

Quantificational scope of Serbian exclusives

A syntax-semantics interface account

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Abstract In this paper, we explore the connection between agreement and semantic interpretation of Serbian exclusive operators. Serbian exhibits an alternation between two morphologically similar exclusives: agreeing *sam-o/a* and non-agreeing *samo*; the presence of agreement predicts the interpretation of the exclusive as either ‘alone’ or ‘only’. Furthermore, we identify three distinct sub-readings of the agreeing form which we label the no-company, no-help, and no-other-cause readings. Our approach utilizes syntactic frameworks deconstructing the vP layer and Neo-Davidsonian event semantics to account for the distinctions among these sub-readings as well as between the agreeing and non-agreeing forms. We argue that 1) these two operators have the same semantics, 2) the type of their semantic entry is acategorical, and 3) the distinctions between the readings are derived from the syntactic and semantic scope of the exclusive. The three sub-readings of the agreeing *sam-o/a* are derived below the event quantifier, and the ‘only’ reading of the non-agreeing *samo* is the result of the exclusive scoping above the event quantifier. Lastly, we argue that the locality of the agreement operation is what constrains the scope of agreeing *sam-o/a* to below the existential closure of the event variable.

Keywords Exclusives · syntax-semantics · event semantics · quantifier scope · causal alternatives

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Ana je juče **samo** plivala.
 Ana is yesterday only swam

‘Only Ana swam yesterday.’

- (2) Agreeing operator:

Ana je juče **sam-a** plivala.
 Ana is yesterday sam-N.S.F swam

‘Ana swam yesterday alone/(all) by herself.’

We argue that both operators can be captured with a common semantic entry, and that their difference in interpretation is attributable to a different semantic scope. We argue that the agreement as in (2) indicates a restricted semantic domain of quantification for *sam-a/o* to individuals and events which introduce those individuals. This then accounts for its different interpretation and distribution when compared to the non-agreeing *samo*.

A similar account has been proposed for English adjective *mere* in comparison with *only*, where the former takes scope only over the noun it modifies while the latter take sentential scope (Coppock and Beaver, 2011). Our account differs in that it ties this behavior to the agreement mechanism and connects exclusivity with anticausality.

We show that the agreeing *sam(-a/o)* is an exclusive operator which does not associate with a prosodically focused element in the preadjacent, unlike *only/samo*. It is in this sense similar to ‘unexplanatory’ *just* (Wiegand, 2017, 2018), which also exhibits anticausality. We also argue that agreement indicates low scope of the exclusive operator, which restricts its domain of quantification to within the event layer (i.e., individuals and events).

The agreeing *sam-o/a* we discuss in the majority of this paper is distinct from the Serbian emphatic particle *sam* (Progovac, 1998; Despić, 2013), which also exhibits agreement and is clearly morphologically related to the exclusives under discussion. It certainly appears that this use should ultimately be included in the discussion of exclusivity and agreement in Serbian, especially given the similarity to English emphatic reflexives and the presence of the English paraphrase ‘by it/him/herself’ we see with agreeing *sam-a/o*. We will take up this question in §4.4.

2 Exclusives in Serbian: Main facts and generalizations

2.1 *Samo* and *sam-a/o* in Serbian

The non-agreeing *samo* ‘only’ behaves as a standard exclusive operator and associates with a prosodically focused element in the sentence it modifies, much like *only* in English. As discussed in standard literature on focus, this gives rise to alternatives for the focused constituent (Rooth, 1985, 1992). Likewise, depending on the locus of the focus prosody, the alternative set will vary. In (1), repeated below as (3a), focus on *Ana* provides alternatives for the subject position, resulting in the quantificational

meaning ‘Only Ana swam yesterday, no one else did’. Focus on the verb *plivala* would provide alternatives to the denotation of the verb itself, which would result in a different set of denied alternatives, shown in (3b).

- (3) a. [Ana]_F je juče **samo** plivala.
 Ana is yesterday only swam
 ‘Only [Ana]_F swam yesterday (and no one else swam yesterday).’
- b. Ana je juče **samo** [plivala]_F.
 Ana is yesterday only swam
 ‘Ana only [swam]_F yesterday (and Ana did not do anything else yesterday)’

However, the agreeing *sam(-a/o)* can only be interpreted as ‘alone, by herself/himself’, which we take to be a quantifier ranging over individuals. In (2), repeated below as (4), *sam(-a/o)* agrees with the subject *Ana* in case, number and gender. In this case, it cannot be interpreted as in (3a). Rather, here the most salient interpretation is not that Ana was the only person swimming, but rather that Ana swam ‘by herself’, or alone.

