

A neo-constructivist approach to Exceptional Case Marking constructions

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Background: The original insight of Chomsky (1955/75) regarding ECM constructions¹ in (1) is that the accusative *him* is the object of the complex predicate *believe-to-like-cheese*:

(1) Mary believes **him** to like cheese

(2) Mary believes [_S **him** [_π to like cheese]]

This fashion of analysis has been abandoned with the development of GB-theory and Minimalism, which both have employed the so-called *lexicalist* approach to syntactic structure manifested in the *Projection Principle* and the *Theta-Criterion*, according to which argument structure of a lexical item projects into syntax. Thus, within GB-theory, *him* is thematically related to *like* as its external argument, and hence, following the above principles, must be realized in the structure as the “subject” of the embedded predicate π , as in (2). Recently, several scholars have argued against lexically driven grammars (Borer 05, Áfarli 07, Lohndal 12,14, *inter alia*). Borer, for instance, develops a generative *neo-constructivist (exoskeletal)* model of syntax, according to which there is no projection of arguments from lexical items; rather, the syntax provides a skeleton (a template/frame) in which lexical items are inserted and which determines the interpretation of arguments (*syntactic structure* → *event structure* → *interpretation of arguments*).

Proposal: This paper attempts to resuscitate the core line of Chomsky’s original theorizing by proposing a neo-constructivist approach to (1), in which syntactic/semantic hallmarks of ECM are epiphenomenal to the template with which it is associated. Specifically, I suggest that ECM ‘shares’ the same syntactico-semantic frame with a class of constructions in which a verb and an adjective are generally assumed to instantiate complex predicates (cf. Neeleman 94, Borer 05) and which are commonly referred to as “resultatives”. Interestingly, resultatives and ECM are submitted to a group of similar constraints, which calls out for a unified explanation:

(3) *Resultatives pattern with ECM in their ability to occur with non-thematic (unselected) objects:*

(a) John drank [_{NP} the teapot] [_{AP} dry]

(b) John believed [_S the teapot to be empty]

(c) *John drank the teapot

(d) *John believed the teapot

(5) *Neither the subject of a resultative, nor of an ECM construction can control the embedded predicate (both require “fake reflexives”):*

(a) John yelled *(himself) hoarse

(b) Mary believed *(herself) to be ill

(4) *ECM complements and result XPs describe states (Simpson 83, Bošković 97, Martin 01):*

(a) Jane pounded the dough [_{AP} flat]

(b) *Jane pounded the dough [_{NP} a pancake]

(c) Mary believed [_S John to be the winner]

(d) *Mary believed [_S John to eat a bagel]²

(6) *Re- is incompatible with resultatives and ECM (Ormazabal 95, Marantz 07):*

(a) *Mary redrank the teapot dry

(b) *Mary rediscovered the problem to be insolvable

Crucially, they differ in one important respect: Hoekstra (88) notes that **resultatives are built upon agentive verbs** (**John saw the paper flat*), while Pesetsky (92) makes a generalization that **agentive verbs do not allow ECM** (**Mary wagered John to be the winner*). Semantically, (3a), but not (3b), has a causative interpretation, being a syntactic counterpart of lexical causatives. I assume that the distinction between resultatives/ECM correlates with Neeleman&van de Koot’s (12) distinction between causative/maintenance verbs. N&K argue that causation is not a linguistic notion; language can only emulate it by using other linguistic primitives that can also be found in lexical semantics of verbs that are not causative. Thus, they suggest that verbs of maintenance and verbs of causation both share the notion of **resultant state** and the notion of **Crucial Contributing Factor** (merged as external argument); however, while this resultant state **is interpreted as a culmination of the preceding event** in the case of causative verbs, **it is interpreted as coexisting with and dependent on another state** in case of maintenance verbs.

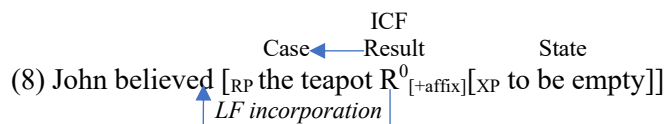
(7) (a) $\lambda y \lambda x$ [[_e x [_s ... y ...]]] & x = CCF] causation John *broke* the window : John *drank* the teapot *dry*
(b) $\lambda y \lambda x$ [[_s x [_s ... y ...]]] & x = CCF] maintenance John *annoys* Mary : syntactic counterpart? - ECM!

¹ Following Chomsky (81), Bošković (97), I do not consider constructions of the type *I want/prefer (for) him to leave* to be instances of ECM.

² Unless supported by aspectual (and *semantically stative*) operators *be* or *have* or an empty habitual operator (see Borkin 84, Martin 01).

The difference between (7a) and (7b) is in the type of the first eventuality: while it is an event in causatives, it is a state in maintenance verbs, which mirrors the difference between resultatives and ECM observed by Hoekstra and Pesetsky. I propose that the difference in the interpretation of the result-states in (7) is derived at C-I and follows from Parsons's (90) assumption that the "notion of culmination does not apply to states" – "a state simply holds or it does not". My central claim is that *believe* in (3b), like *drink* in (3a), combines with a *result-state* (rather than *proposition*) to denote (a metaphorical extension) of the maintenance relation: the state of *Bill liking cheese* is deemed to exist as long as *Mary (=CCF) believes* it. Given that maintenance requires coincidence of the maintaining state and a result-state, it can be correctly predicted that ECM constructions, but not resultatives, can satisfy a homogeneity requirement: it is true of every sub-interval of *Mary believes Bill to like cheese* that Mary believes Bill to like cheese.

Syntactic Account: I elaborate the analysis by proposing that the result component of *result-state* is contributed by a resultative head R(result) which bears an ACC Case feature and combines with another overt or covert stative XP, imposing a requirement that this XP be the endpoint of the event. I suggest that the obligatory presence of unselected ACC marked NPs in (5) independently follows from the Inverse Case Filter (ICF) requiring that the Case of the Case assigner be discharged overtly (Bošković 02; Epstein&Seely 06). As a result, ECMed NPs directly merge into Case-licensing [Spec, RP] to satisfy ICF. The ECM subject merged in [Spec, RP] receives the interpretation of the "subject of result-state" (cf. Ramchand 08), **thus indirectly deriving the propositional interpretation of the ECM complement:**



Assuming with Pesetsky (92) that all zero heads are universally affixal, I further suggest that R is specified as an 'LF-affix' (Chomsky 95) that undergoes covert traceless HM, incorporating into V and forming a complex predicate *believe-to-be-empty* in (9) (Stepanov 12).

(9) [_{VP} believe [_{RP} the teapot R⁰_{[π} to be empty]]] → **LF:** [_{VP} the teapot [_{VP} believe+R⁰_{[π} to be empty]]].

As a result of HM in (9), RP ceases to exist, and the material in its domain is reassociated within the projection of the incorporating head (Müller 17). This derives, for free, Lasnik&Saito's (91) facts that ECM subject can c-command a constituent within an adjunct that belongs to the matrix clause. (cf. NPI licensing: *The DA proved none of the defendants to be guilty during any of the trials*).

