past Time

Fixed Effects	β	*SE*	*t*	*p*
Control factors: Trial Num**, AOI Position, AOI Length***, Cloze				
Familiarity	-77.1702	39.585	-1.949	.056
Transparency	-58.126	36.149	-1.608	.114
Syntax (Pass1 vs Pass2)	70.232	51.238	1.371	.176
Familiarity x Syntax	-100.907	49.806	-2.026	*

Random Effects	Variance	*SD*
Item	64570.6	254.11
Syntax | Item	89808.5	299.68
Subject	48288.5	219.75
Syntax | Subject	810.2	28.46
Residual	378825.2	615.49

8. Conclusions

1. **Preserving canonical verb-noun order** of active form after a rich and biasing context makes **idiom passive processing easier in Passive II**
   - Cf. **good-enough processing** (Ferreira et al. 2002)
2. Swapping verb and noun around calls for a **slower and more compositional analysis in Passive I**
   - Initially facilitated by high Literal Plausibility
   - Sped up by Familiarity and by the possibility to independently map parts of the string to parts of the idiomatic meaning (Transparency)
3. Passive II probably already recognized as idiom in early stages due to preserved verb-noun order and preceding context
   - Probably **slowed down by Literal Plausibility** because of competition between the already accessed idiomatic meaning and a plausible literal one
   - **Less affected by Familiarity** once already identified
   - Still **sped up by Transparency** in Total Time

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