- (4) Ana je juče **sam-a** plivala.
 Ana is yesterday sam-N.S.F swam
 ‘Ana swam yesterday alone/(all) by herself.’

Including this salient ‘alone’ reading, there are actually three different specific interpretations available for agreeing *sam-ola* (4): one where Ana’s swimming was unaccompanied (alone), one where her swimming was unassisted, and another where her swimming was uncaused/unprompted. We discuss the three possible interpretations of (4) in more detail in the following section.

2.2 Three readings of the agreeing *sam-ola*

We identify three independent readings of the agreeing *sam-ola*: the **no-company (A) reading**, the **no-help (B) reading**, and the **no-other-cause (C) reading**. Consider the following example in (5) with the agentive verb *jesti* ‘eat’.

- (5) Ana je počela da jede **sama**.
 Ana is started that eats sam-N.S.F
 ‘Ana started to eat by herself.’

2.2.1 No-company reading

The first and generally most obvious of the three readings for agreeing *sam-ola* is what we have called the *no-company reading*, or the *A* reading. Under this interpretation, (5) is interpreted as ‘Ana started eating alone,’ i.e., Ana is performing the activity of eating without anyone’s company. Importantly, this doesn’t seem to be limited to other eaters. Rather, it indicates the absence of some general company at the

time and place of the eating event. We will address some of the complexities of the A-reading in §4.3, where we argue that this independence of the domain from the particular event type indicates a scope below the eventive layer.

Note that when this version of *sam-alo* is the main predicate it displays some interesting animacy restrictions, as demonstrated in the contrast between the animate subject in (6) and inanimate subject in (7).

- (6) Ana je **sama**.
 Ana is sam-N.S.F
 ‘Ana is alone/by herself.’
- (7) #Lampa je **sama**.
 Lamp is sam-N.S.F
 ‘The lamp is alone/by itself.’

As discussed in the next section, *sam-alo* is an exclusive operator which in some sense singles out an individual. When it is the main predicate, it essentially says that the subject is “without company”. Although this reading is not the main focus of this paper, it is possible that *sam-alo* is restricted to animate individuals here since only sentient beings may have “company”. It in this sense exhibits similarity to the animacy requirements of an adjective like *lonely*.

However, it should be noted that when *sam* modifies another (verbal) predicate (i.e., when it is an adjunct), this restriction does not apply—only the restrictions of the main predicate apply. This is demonstrated below in (8), where the no-company reading is perfectly felicitous with the inanimate subject *slika* ‘picture’ when it modifies the verb *visila* ‘hang’.

- (8) Slika je na zidu visila **sama**.
 Picture is on wall hanged sam-N.S.F
 ‘The picture was hanging on the wall by itself.’

This indicates that the animacy restriction may be pragmatic or related to the at-issueness of the semantic contribution of ‘by itself’.

2.2.2 No-help reading (*agentive reading*)

The second reading we identify for agreeing *sam-ola* is the B reading, or the *no-help/agentive reading*. Under this reading, (5) is interpreted as ‘Ana started to eat without anyone’s help’. For example, consider a context where Ana is two years old, so she has just started to be able to use utensils on her own without anyone’s help. On this reading Ana is executing or carrying out the act/activity of eating all by herself, without any assistance. In other words, she is the single agent of eating within the eating event.²

² This argument does run counter to some of the assumptions about theta roles in event semantics, namely that thematic roles are functions.

2.2.3 No-other-cause reading (causal reading)

The third and final reading we have identified for agreeing *sam-ola* is the C reading, or the *no-other-cause/causal reading*. Here, (5) is interpreted as ‘Ana needs no convincing’ or ‘Ana’s eating has no cause external to Ana’. In other words, she initiates the activity of eating by herself. A naturally occurring example exemplifying this reading is shown below in (9).