Implications: The RP analysis of ECM complements has several theoretical consequences. First, it derives Pesetsky's (1992) Agent/ECM correlation. Second, it provides a uniform account of facts in (3-6): if *re-* in (6) is an aspectual head (R) with an ACC Case feature (cf. **John recrossed over the street/John recrossed the street*) as proposed by Alexiadou et.al (14), then *re-*affixation and ECM/resultatives are predictably mutually exclusive. Finally, the current analysis can account for some empirical facts without postulating **string-vacuous overt object shift** in ECM, the support for which comes from the fact that embedded subject can be interpolated with matrix clause material (e.g. manner adverbs and verbal particles) (Postal 74, Runner 95). If manner adverbs are modifiers of a head responsible for ACC Case licensing (Bowers 18), V-NP-Adv-Inf order in (10a) follows without OS: after R undergoes HM, *easily* (along with other material in RP domain) is reassociated within VP, taking scope over the complex predicate *prove-to-be-guilty* (10b).

(10) (a) I proved [_{RP} him [_{RP} easily R⁰_{[π} to be a liar]]] (b) **LF:** [_{VP} him [_{VP} easily [_{VP} prove +R⁰_{[π} to be a liar]]]].

The V-NP-Prt order in (11a), too, implies that the ECMed NP has undergone A-movement to the higher VP. However, given that the core meaning of the Germanic particles can be characterized as resultative (Brinton 88), the current analysis, as (11b) shows, can correctly derive the V-NP-Prt order in ECM without overt OS if particles identify R. This is corroborated by their incompatibility with *re-* (**reheat the soup up*) and by their ability to license (by virtue of ICF) unselected arguments (*the cats meowed the dogs*(out)*). Under this proposal, the possible V-Prt-NP order with *make-out* idiom in (11c) can be seen as an instance of PF incorporation of the particle to the higher V triggered, possibly, by the Information Structure of the sentence (Dehé 02). Crucially, V-

Prt-NP order is impossible when the embedded subject is a weak pronoun. Given that weak pronouns are clitics that must undergo incorporation to V(P) (Oehrle 76), the ungrammaticality of (11d) is due to the failure of *him* to incorporate, the clitic position of *make* being occupied by *out*.

- (11) (a) Mary made Bill_i out [_S t_i [_π to be a spy]] (c) [?]Mary [_{VP} made out_i][_{RP} Bill t_i to be a spy]
 (b) Mary made [_{RP} Bill [_R out] [_π to be a spy]] (d) *Mary made out him to be a spy

Borer 2005. *The Normal Course of Events. Structuring Sense*. **Chomsky** 1955/75. *The Logical Structure of Linguistic Theory*. **Neeleman&van de Koot** 2012. *The Linguistic Expression of Causation*. **Stepanov** 2012. *Voiding Island Effects via Head Movement*.

Theory of Mind and the acquisition of Greek causal connectives

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The emergence of causal discourse connectives in child speech seems to be in accordance with the development of Theory of Mind (ToM). The full possession of adult-like mindreading abilities comes around the age of four (indicative: Wimmer & Perner 1983· Baron-Cohen, Leslie & Frith 1985· Call & Tomasello 1999). Nevertheless, children as young as 13 or 15 months may have an implicit form of ToM (Onishi & Baillargeon 2005· Surian et al. 2007).

In this paper we examine the acquisition of Greek causal operators *jati* [γιατί], *epiði* [επειδή] and *afu* [αφού], using empirical methods. First, we studied the longitudinal Greek corpora available through the CHILDES database (MacWhinney 2000) with five children, aged 1;7 - 2;11. In the Greek Children Spoken Language Corpus (GCSL Corpus) we found causal connectives in 62 files corresponding to different child, aged 2;6 - 6;0. We also conducted a psycholinguistic experiment aimed at the production and comprehension of the above operators. Thirty two monolingual children, aged 3;5 - 6;8 participated to the study. We gathered 214 causal utterances from the first study, 313 from the second and 823 from our experiment.

Our analysis takes into account studies on these discourse connectives (Kitis 2006· Kalokerinos 2001, 2004· Bartzokas 2017) that adopt Sweetser's (1990) tripartite scheme (content, epistemic, and speech act domains). Developmental studies of causal connectives in English, French, Dutch and Greek converge on developmental priority of content and speech act uses over epistemic ones (Kyriazis et al. 1990· Zufferey 2010· Evers-Vermeul & Sanders 2011· Giannadaki & Kalokerinos 2019). Our data confirm the hypothesis of the early acquisition of the content and speech act domain.

As far as the order of acquisition of each operator is concerned, our data provide that *jati* is acquired around the age of 2;0 and *epiði* around the age of 3;0. We claim that *jati* appears first because in adult speech this operator requires fewer language resources than *epiði*, which has higher explicitness requirements. As the following examples indicate, *epiði* needs a representational segment substratum in order to operate. In contrast to *jati*, *epiði* is unable to introduce a segment justifying an expressive segment substratum with no representational content (Kalokerinos 2004: 46-47):

(1) A: Θα έρθει ο Τάκης.

θα erθi o takis.

Takis is coming.

B: Ωχ, {γιατί / ??επειδή} μου είναι ανυπόφορος!

ox, {jati / ??epiði} mu ine anipoforos!

Oh [no], [DC] I can't stand him!

(2) Άντε, {γιατί / ??επειδή} βιάζομαι.

ande, {jati / ??epiði} viazome.

[HORT], [DC] I'm in a hurry.

Afu is a discourse connective that operates on the mutual cognitive environment of the interlocutors, along with English *since* and French *puisque* (Kalokerinos 2001, 2004). Our data show that *afu* is acquired after *jati* and before *epiði*, and the use in child language from early on, is an indication of the linguistic management of the common mental environment formed by *joint attention* which is a developmental precondition and fundamentals of ToM (Tomasello 2008). Below there are some examples of the first occurrences of *afu*-utterances:

(3) *afu* ine mik(r)o to fu(s)tanaki.

(Mairi, corpus Stephany, 2;3)

DC the dress is small.

(4) *afu* θa θe fai... ex'i θtoma meγalo k'e θa θe fai (Boy 76, GCSL Corpus, 2;3)

DC it will eat you... it has big mouth and it will eat you. (It = a rhinoceros)

It seems that in early uses of *afu*, children invoke common attentional (3) or common cognitive (4) ground. The comprehension of the ironic uses of *afu*, such as (5), taken from our experiment, is achieved from age 5;0 onwards. By this age, the second order metarepresentation ability has been acquired and children produce mental verbs.

(5) “*afu* esi ta kseris ola, kseris na ftiaksis ke tis tirantes su! (narattion)

DC you know everything, you know how to fix your suspenders!