- (9) *Context*: A mother is complaining on a blog that her son is too skinny and he never wants to eat. Another blogger replies:

Težina tvog sina je zdrava. Nemoj toliko da se opterećuješ
 Weight your son is healthy do-not that-much that REFL. worry
 vagon, on će početi da jede **sam od sebe** jednog dana.
 scale he will start to eat sam-N.S.M from self one day

‘The weight of your son is fine. Do not worry about the scale (about weighing him) that much, one day he will start eating by himself.’³

Note that when *sam-alo* is extended with *od sebe* ‘from self’, only the C reading is available. That is, *sam-alo od sebe* unambiguously has the C reading. According to (9) then, the boy will one day become the only initiator/cause of the event of eating.

The obligatory C reading in the presence of *od sebe* can be shown in the following contrast between (10) and (11). In (10), the context allows for the C reading, and *od sebe* is felicitous. However, in (11), the only contextually available reading is the B reading and here, *od sebe* is disallowed.

- (10) *Context* (compatible with C reading):

Ana ima 5 godina i već odavno jede bez ičije pomoći. Ali
 Ana has 5 years and already long ago eats without anyone’s help But,
 jako je probirljiva — najviše mrzi supu, gotovo je nikad ne jede.
 very is picky most hates soup almost is never ne eat

‘Ana is 5 years old and she has been able to eat without anyone’s help for a while. But, she is a very picky eater—she hates soup the most, she almost never eats it.’

Međutim, juče nakon što je videla kako njeni najbolji drugari
 However yesterday after what is saw how her best friends
 Milica i Marko jedu supu sa uživanjem, počela je da jede supu
 Milica and Marko eat soup with joy started is that eat soup
sama od sebe.
 by herself

‘However, yesterday after she saw how her best friend Milica and Marko enjoy eating soup, she started eating soup by herself.’

³ <http://www.serbiancafe.com/lat/diskusije/mesg/140/16131993/bucmasto-ili-zdravo-dete.html?6>

(11) Context (incompatible with C reading)

Ana ima 3 godine i još uvek joj treba pomoć dok jede, jer ne
 Ana has 3 years and still her needs help while eats because not
 ume baš da koristi kašiku. Mama je uvek uz nju jer Anina
 can really that use spoon Mom is always with her because Anas
 omiljena hrana je supa, toliko je voli da bi mogla da je jede za svaki
 favorite food is soup that much that is love could that is eat for every
 obrok.
 meal

‘Ana is 3 years old and she still needs help when shes eating, because she cannot really use a spoon. Mom is always with her because Anas favorite food is soup, she likes it so much that she would have it for every meal.’

Juče je počela da jede supu **sama od sebe**.
 yesterday is started that eat soup by herself
 ‘Yesterday she started eating soup by herself.’

Another naturally-occurring example of the no-other-cause reading is given below in (12). Here again, *od sebe* is utilized; however, note that it is not necessary to get this reading.

(12) Jer nije kontrolor došao **sam od sebe**, to je neko
 Because didn’t inspector come sam-N.S.M from self that is someone
 prijavio pa su ga poslali iz direkcije.
 reported then are him sent out main-office

‘Because the inspector didn’t come by himself. Someone must have reported him and then he was sent from the main office.’ (Selimović, 1970: 16)

(12) says that an inspector did not initiate the event of inspecting. Rather, this is usually caused externally (e.g., he was sent from the main office). This contrasts with the A and B readings, as this neither says that the inspector was alone when he came nor that he came unassisted.

This C reading is very similar to the interpretation of English *just* in the ‘unexplanatory’ use (Wiegand, 2017, 2018). An example of this is given below in (13).

(13) I was sitting there an the lamp just broke! (All by itself!)

Here, *just* expresses that the lamp broke with no apparent cause. Interestingly, just like the Serbian follow-up *od sebe*, the unexplanatory use of *just* is made more salient with the optional follow up *by itself* or *all by itself*. In fact, the examples of the C reading of agreeing *sam-ola* shown above could be paraphrased in English with unexplanatory *just*. An English near-equivalent of (12) is given below in (14).

(14) The inspector didn’t just show up. Someone must have sent him from the main office.

The syntax and distribution of *just* in English is quite different from agreeing *sam-alo*. However, the fact that both are exclusive markers and are able to target cause events indicates strongly that causation is a visible semantic object for quantification. It is further evidence that we should be looking at agreeing *sam-ola* as an extension of ordinary non-agreeing *samo*, as clearly other exclusives can quantify over these finer-grained event structures like causation.

The C reading is in fact the only reading we have with the so-called “anti-caustative” verbs in Serbian (Alexiadou and Schäfer, 2006; Dowty, 1979; Kratzer, 2005; Levin and Rappaport Hovav, 1995; Pesetsky, 1995; Reinhart, 2003). This is shown below in (15), neither of which have the B reading or A reading available.⁴

- (15) a. Lampa se razbila **sam-a** (**od sebe**).
Lamp REFL broke sam-N.S.F from self
‘The lamp broke by itself.’
- b. Led se istopio **sam** (**od sebe**).
Ice REFL melted sam-N.S.M from self
‘The ice melted by itself.’

Additionally, unaccusatives like *umreti* ‘die’ or *pasti* ‘fall’ also seem to lack the B reading. In (16), for example, the salient reading is the A reading, where the president died alone/unaccompanied.

- (16) Bivši predsednik je **umro sam**.
Former president is died sam-N.S.M
‘The former president died by himself.’

This is likewise the intended interpretation for (17), where a woman has fallen in the bathroom when she was alone.

- (17) Juče je **pala sama** u kupatilu.
Yesterday is fell sam-N.S.F. in bathroom
‘Yesterday she fell by herself in the bathroom.’ (she was alone)⁵

While they lack the B-reading, unaccusatives do have access to the C reading, as demonstrated in (18–20) below.

- (18) *Context from an online newspaper: A handicapped convict died in prison, and someone is making the following comment:*

A sada kažu kao čovek **umro sam** **od sebe**, nije **umro**
And now say like man died sam-N.S.M from self didn’t die
sam **od sebe** — nije mogao sam da uzima hranu i
sam-N.S.M from self didn’t could sam-N.S.M that take food and

⁴ The question of whether these actually do have the A reading is an open one. According to native speakers, both (15a) and (15b) are pragmatically odd, likely due to the animacy effects discussed earlier. However, those animacy effects do seem to be cancellable: in a context where the lamp or the ice were anthropomorphized in some way, these would be better. Importantly, though, the B reading is completely unavailable even in such a hypothetical anthropomorphic lamp case.

⁵ <https://www.doktor.rs/forum/kardiologija/aritmija-t22517-840.html>

vodu potrebna mu je bila osoba koja bi se brinula o
 water needed him is was person which would REFL. take care about
 njemu.
 him

‘And now they say that the guy died by himself, he didn’t die (all) by himself, he couldn’t take food and water, he needed a person that would take care of him.’⁶

- (19) Kakav amater: Drogba **pao sam od sebe** pa virio na jedno
 What amateur Drogba fell sam-N.S.F. from self then peeked on one
 oko.
 eye

‘What an amateur: Drogba fell (all) by himself and then he peeked with one eye.’⁷

- (20) Bandera je **pala sama od sebe**.
 Pole is fell sam-N.S.F. from self
 ‘The pole fell by itself.’

This raises the question of why the B reading is unavailable with unaccusatives like *fall* or *die*. On the B reading, *sam-o/a* says that someone is not helped in carrying out an activity, i.e., that she is the only agent who executes/carries out an activity. But, dying or falling is not something that people actively carry out and where they can have the help of other agents—these things happen to people (which is exactly the property that classifies them as unaccusatives in the first place.) On the other hand, people can have no company when these events occur (the A reading), or there might not be an identifiable external cause for these events (the C reading). That is, we will argue is that the B (agentive) reading is missing with unaccusatives like *fall* or *die* because they lack the functional projection which introduces the agent.

In the next section, we provide an analysis explaining the core meaning difference between the non-agreeing *samo* ‘only’ and its agreeing counterpart *sam-alo* ‘alone, by itself’ and accounting for the variation in the availability of different meanings of *sam-alo* among different types of verbs.

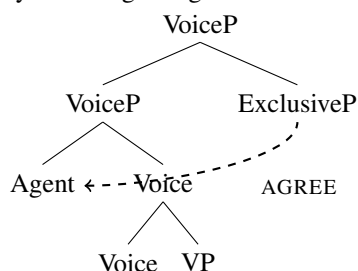
3 Our analysis: Exclusives, agreement and argument structure

We argue that the agreeing *sam(-alo)* is semantically an exclusive operator and syntactically an adverb (ExclusiveP) adjoined within the verbal layers. ExclusiveP agrees with the closest argument, which is the agent in the case of verbs that include the agent-introducing projection (e.g., VoiceP (Kratzer, 1996)).⁸ The general syntactic structure of agreeing *sam(-alo)* is provided below in (21).