References

- Bardzokas, V. 2017. Experimental pragmatics and causal meaning: The case of Modern Greek markers *γiati* and *epiði*. *Selected papers on theoretical and applied linguistics*, 22, 51-68.
- Baron-Cohen, S., Leslie, A. M., & Frith, U. 1985. “Does the autistic child have a “theory of mind”?”. *Cognition*, 21(1), 37-46.
- Call, J., & Tomasello, M. 1999. A nonverbal false belief task: The performance of children and great apes. *Child development*, 70(2), 381-395.
- Evers-Vermeul, J., & Sanders, T. 2011. “Discovering domains—On the acquisition of causal connectives.” *Journal of Pragmatics*, 43(6), 1645-1662.
- Giannadaki & Kalokerinos. 2019. On the development of discourse operators. Between causality and mindreading. Submitted for publication in the *Proceeding of the 14th International Conference on Greek Linguistics*, University of Patras.
- Kalokerinos. 2001. “Αφού [*afu*].” *Proceedings of the 4th International Conference in Greek Linguistics* (Nicosia, Cyprus). Thessaloniki: University Studio Press.
- Kalokerinos. 2004. “The justifying connection, mostly in Greek.” *Journal of Greek linguistics*, 5(1), 27-80.
- Kitis, E. 2006. “Causality and subjectivity: The causal connectives of Modern Greek.” In Hanna Pishwa (ed.). *Language and memory: Aspects of knowledge representation*. 223-267, Berlin & NY: Mouton de Gruyter.
- Kyranzidis, A., Guo, J., & Ervin-Tripp, S. 1990. “Pragmatic conventions influencing children’s use of causal constructions in natural discourse.” In *Proceedings of the Sixteenth Annual Meeting of the Berkeley Linguistics Society*, 205-215.
- MacWhinney, B. 2000. *The CHILDES Project: Tools for analyzing talk. Third Edition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Onishi, K. H. & Baillargeon, R. 2005. “Do 15-month-old infants understand false beliefs?” *Science*, 308: 255-258.
- Stephany, U. 1997. “The acquisition of Greek.” In Dan I. Slobin (ed.), *The Crosslinguistic Study of Language Acquisition*, 4, 183-333. Mahwah, NJ: Lawrence Erlbaum.
- Surian, L. Caldi S. & Sperbre D. 2007. “Attribution of beliefs by 13-month-old infants.” *Psychological Science*, 18 (7): 480-586.
- Sweetser, E. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge: Cambridge University Press.
- Tomasello, M. 2008. *Origins of Human Communication*. Cambridge, Mass: MIT Press.
- Wimmer, H. & Perner, J. (1983). “Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children’s understanding of deception”. *Cognition* 13: 103-128.
- Zufferey, S. 2010. *Lexical Pragmatics and Theory of Mind: The Acquisition of Connectives*. John Benjamins Publishing.

Adjacency and Bundling: Secondary Imperfectives at the Syntax-Morphology Interface

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In Polish and other Slavic languages, the majority of bare stems are imperfective (1). Lexically prefixed stems are perfective by default (2) and imperfective if they bear a secondary imperfective (SI) suffix (3). The attachment of a superlexical prefix to a bare or secondary imperfective yields a perfective stem (4). Lexical prefixes (LPs) have spatial, resultative or idiosyncratic meanings, while superlexical prefixes (SPs) have quantificational or adverbial meanings (Svenonius 2004a, b, Gehrke 2008). Following Czaykowska-Higgins (1998) and Gribanova (2015), I assume that post-verbal *-i* and *-ow* are exponents of the verbalising head *v*, while *-a* and *-aj* are theme vowels adjoined above Asp. This segmentation entails that there are two ways of deriving secondary imperfectives: change of theme vowel to *-aj* (2a vs. 3a) and suffixation with *-yw* (2b, c vs. 3b, c). For ease of reference, the subset of Vocabulary Items analysed in this abstract is presented in (5).

(1) <u>Bare IpF.</u>	(2) <u>Lexical Pf.</u>	(3) <u>Secondary IpF.</u>	(4) <u>Superlexical Pf.</u>
a. lep- i -∅-ć ^I ‘to stick’	przy-lep- i -∅-ć ^P ‘to stick on’	przy-lep- i -∅- a(j) -ć ^I ‘to stick on’	po _{delim} -przy-lep- i -∅- a(j) -ć ^P ‘to stick on for a while’
b. kolor- ow - a -ć ^I ‘to colour’	za-kolor- ow - a -ć ^P ‘to colour over’	za-kolor- ow - yw - a -ć ^I ‘to colour over’	na _{cum} -za-kolor- ow - yw - a -ć ^P ‘to colour over a lot of sth’
c. czes-∅- a(j) -ć ^I ‘to comb’	prze-czes-∅- a(j) -ć ^P ‘to comb through’	prze-czes-∅- yw - a -ć ^I ‘to comb through’	po _{dist} -prze-czes-∅- yw - a -ć ^P ‘to comb through each of sth’
√- v - TH - INF	LP -√- v - TH - INF	LP -√- v - Asp - TH - INF	SP - LP -√- v - Asp - TH - INF
(5) v ↔ ow / _{√KOLOR, ...}	v ↔ i / _{√LEP, ...}	v ↔ ∅ elsewhere	Asp ↔ ∅ / _{ i , ...}
			Asp ↔ yw / _v
			TH ↔ a / _{ ow , yw , ...}
			TH ↔ ∅ / _{ i , ...}
			TH ↔ aj elsewhere

Adopting Distributed Morphology (Halle & Marantz 1993, Embick 2010), I argue that we should derive (1)-(4) without positing multiple aspectual projections (*pace* Borer 2005, Jabłońska 2008, Łazarczyk 2010). There is only one aspectual head Asp, which enters the derivation bearing the unvalued feature [asp:___]. If Asp is not valued in the course of the derivation, it defaults to [asp:ipf] at spell-out. Both lexical and superlexical prefixes carry the valued feature [asp:pf], which I assume to be interpretable on the prefix (cf. Biskup 2019). Prefixes value Asp under Reverse Agree, which requires the valued instance of a feature to c-command the unvalued one (Wurmbrand 2014).

The derivations for (1)-(4) are given in (6a)-(6d), respectively. In agreement with Svenonius (2004b), lexical prefixes value Asp by raising from within vP to the edge of AspP (6b), while superlexical prefixes originate as adjuncts to AspP (6d). Unlike Svenonius, however, I assume that LPs are first merged in [Spec, vP] and that the raising of LPs to AspP is optional.

(6) a.	[TH	[_{AspP} asp :___	[_{vP} v √]]	Bare IpF.	
b.	[TH	[_{AspP} LP _{asp:pf}	[_{AspP} asp : pf	[_{vP} LP _{asp:pf} [v' v √]]]	Lexical Pf.
c.	[TH	[_{AspP} asp :___	[_{vP} LP _{asp:pf} [v' v √]]]	Secondary IpF.	
d.	[TH	[_{AspP} SP _{asp:pf}	[_{AspP} asp : pf	[_{vP} LP _{asp:pf} [v' v √]]]	Superlexical Pf.

An outstanding question concerns the appearance of secondary imperfective morphology in (3) and (4). If the structures in (6c, d) are correct, the distribution of SI morphology can be stated as in (7).