⁶ <http://jugmedia.rs/preminuo-nepokretni-osudenik/>

⁷ <http://forum.source.ba/clanak/Fudbal/282309/Kakav-amater--Drogba-pao-sam-od-sebe-pa-virio-na-jedno-oko>

⁸ We adopt the VoiceP analysis for the purposes of this paper; however, the analysis should work just as well with a vP framework, as long as it allows for additional verbal projections.

(21) Syntax of agreeing *sam-alo*

Non-agreeing *samo* ‘only’ will presumably adjoin higher in the tree, outside of the verbal complex. The exact syntactic position of the non-agreeing form is not necessary to specify for the purposes of the present inquiry. We will assume that it adjoins to IP/TP, but any adjunction position above VoiceP would be consistent with our analysis.

We argue that agreement between *sam* and an argument originating within the verbal projection indicates that the exclusive must take low scope with respect to the event denoted by the verb. As a result, the semantic domain of quantification is restricted to (i) *individuals*; i.e., event participants who stand in the thematic relation to the eventuality denoted by the verb, and (ii) *events* involving those individuals.

3.1 Semantic Framework: Compositional Event Semantics

For the purposes of this analysis, we utilize Neo-Davidsonian event semantics, and draw upon the works of Champollion (2015) and Bonomi and Casalegno (1993) specifically in dealing with the quantification of *samo* and agreeing *sam-ola* with respect to events.

We argue that *samo* and *sam-ola* are forms of the same exclusive operator, which itself has a variable type. This is consistent with approaches to acategorial operators like *and*, which can combine with arguments of many different types via the same semantic entry.

3.2 *Samo* ‘only’ vs. *sam-alo* ‘alone, by itself’

Essentially, our claim is that agreement is tied to semantic scope, which in turn accounts for the different behavior between agreeing and non-agreeing *sam*. We argue that the agreement operation requires that the exclusive operator take scope within the event denoted by the predicate. On the other hand, the lack of agreement with ordinary *samo* ‘only’ indicates that the exclusive operator *samo* is scoping over the entire proposition, with alternatives derived via Roothian association with focus.

Consider again the contrast again between (1) and (2), repeated below as (22) and (23)

- (22) Ana je juče **samo** plivala.
 Ana is yesterday only swam
 ‘Only Ana swam yesterday.’
- (23) Ana je juče **sam-a** plivala.
 Ana is yesterday sam-N.S.F swam
 ‘Ana swam yesterday alone/(all) by herself.’

One useful way of conceptualizing the scopal interactions of these examples is utilizing a neo-Davidsonian event semantics which introduces events via existential quantification. Given such a framework, for the agreeing *sam(-a/o)* in (23), the interpretation (for the B reading) would be ‘there is an event e of swimming such that Ana is the only agent x of e ’, as given in (24) below. (24a) shows the relative scope of the exclusive, while the equivalent (24b) translates this into a quantification over individuals.

- (24) a. $\exists e[\text{swim}(e) \wedge \text{only}(\text{agent}(e, a))]$
 b. $\exists e[\text{swim}(e) \wedge \forall x[\text{agent}(e, x) \rightarrow x = a]]$

Note that this formulization is compatible with there being separate swimming events involving individuals other than Ana. Therefore, this only states that Ana was the only agent in her swimming, not that she was the only person who swam.

Compare this to the non-agreeing form in (22), which in the case that it associates with an individual, results in the equivalent of the exclusive quantification occurring outside the scope of the event quantifier. The interpretation here would be ‘Ana is the only individual x such that there is an event e of swimming such that the agent of e is x ’, shown below in (25). As above, (25a) shows that the exclusive scopes over the event quantifier, while (25b) translates this in the case that there is focus on an individual (rather than, e.g., a VP).

- (25) a. $\text{only}(\exists e[\text{swim}(e) \wedge \text{agent}(e, [a]_F)])$
 b. $\forall x[(\exists e[\text{swim}(e) \wedge \text{agent}(e, x)]) \rightarrow x = a]$

Unlike (24), the interpretation for (25) is incompatible with a situation where multiple different people were swimming, resulting in the typical exclusive interpretation of ‘only’ for non-agreeing *samo*.