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(7) SI morphology appears iff a lexical prefix does not raise out of [Spec, vP]

The most natural way to derive (6) in DM involves Fusion, a PF operation which bundles two syntactic terminals into one. If we assume that i) v and Asp undergo Fusion and ii) Fusion applies only to structurally adjacent terminals, then it follows that v and Asp are morphologically bundled in (1)/(6a) and (2)/(6b), where LP is either absent or adjoined to AspP. The situation is different in (3)/(6c) and (4)/(6d), where LP intervenes between v and Asp, preventing Fusion from applying. The unbundling of v and Asp results in the insertion of *-yw* into Asp, as illustrated with the alternation between *kolor-ow-a-ć* (1b) and *za-kolor-ow-yw-a-ć* (2b) in (8a)-(8b), respectively.

- (8) a. [TH ⇔ **a** [AspP Asp+v ⇔ **ow** [vP \nexists $\sqrt{\text{KOLOR}}$]] Bare IpF.
 b. [TH ⇔ **a** [AspP Asp ⇔ **yw** [vP LP [v' v ⇔ **ow** $\sqrt{\text{KOLOR}}$]]] Secondary IpF.

Crucially, the present analysis dissociates SI morphology from imperfective aspect. Rather than realising an aspectual operator or feature (Ramchand 2008, Gribanova 2013, 2015), SI morphology simply spells out Asp whenever Asp is not bundled with v. This correctly allows for the co-occurrence of SI morphology with perfective aspect in the case of superlexical perfectives (4)/(6d).

Now consider the other pattern of SI formation, where the theme vowel changes to *-aj*, as in *przy-lep-i-Ø-ć* (1a)/(9a) and *przy-lep-i-Ø-a(j)-ć* (3a)/(9b). Assuming that *-aj* is the default theme vowel, the pattern in (9) can be analysed as a case of intervention by Asp: the realisation of TH is conditioned by the exponent of v iff TH and v are adjacent (9a); otherwise, TH defaults to *-aj* (9b). Note that unbundled Asp may intervene between v and TH even though its exponent is null. This is consistent with Embick (2010), who observes that not all null exponents are “pruned” at PF.

- (9) a. [TH ⇔ \emptyset [AspP Asp+v ⇔ **i** [vP \nexists $\sqrt{\text{TOP}}$]] Bare IpF.
 b. [TH ⇔ **aj** [AspP Asp ⇔ \emptyset [v' LP [v' v ⇔ **i** $\sqrt{\text{TOP}}$]]] Secondary IpF.

Pushing this line of analysis further, we explain a curious pattern of yer vocalisation found in approximately two dozen roots in Polish (Rowicka & van de Weijer 1994; see also Gribanova 2015 for similar data in Russian). While the bare imperfective/prefixed perfective forms in (10a) do not vocalise the root-internal yer vowel (10a), the corresponding secondary imperfectives do (10b).

- (10) a. (wy-)br-Ø-a-ć b. wy-bier-Ø-Ø-a(j)-ć
 (LP-)√-v-TH-INF LP-√-v-ASP-TH-INF

I argue that the contrast between (10a) and (10b) follows from a close mapping between morphology and phonology. Phonologically, a yer is vocalised iff there is no vowel in the following syllable (Gussman 2007, Scheer 2004, 2012). This is clear in the case of *wy-br-a-ć* (11a), where the theme *-a* follows the root, bleeding the vocalisation of the root-internal vowel (12a). Why does the same rule not apply in the case of secondary imperfectives like *wy-bier-a(j)-ć*? My proposal is that the unbundled Asp head in (11b) introduces an extra cycle of phonological computation, pushing the theme vowel outside of the domain where yer vocalisation is computed (12b).

- (11) a. [TH ⇔ **a** [AspP Asp+v ⇔ \emptyset [vP \nexists $\sqrt{\text{BIER}}$]] Bare IpF.
 b. [TH ⇔ **aj** [AspP Asp ⇔ \emptyset [v' LP [v' v ⇔ \emptyset $\sqrt{\text{BIER}}$]]] Secondary IpF.

- (12) a. $\sqrt{\text{BIER}} + \emptyset + /a/ \Rightarrow [\text{bra}]$ b. $\sqrt{\text{BIER}} + \emptyset \Rightarrow [\text{b}^{\text{ier}}]$ (Cycle 1) $[\text{b}^{\text{ier}}] + /aj/$ (Cycle 2)

To conclude, secondary imperfective morphology can be analysed as the result of two intervention effects. First, a lexical prefix may intervene between v and Asp, preventing these heads from fusing into a single target of Vocabulary Insertion (8b). Second, the unbundled Asp may intervene between v and TH, causing the theme vowel to default to *-aj* in (9b)/(11b) and triggering the vocalisation of the root-internal yer vowel in (11b). Overall, these data support a picture in which adjacency plays an important role in constraining morphophonology (Embick 2010, Bobaljik 2012, Borer 2013).

Biskup, P. (2019). *Prepositions, Case and Verbal Prefixes: The Case of Slavic.* **Borer, H. (2005).** *The Normal Course of Events.* **Borer, H. (2013).** *Taking Form.* **Embick, D. (2010).** *Localism versus globalism in morphology and phonology.* **Gribanova, V. (2015).** Exponence and morphosyntactically triggered phonological processes in the Russian verbal complex. *Journal of Linguistics* 51. Gussman, E. (2007). *The Phonology of Polish.* **Łazarczyk, A. (2010).** *Decomposing Slavic Aspect: The Role of Aspectual Morphology in Polish and Other Slavic Languages.* **Ramchand, G. (2008).** Perfectivity as aspectual definiteness: time and the event in Russian. *Lingua* 118(11). **Rowicka, G. & J. van de Weijer (1994).** Prosodic constraints in the lexicon of Polish: The case of Derived Imperfectives. *The Linguistic Review* 11(1). **Svenonius, P. (2004a).** Slavic prefixes and morphology. *Nordlyd*, 32(2). **Svenonius, P. (2004b).** Slavic prefixes inside and outside VP. *Nordlyd*, 32(2). **Wurmbrand, S. (2014).** The Merge Condition A syntactic approach to selection. In *Minimalism and Beyond.*

Comprehension of previously (un)known causal relations in Spanish: can syntax scaffold the process?

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Causality seems to be a central semantic dimension both for the conceptual organization of our mental representations and for the understanding of sentences and texts (Noordman & Vonk, 1998; Sanders, 2005; Sloman, 2005). In Spanish, there are a variety of constructions that express causal relations, each with a different syntactic structure. In a previous study that tried to investigate the effect of prior world knowledge during the comprehension of causal and counter-causal relations, we were able to notice that the processing pattern changes in a definitive way when the reader cannot involve their prior knowledge, an effect that is also found in other languages (Cozijn *et al.*, 2011; Martins *et al.*, 2006; Xu *et al.*, 2017). Within the framework of proposals such as those of Hagoort (2003), Karimi & Ferreira (2016), we now focus on an analysis that investigates the possible interactions between syntactic information and semantic information during the comprehension of sentences that express causal relationships.