We argue that the agreement relationship is an indicator of the structural properties of agreeing *sam(-a/o)* keeping it from scoping out of the event quantifier and restricting the domain of quantification to individuals. However, in order to account for the differences between the three readings discussed in the last section for agreeing *sam(-o/a)*, we will need to introduce some finer-grained distinctions.

3.3 *Sam-a/o* and the variation in meaning

What factors govern the variation in meaning of *sam-a/o* we see with different verb types? Recall that the example in (5), repeated as (26), has three different readings, summarized below.

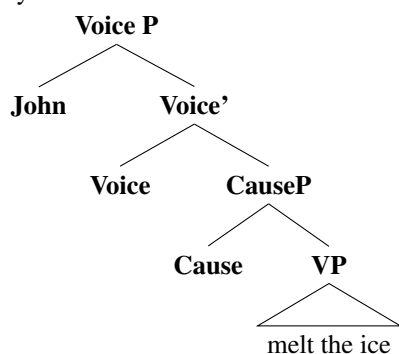
- (26) Ana je počela da jede **sama**.
 Ana is started that eats sam-N.S.F
 ‘Ana started to eat by herself.’
- a. **No-company reading:** Ana started eating alone (i.e., without anyone’s company).
 (we ignore this reading here)
 - b. **No-help reading (agentive reading):** Ana started to eat without anyone’s help (e.g., she’s 4 years old now, so she can use utensils without anyone’s help). On this reading Ana is the single agent of eating
 - c. **No-other-cause reading (causal reading):** Ana needs no convincing; she initiates the activity of eating by herself

First, we adopt the bieventive view of causative structures like *John melted the ice* from Pylkkänen (2002), which we believe is particularly useful for our purposes. On this view, a sentence like *John melted the ice* has two relations that the corresponding noncausative (*The ice melted*) does not have: a causation relation relating the causing event to the caused event, and a thematic relation between the causing event and the individual expressed as the external argument.

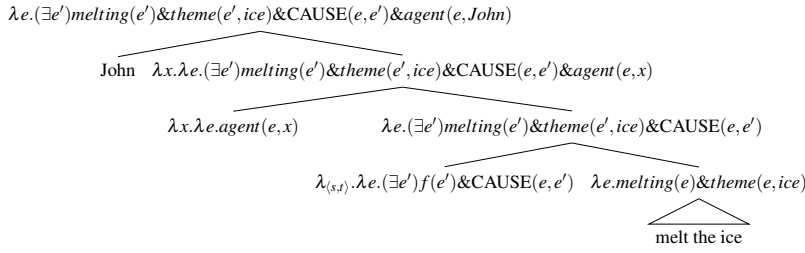
Assuming that external arguments are introduced by Voice (Kratzer, 1996), we get the syntactic tree (27b) (Pylkkänen, 2002: 88), where the predicate Cause first merges with the VP describing the caused event and where Voice then relates an agent to the event introduced by Cause. The semantic contribution of the Cause head is given in (27a), the bare syntax in (27b), and the semantic composition tree in (27c).

- (27) a. Cause: $\lambda f_{\langle s,t \rangle} . \lambda e (\exists e') f(e') \& \text{CAUSE}(e, e')$ (Pylkkänen, 2002: 88)

- b. Syntactic structure:



- c. Compositional semantics:



This structure allows us to account for the differing availability of the B and C readings, ignoring for the moment the A reading. This applies fairly straightforwardly in the case of agentive verbs.

3.3.1 Agentive verbs: both B and C readings

If we apply this to the verb like *jesti* ‘eat’ (in *Ana started to eat by herself*), we would have two events: (a) the event of eating, and (b) the event that causes this event of event, which plausibly is the event of the agent deciding to perform some action. This would be true for all agentive verbs.

Thus, when *sam-a/o* agrees with the agent *Ana* there are two options. First, its domain of quantification may be individuals, which gives us the B reading (agentive reading). On this reading, *Ana* is the only agent of the event of eating—she is the only individual that executes the event of eating. This is formally represented in (28) below for the intransitive verb *swim*.