We present here the results of two tasks that analyze the effect produced by the impossibility of involving prior world knowledge during the comprehension of sentences that express semantic relations with explicit semantic marks and if this effect is different for sentences that present different syntactic structures. That is, if simpler syntactic structures, both in their hierarchical complexity characteristic or in their linear distributional characteristic (Culicover, 2013) can facilitate the comprehension process in cases in which the semantic scaffolding provided by the prior knowledge is absent. Our two general hypotheses are: 1. Differences in syntactic structure will not generate effect when the semantic scaffolding of world knowledge is available; 2. Syntactic structure will have an effect when semantic scaffolding of world knowledge is not available.

In order to evaluate this, we programmed and performed a sentence comprehension task in PsychoPy 3.0. In the first task, we presented Spanish sentences with known causal relations (familiar information - FI) in three conditions generated by the syntactic structure. In the second task, we presented causal relations with previously unknown casual relations (technical or unfamiliar information - TI). After reading the sentences, participants had to answer a closed question about the existence of a causal link between the two events expressed by the clauses in each sentence. Sentence reading times, response types and times were recorded. Both tasks had factorial design with syntactic structure as main factor with 3 levels: coordinate (C), initial subordinate (IS), final subordinate (FS). Stimuli examples:

FI-C: *Rafael tiene un trabajo muy estresante, entonces a mitad de año ya está terriblemente cansado.*
[*Rafael has a very stressful job, so by the middle of the year he is already terribly tired.*]

FI- IS: *Debido a que tiene un trabajo muy estresante, Rafael a mitad de año ya está terriblemente cansado.*

FI - FS: *A mitad de año Rafael ya está terriblemente cansado debido a que tiene un trabajo muy estresante.*

TI - C: *El análisis de la superficie se realizó mediante fractografía, entonces proporcionó datos sobre la dirección de propagación.* [The analysis of the surface was performed by fractography, then it provided data on the direction of propagation.]

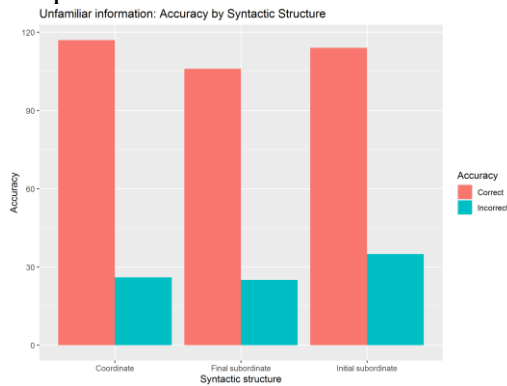
TI - IS: *Debido a que se realizó mediante fractografía, el análisis de la superficie proporcionó datos sobre la dirección de propagación.*

TI - FS: *El análisis de la superficie proporcionó datos sobre la dirección de propagación, debido a que se realizó mediante fractografía.*

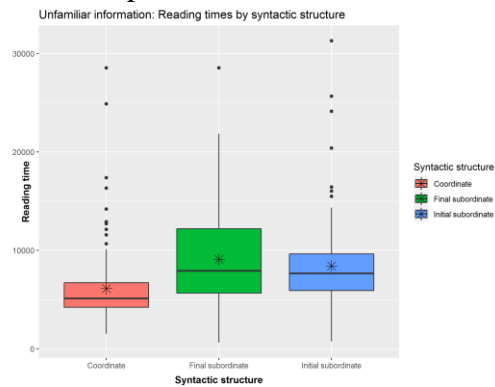
We collected data of 54 participants (age: $M=28,05$; $SD=8,96$). Items were presented in 6 counterbalanced lists, with 32 total items each, 8 experimental items, and 16 fillers.

We used Generalized Linear Models and Linear Mixed Models for the analysis. For the first task (with familiar information), as we expected, we did not find differences dependent on the syntactic structure during the comprehension of causal relations. No differences were seen either in reading and response times or accuracy. For task 2 (with technical information), in line with our hypothesis, there was an effect of the syntactic structure. Although the response accuracy was not significantly modified by the syntactic structure, the reading times were. By analyzing this data in detail, we can see that our specific hypotheses were partially fulfilled: the difference between coordinated and subordinate is only statistically significant in the case of the final subordinate ($\beta = -2709$, $t = -2.94$, $p = 0.01$). On the other hand, the initial subordinates show significant differences in the general LMM but only approached significance in the particular contrasts ($\beta = -2005$, $t = -2.17$, $p = 0.08$). The two subordinate structures did not show statistically significant differences compared to each other.

Graphic 1



Graphic 2



These results allow us to say that when it is possible to make word knowledge intervene, the comprehension of causal relations is not modified by different syntactic structures, more or less complex with respect to their hierarchical or linear structure. That is, the semantic scaffolding is sufficient to solve any processing complexity that could be projected from the syntactic or structural complexity. On the other hand, in cases where prior world knowledge cannot scaffold the processing, the differences in the syntactic complexity of the different structures are projected onto the process of comprehension of causal relations. Especially, we find that coordinated structures, syntactically simpler, also show less processing complexity; that is, certain syntactic structures could better scaffold the process of comprehension of semantic relations that are unknown or new to the reader. In this work, unlike those that present sentences with pseudo-words (jabberwocky), we were able to analyze the problem with greater ecological validity and begin to study one of the many obstacles that we may find when we learn about unknown topics from texts.

References: [1] Cozijn, R., Noordman, L. Vonk, W. (2011). Propositional Integration and World-Knowledge Inference: Processes in understanding *because* sentences. *Discourse Processes*, 48(7), 475-500. [2] Culicover, P. (2013). *Grammar and Complexity. Language at the interception of Competence and Performance*. Oxford: Oxford University Press. [3] Ferreira, F., Bailey, K. & Ferreira, V. (2002). Good enough representation in Language Comprehension. *Current Directions in Psychological Science*, 11(1), 11-15. [4] Hagoort, Peter (2003). Interplay between syntax and semantics during sentence comprehension: ERP effects of combining syntactic and semantic violations. *Journal of Cognitive Neuroscience* 15(6): 883-899. [5] Martins, D., Kigiel, D., Jhean-Larose, S. (2006). Influence of Expertise, Coherence, and Causal Connectives on Comprehension and Recall of an Expository Text. *Current psychology letters*, 20 (3), 1-13. [6] Noordman, L. & Vonk, W. (1998). Memory-based processing in understanding casual information, *Discourse Processes*, 26 (2-3), 191-212. [7] Sanders, T. J.M. (2005). Coherence, Causality and Cognitive Complexity in Discourse. *Proceedings/Actes SEM-05. First International Symposium on the Exploration and Modeling of Meaning*, 105-114. [8] Xu, X. et al (2017). Influence of Concessive and Causal Conjunctions on Pragmatic Processing: On line measures

from Eye Movements and Self-paced Reading. *Discourse Processes*. DOI:
10.1080/0163853X.2016.127208.

Alternatives in non-scalar implicature: The case of Mandarin adjective constructions

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Introduction Utterances compete with each other. Rational speakers choose the utterance that's true and the most informative. Listeners reason about that choice. As a consequence, pragmatic listeners make a negative inference about other possible utterances (so-called “alternatives”) when a weak utterance is used: the more informative utterances are false. Pragmatic enrichment driven by informativity and competition is characterized as Scalar Implicature (henceforth SI). SI is a well-studied topic (Grice 1975, 1989; Horn 1972; Sauerland 2004; Geurts 2010). One of the most frequently asked questions is what counts as an alternative of a given utterance, which is known in the SI literature as the “symmetry problem”. Without constraints on alternatives, every potential alternative ψ has a symmetric partner, not ψ . Theories of formal alternatives have been proposed (Fox 2007; Katzir 2007; Chierchia et al 2012). Relatively few studies concern Non-Scalar Implicature (henceforth NSI) (Rett 2015), and even fewer attention has been paid to the symmetry problem in NSI. This paper fills in the gap by looking at degree expressions in Chinese. The symmetry problem in NSI is identified. We propose that gradient cost can break the symmetry.

Data We make three empirical observations: **(i)** (1) is ambiguous between “tall” and “taller”, and its two interpretations can be conveyed by unambiguous expressions (2) and (3) respectively; **(ii)** (1)'s surfaced interpretation is sensitive to linguistic contexts; **(iii)** its “taller” reading is *salient*. To verify **(i, ii)**, we recruited 18 self-declared Chinese speakers on Prolific to judge whether an utterance like (1) can truly describe a picture. In the target scenarios, 78% chose *can* given a picture where the “tall” reading is true yet the “taller” reading is false, indicating that the “tall” interpretation is available. 61% participants chose *can* given a picture where the “taller” reading is true yet the “tall” reading is false, suggesting that the “taller” interpretation of (1) is available. By contrast, in the control scenarios, 1% chose *can* given a picture where both readings are necessarily false, and 94% chose *can* given a picture where both readings are necessarily true. The results are also in line with Zhang (2019). As to **(iii)**, we update the the mainstream view on *gao* that (1) has only the comparative reading “taller” (Grano 2012; Sybesma 1999). We interpret the results as evidence indicating that *gao* is ambiguous and its “taller” reading is *salient*. We ask the question why the “taller” but not the “tall” reading of *gao* surfaces.

- | | | |
|-----------------------|------------------|----------------------|
| (1) Kai gao. | (2) Kai hen gao. | (3) Kai bi Anna gao. |
| Kai tall | Kai HEN tall | Kai than Anna tall |
| “Kai is tall/ taller” | “Kai is tall” | “K is taller than A” |

Note that it's claimed that the above properties **(i - iii)** are not attested for adjectives such as *lv* “green” and *bing* “sick”, which have no comparative semantics that's inherent. Put otherwise, linguistic contexts *highlighted* as opposed to *added* the “taller” interpretation of *gao*, since *gao* is semantically ambiguous and the linguistic context simply keeps its “taller” reading alive, which is already available in the lexical semantics of *gao*. These are crucial motivations driving us to bring in implicatures and speakers' intention.

Basic proposal We argue that NSI differs from SI in that NSI concerns intention but not belief state. A speaker used an ambiguous expression not because they intended to convey an ambiguity, nor that they meant one interpretation is true while the other is false. Instead, they have a particular lexical intention in mind, and they lead the listener to that target interpretation. In the case of uttering (1), the target interpretation is “taller”. One way to derive the “intended ‘taller’” inference for (1) is adapting the (Standard) Recipe (Geurts 2010). Speaker *S* is using a semantically ambiguous

expression (1). On the surface this speech act violates the Manner maxim. Nevertheless, we can still assume that *S* is cooperative and rational, and *S* purposefully follows the Manner maxim in *S*'s mind. If that holds, then either *S* intends to convey “tall”, or *S* intends to convey “taller”. *S* does have a particular intention: either “tall” or “taller” (*Intention-based Competence Assumption*). If *S*'s intended meaning is “tall”, *S* could have used the unambiguous alternative (2). But *S* didn't. Why not? The most likely explanation is that “tall” is not what *S* intended. We get a disambiguation inference that the “taller” is intended.

The symmetry problem One may wonder why (2) but not (3) leads to the desired implicature. If we were to consider (3), we will get a symmetry, which is reminiscent of the symmetry problem that arises in SI. Stepwise, suppose we add a second alternative (3) to the competition, if the intended meaning is “tall”, *S* could have used (2); if intended “taller”, *S* could have said (3). How to reconcile the ambiguity? A refined proposal is needed to address the symmetry problem in NSI.

Refined proposal Katzir (2007) proposes that the alternatives for a structure are those that are at most as complex as the original one. *Complexity* is binary in this view. Inspired by Buccola et al (2020), we update Katzir (2007) by making it gradient. Both (2) and (3) are (structurally) complex, while (1) is not, according to Katzir. We further argue that (3) is *substantially* more costly than (2) because it's longer and it requires an internal argument which is a content word, and this cost difference breaks the symmetry. Moreover, Zhang & Ling (2020) argue that the English comparative morpheme “more” actually marks the discourse salience of the comparison standard, rather doing the comparison itself. Chinese is among the group of languages in which the comparative constructions never have a true comparative morpheme like “more” to mark the comparison standard; instead the *bi* morpheme as in (3) introduces the standard. One likely explanation of why it's hard to access the comparative alternative (3) is that marking the comparison standard is costly. Accessing words that are (distantly) available in the discourse but are beyond the propositional level can be computationally expensive. The moment speakers consider the costs of (1)'s alternatives, they are likely to favor the “taller” over the “tall” meaning.

Probabilistic pragmatics tools (Frank & Goodman 2012) are used to implement this proposal, in which *U* means utility, *P* means Bayesian probability, symbol $>$ reads “bigger than”, and pragmatic speaker is represented by subscript *s*. Presumably speakers maximise a utility that is increasing with the informativity of an utterance but is decreasing with its cost. Consider sentences (2,3) as alternatives of the utterance (1): **(I)** In scenario (a) where the speaker intends to communicate “taller”, (3) is more informative than (1), but $\text{cost}(3) > \text{cost}(1)$. In scenario (b), speaker intends “tall”, (2) is more informative than (1) and $\text{cost}(2) > \text{cost}(1)$, but the difference is small, compared to that in scenario (a). **(II)** With flat priors, $P_S((1)|\text{“taller”}) > P_S((1)|\text{“tall”})$. Speaker has a particular lexical intention in mind. Because speaker was more likely to use (1) in the “taller”-situation than in the “tall”-situation, listener increases the probability of interpreting (1) as “taller”. **(III)** With flat priors, $U((1)|\text{“taller”}) > U((1)|\text{“tall”})$. Thus listener infers, from hearing (1), that the speaker most likely intends “taller”. In the next iteration, the efficiency of using (1) to communicate “taller” has increased, so the effect gets amplified.

Implications We replicate the same problems and solutions in the domain of NSI as in the domain of SI, which is perhaps not unexpected but up to now not ever shown. As a consequence, for an expression *u* that's ambiguous (or underspecified) between r_1 and r_2 , suppose r_1 can be unambiguously expressed by alternative alt_1 , and r_2 by alt_2 , then the more costly alternative's interpretation should attain, which will disambiguate *u*. We expect to find that this principle can be implemented both cross-linguistically and behaviorally (artificial language experiments).