- (28) a. $\lambda x\lambda e.\exists e'[\text{swim}(e') \wedge \text{CAUSE}(e,e') \wedge \text{only}(\text{agent}(e,x))]$
b. $\lambda x\lambda e.\exists e'[\text{swim}(e') \wedge \text{CAUSE}(e,e') \wedge \forall y[\text{agent}(e,y) \rightarrow y = x]]$

Second, its domain of quantification may be events, which gives us the C reading. This reading says that the decision making event e , which introduces the agent *Ana* with which *sam-a/o* agrees, is the only event which causes the event of eating e . This is formally represented below in (29).

- (29) a. $\lambda x\lambda e.\exists e'[\text{swim}(e') \wedge \text{only}(\text{CAUSE}(e,e')) \wedge \text{agent}(e,x)]$
b. $\lambda x\lambda e.\exists e'[\text{swim}(e') \wedge \forall e''[\text{CAUSE}(e'',e') \rightarrow e'' = e] \wedge \text{agent}(e,x)]$

3.3.2 Anticausative and unaccusative verbs: B reading only

Recall that anticausative verbs have access only to the C reading (causative reading), but lack the B reading (agentive reading).

- (30) a. *Lampa se razbila sam-a (od sebe).*
Lamp REFL broke sam-N.S.F. from self
‘The lamp broke by itself.’
b. *Led se istopio sam (od sebe).*
Ice REFL melted sam-N.S.M. from self
‘The ice melted by itself.’

We follow Alexiadou and Schäfer (2006), Levin and Rappaport Hovav (1995) etc. in assuming that anticausatives are inherently causative. That is, a sentence like (31a) has the structure in (31b).

- (31) a. The door opens.
 b. v-CAUSE [the door $\sqrt{\text{OPEN}}$]

Alexiadou and Schäfer (2006), for instance, motivate the presence of a causative event in anticausatives by the observation that cross-linguistically, anticausatives license causer PPs (but not agent PPs). One such causer PP, *durch den starken Wind* ‘through/from the strong wind’ is shown in the German example (32) below.

- (32) German

Das Segel zerriss (durch den starken Wind).
 the sail tore through the strong wind

‘The sail tore from the strong wind.’ (Copley and Martin, 2014: 224)

So, under these assumptions, anticausatives have a similar structure to the one proposed for agentive verbs in that they have a CauseP projection in their syntactic structure. However, the B reading is excluded with these verbs because they lack the agent-introducing projection VoiceP.

The C reading, on the other hand, derives in a parallel manner to that for agentive verbs. In (30a), for example, *sam-alo* agrees with the theme *lampa* ‘lamp’ and quantifies over events, shown below in (33).

- (33) a. $\lambda e.\exists e'[break(e') \wedge theme(e', lamp) \wedge only(CAUSE(e, e'))]$
 b. $\lambda e.\exists e'[break(e') \wedge theme(e', lamp) \wedge \forall e''[CAUSE(e'', e') \rightarrow e'' = e]]$

As a result we have the interpretation that there is only the event of melting which introduces the theme with which *sam* agrees and no other (causer) events. That is, the meaning that we get essentially is that the causer event is missing.

This is again very similar to the unexplanatory *just*. Wiegand (2017, 2018) argues for a covert cause morpheme to account for unexplanatory readings of *just*. The account presented here predicts the presence of exactly such an element in the form of the functional layer CauseP. As such, despite the different syntactic behavior of Serbian agreeing *sam(-o/a)* and English *just*, it should be the case that the unexplanatory use of *just* also makes use of the semantic contribution of the syntactic projection CauseP.

The same logic discussed here for anticausatives extends to unaccusative verbs like *umreti* ‘die’ or *pasti* ‘fall’ and explains why they also lack the B reading, as they also lack VoiceP (see Alexiadou et al. 2015 and references therein).

4 Further considerations

4.1 *Sam-alo* and focus

Unlike *samo* ‘only’, the agreeing *sam(-alo)* does not associate with a prosodically focused element.⁹ For instance, *samo* ‘only’ cannot associate with pro-dropped arguments, because such arguments necessarily lack prosodic prominence and thus cannot be focused. While in (34a), where the subject is overt, alternatives can be individuals (*Only Ana swims, not John or Mary*), this is impossible in (34b). Here we only have alternatives to the denotation of the verb itself (*She only swims, she doesnt run or exercise*).

- (34) a. Samo Ana pliva.
 Only Ana swims
 ‘Only Ana swims.’
 b. Samo pliva.
 Only swims
 ‘She only swims.’