ARE HONORIFICS POLITE? A STUDY OF HONORIFIC USAGE IN VIDEOGAME COMMENTARY MONOLOGUES

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Honorific markers play an integral role in many languages, but their purpose and meaning are still widely debated. Ide (1989) ascribes an entirely hierarchical role to honorific usage, claiming that there exists a one-to-one relationship between social rank difference and linguistic form. Similarly, Matsumoto (1988) claims that honorifics are not necessarily used to indicate politeness, but rather to express deference towards an interlocutor according to strict social rules. On the other hand, Cook (1999, 2011) argues against the oversimplifications of such socially restricted definitions and instead proposes that honorifics are used to display self-awareness or a ‘disciplined self,’ which further indexes a variety of social meanings. Okamoto (2010, 2011) also claims that honorifics are used to actively construct desired contexts in dialogue.

As all the aforementioned theories on honorific usage are based on either intuitive or conversational data, this study takes an alternative approach through the examination of honorific usage and style shifts in Japanese commentary monologues. In Japanese, the predicate in the main clause must be marked with either the addressee honorific form (*desu/masu*) or the plain form, as in Example (1). As monologues by definition only involve one speaker, any style shift between *desu/masu* and the plain form would index contextual features beyond social rank differences and politeness. As such, this study investigates the following two questions: 1) are there honorific style shifts in commentary monologues, and 2) if so, what makes these shifts?

Monologue data was drawn from online videos of a Japanese videogame commentary channel in which a man (~30 years old) casually plays a popular 2D platforming game by himself. Three videos and a cumulative 11 stages were analyzed for a total of 62 minutes of footage. The intended audience for these videos includes anybody who enjoys watching or playing videogames, which is typically an adolescent to young adult population. Following previous literature, all instances of *desu/masu* in independent clauses were counted as honorific form, and the lack thereof as plain form.

The data analysis shows that plain form was the default form across all videos, accounting for 143 instances (80.3%) versus the 35 instances (19.7%) of honorific form (see Table 1). Instances of honorific form were further grouped into three categories regarding their contextual functions: to make an announcement, to indicate seriousness, and to quote others (see Table 2). The announcement function (21 instances) was used to step back from the casual commentator role and inform viewers about something the speaker deems important (e.g. proceeding to the next stage, confirming that he is pressing a button, pointing out noteworthy stage information). The seriousness function (12 instances) was used to emphasize the severity of a comment directed towards the stage itself (e.g. expressing frustration about an unexpected obstacle on the stage or questioning the game designer). The quotation function (2 instances) was used when imagining what a game character or the stage creator would say. These findings demonstrate that style shifts between honorifics and plain forms do occur in commentary monologues. A further categorization of the honorific usage observed supports Cook (1999, 2011) and Okamoto (2010, 2011)’s proposal that there is no direct relationship between honorifics and politeness. Rather, honorifics are used

to index various social meanings in the immediate context. Future studies may further explore style shifts in commentary monologues of other languages where honorifics are commonly used.

Example:

- (1) a. John-ga gakusei desu. [addressee honorific: *desu/masu*]
 John-NOM student COP
 ‘John is a student.’
- b. John-ga gakusei da. [plain]
 John-NOM student COP
 ‘John is a student.’

Table 1 Frequencies and counts of honorific and plain forms in the data

	Honorific Form (<i>desu/masu</i>)	Plain Form	Total
Video 1	28.3% (15)	71.7% (38)	100% (53)
Video 2	10.2% (6)	89.8% (53)	100% (59)
Video 3	21.2% (14)	78.8% (52)	100% (66)
Total	19.7% (35)	80.3% (143)	100% (178)

Table 2 Frequencies and counts of the honorifics serving three different contextual functions

	Announcement	Seriousness	Quotation	Total
Video 1	53.3% (8)	33.3% (5)	13.3% (2)	100% (15)
Video 2	50% (3)	50% (3)	0% (0)	100% (6)
Video 3	71.4% (10)	28.6% (4)	0% (0)	100% (14)
Total	60% (21)	34.3% (12)	5.7% (2)	100% (35)

Selected References

- Cook, H. (1999). Situational meanings of Japanese social deixis: the mixed use of the *masu* and plain forms. *Journal of Linguistic Anthropology*, 8, 1, 87-110.
- Cook, H. (2011). Are honorifics polite? Users of referent honorifics in a Japanese committee meeting. *Journal of Pragmatics*, 43, 3655-3672.
- Ide, S. (1989). Formal forms and discernment: two neglected aspects of universals of linguistic politeness. *Multilingua*, 2, 3, 223-248.
- Matsumoto, Y. (1988). Reexamination of the universality of face: Politeness phenomena in Japanese. *Journal of Pragmatics*, 12, 4, 403-426.
- Okamoto, S. (2010). Politeness in East Asia. In M. Locher and S.L. Graham (Eds.), *Handbooks of Pragmatics Interpersonal Pragmatics 6* (pp. 71-100). Mouton de Gruyter, Berlin.
- Okamoto, S. (2011). The use and interpretation of addressee honorifics and plain forms in Japanese: diversity, multiplicity, and ambiguity. *Journal of Pragmatics*, 43, 15, 3637-3688.

Syntactic and Prosodic Processing of Quantifier Ambiguity in Turkish

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It has been widely discussed how the resolution of universal (\forall) and existential (\exists) quantifier ambiguities may occur among languages both syntactic and semantically (see e.g., Beghelli, & Stowell, 1997; Kurtzman, & MacDonald, 1993; Surányi & Turi; 2017; Scontras et al., 2017). There is a strong debate on different linguistic levels of quantifier ambiguity according to language typology. Many accounts of quantifier ambiguity are extensively studied in Turkish by semantic- prosodic (Gürer, 2015; Özge, 2010; Altınok, 2017) and syntactic-semantic (Kelepir, 2001; Gürer, 2015; Ay & Aydın, 2016) levels both in theoretical and experimental studies. Building upon the literature and the above-mentioned accounts, we aim to investigate prosodic and syntactic processing of universal *her* (every) and existential *bir* (a) in Turkish by using an online experiment. We conducted an online picture-matching task to a group of 75 young adults ($M= 25.82$, $SD= 4.5$) native speakers of Turkish. Experiment stimuli consisted of 30 sentences (in total 120) for each of the conditions with Order (*her-bir* vs. *bir-her*) \times Focused Item (*object* vs. *subject*) (see in Table 1). In each trial, participants were asked to listen the auditory stimuli and to judge whether the sentence they heard appropriately described the picture appeared on the stimuli screen. Participants took the experiment online using the web-based experiment platform on Pavlovia (Peirce et al., 2019) under the design of PschoPy 3.0 (Peirce, 2007) and participants' reaction time and judgment results were collected. The auditory stimuli were pre-recorded by a native female Turkish speaker in a phonetic lab. To confirm prosodic features of the critical words in our stimuli, three main acoustic parameters (F0, duration and intensity) were analysed under Praat (Boersma, 2006).

The reaction time and judgment task data were analysed by linear mixed-effect models (LME) using *lmer* function in *lme4* package in R (R Core Team, 2013) with Order, Focus and their interactions as fixed factors, while items and participants were analysed as random factors (see Figure 1 and Figure 2). Judgment task results displayed that Order was significant ($\beta = -4.44$, $SE=0.18$, $z=-23.50$, $p<.001$) and the interaction between Order and Focus was nearly significant ($\beta = -0.50$, $SE=0.26$, $z=-1.9$, $p>.05$); however, Focus is not ($\beta = -0.07$, $SE=0.21$, $z=0.35$, $p>.05$) on collective reading scores. In reaction time results, the interaction between Order and Focus was significantly important ($\beta = -0.09$, $SE=0.04$, $t=-2.23$, $p<.05$), as well as in Order ($\beta = 0.16$, $SE=0.02$, $t=7.90$, $p<.001$), and Focus ($\beta = 0.08$, $SE=0.02$, $t=4.21$, $p<.001$).

In conclusion, this study suggests that Turkish speakers use both scope relations and prosody to resolve quantifier ambiguity, specifically when differentiating collective and distributive reading (Surányi & Turi, 2017). Statistical insignificance of Focus in judgment task reflects the specificity of *bir* by getting scope over *her* (Altınok, 2017). Participants favoured the distributive reading because reaction times were faster in distributive than collective reading. This study supported the claim that syntax has an initial role in disambiguation between collective and distributive readings (Beghelli, & Stowell, 1997; Kurtzman, & MacDonald, 1993; Kelepir, 2001; Özge, 2010).

Table 1. Experimental Design for the Auditory Stimuli

Sample Sentences					Order	Focus
Geçen sabah last morning.NOM	sınıfta class.LOC	her öğrenci every child.NOM	BİR KİTABI a book.ACC	okudu. read.PAST.3S	$\forall-\exists$	Object (<i>bir</i>)
Geçen sabah last morning.NOM	sınıfta class.LOC	HER ÖĞRENCİ every child.NOM	bir kitabı a book.ACC	okudu. read.PAST.3S	$\forall-\exists$	Subject (<i>her</i>)
Geçen sabah last morning. NOM	sınıfta class.LOC	BİR KİTABI a book.ACC	her öğrenci every child.NOM	okudu. read.PAST.3S	$\exists-\forall$	Object (<i>her</i>)
Geçen sabah last morning. NOM	sınıfta class.LOC	bir kitabı a book.ACC	HER ÖĞRENCİ every child.NOM	okudu. read.PAST.3S	$\exists-\forall$	Subject (<i>bir</i>)

Figure 1. Descriptive Results for Reading Differences

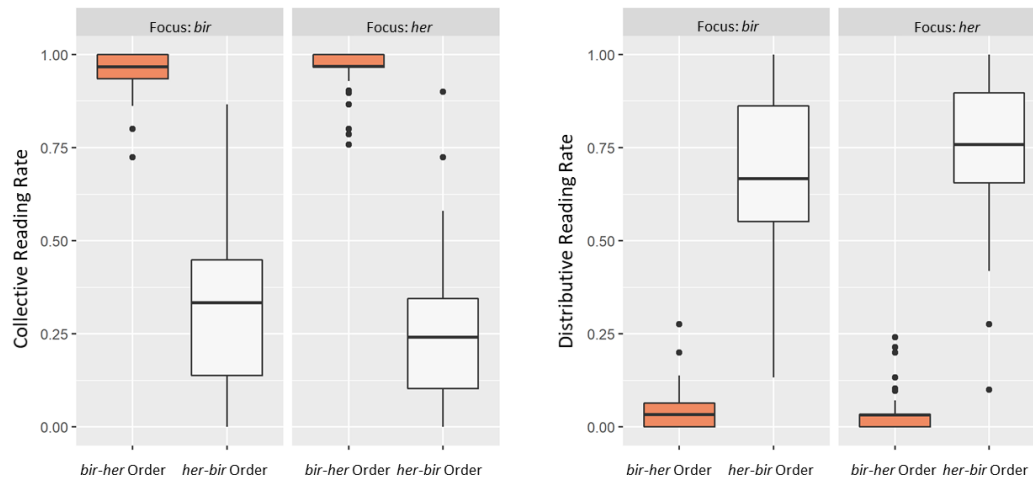
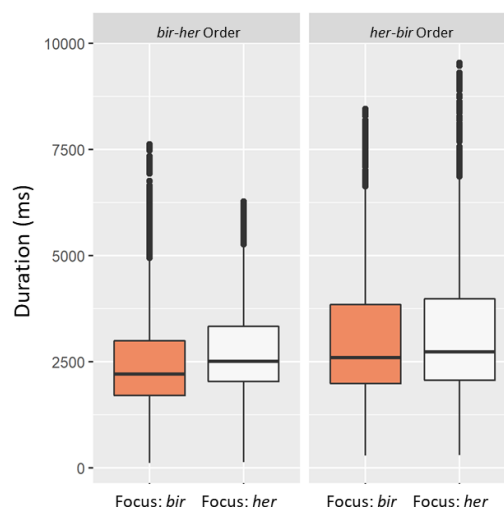


Figure 2. Descriptive Results for Reaction Times



References

- Altınok, D. (2017). Quantifier Scopepe and Prosody in Turkish (Unpublished PhD Thesis), The University of Utah.
- Ay, S., & Aydın, Ö. (2016). Someone judges every sentence. In A. Gürel (Ed.), *Second Language Acquisition of Turkish* (59) (pp. 135-163). John Benjamins Publishing.
- Beghelli, F., & Stowell, T. (1997). Distributivity and negation: The syntax of each and every. In Szabolcsi (Ed.), *Ways of scope taking* (pp. 71-107). *Studies in Linguistics and Philosophy* (65). Springer, Dordrecht.
- Boersma, P. (2006). Praat: doing phonetics by computer. <http://www.praat.org/>.
- Kurtzman, H.S., & MacDonald, M.C. (1993). Resolution of quantifier scope ambiguities. *Cognition*, 48(3), 243-279.
- Özge, U., & Bozsahin, C. (2010). Intonation in the grammar of Turkish. *Lingua*, 120(1), 132-175.
- Gürer, A. (2015). Semantic, prosodic, and syntactic marking of information structural units in Turkish. (Unpublished PhD Thesis), Boğaziçi University.
- Peirce, J.W., Gray, J.R., Simpson, S., MacAskill, M.R., Höchenberger, R., Sogo, H., Kastman, E., Lindeløv, J. (2019). PsychoPy2: experiments in behavior made easy. *Behavior Research Methods*. 10.3758/s13428-018-01193-y
- Pierce, J.W. (2007). PsychoPy—Psychophysics software in Python. *Journal of Neuroscience Methods*, 162(1-2), 8-13.
- Scontras, G., Polinsky, M., Tsai, C.Y.E., & Mai, K. (2017). Cross-linguistic scope ambiguity: When two systems meet. *Glossa: A Journal of General Linguistics*, 2(1), 1-28.
- Surányi, B., & Turi, G. (2017). Focus and quantifier scope: An experimental study of Hungarian. In: *Approaches to Hungarian 15: Papers presented in the 2015 Leiden Conference* (pp. 209-238). John Benjamins Publishing Company, Amsterdam.
- R Core Team. (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <http://www.R-project.org/>.