There is no such restriction in (35), where the semantic domain of quantification of the agreeing *sam(-alo)* is restricted to individuals denoted by the subject, regardless of whether the subject is overt, as in (35a), or covert, as in (35b)

- (35) a. Ana pliva sam-a.
 Ana swims sam-N.S.F.
 ‘Ana swims by herself.’
 b. Pliva sam-a.
 Swims sam-N.S.F.
 ‘She swims by herself.’

This indicates further that the exclusive quantification provided by the agreeing form is distinct from the traditional focus-sensitivity of non-agreeing *samo*. While their underlying semantic contribution follows the same general schema, the way the alternatives are derived is not identical. More research is needed to determine how these unfocused syntactic elements like the Cause head can yield semantic alternatives.

4.2 Negation and Scope for *samo* v. *sam*

When it combines with negation, *samo* can have different scopes with respect to negation. This is shown below in (36), where the *samo* can take either narrow (surface) or wide (inverse) scope with respect to the negation.

⁹ This is also consistent with the behavior of *just* in English (e.g., (Wiegand, 2017, 2018)).

- (36) Nije samo Ana došla.
 Didn't only Ana come
 'Not only Ana came.'
 'Only Ana didn't come.'

Under the surface scope (NEG>only) interpretation, we get 'it is not the case that only Ana arrived'. This can be followed up with the sentence in (37).

- (37) Njene sestre su takode stigle.
 Her sisters are also arrived
 'Her sisters also arrived.'

Although the surface scope reading is more prominent, the inverse scope interpretation is also available. The inverse scope (only>NEG) yields the interpretation 'it is only the case that Ana didn't arrive.' This reading can easily be followed up with (38):

- (38) Svi ostali gosti su već tu.
 All other guests are already here
 'All other guests are already here.'

The inverse reading becomes more clear when the adverb *još* 'yet' is added before the verb, as in (39).

- (39) Nije samo još Ana došla.
 Didn't only yet Ana come
 'Only Ana didn't come yet.'

For the surface scope reading to be true it is required that Ana has already arrived (we are negating the she is the only person who arrived). For the inverse scope reading, on the other hand, Ana's arrival hasn't happened. This is made more clear through the addition of the adverb *još* 'yet', which disambiguates the sentence since it excludes the surface scope interpretation.

Additionally, the inverse scope reading becomes more salient when the *nije* and *samo* are inverted, as expected. This is shown below in (40) below.

- (40) Samo nije Ana došla.
 Only didn't Ana come
 'Only Ana didnt come.'

In contrast to *samo*, the agreeing *sam* always takes scope below negation, as shown below in (41).

- (41) Nije Ana sama došla.
 Didn't Ana sam-N.F.S come
 'Ana didn't come by herself.'

This sentence is interpreted as ‘it is not the case that Ana arrived without anyone’s company/help’, which is expected given our assumptions about the structure of sentences with the agreeing *sam*. That is, *sam* is attached to *vP*, while negation is merged higher in the structure. Adding *još* ‘yet’ seems infelicitous, since the meaning of ‘yet’ contradicts the only available interpretation of this sentence, i.e., Ana has actually arrived, but she didn’t do it without anyone’s help/company.¹⁰

Also, scrambling the agreeing *sam* to the beginning of the sentence (in front of negation) doesn’t actually change the scope (it simply puts an emphasis on *sam*), in contrast to (40), where moving *samo* to the beginning of the sentence forces wide scope of *samo*.

- (42) Sama nije Ana došla.
 Sam-N.F.S didn’t Ana came
 ‘Ana didn’t come by herself.’

When there is special contrastive focus intonation on *Ana* in (41), the sentence can be interpreted as ‘it is not Ana who arrived without anyone’s help/company (it was someone else)’, but this is not related to scope. It also shows that focus is independent of *sam*, as we discussed in the previous section.

4.3 Object Agreement & the A-Reading

Further support for the claim that the B and C-readings derive from quantification within the VP layer comes from object agreement data. Agreeing *sam-o/a* does not exhibit the three-way reading ambiguity when it agrees with objects; rather, it only has the A-reading in these cases, as shown below in (43).

- (43) Video sam Anu juče samu u kuhinji.
 Seen am Ana-ACC yesterday sam-ACC.F.S in kitchen
 ‘I saw Ana in the kitchen yesterday by herself.’

According to native speaker judgments, sentences like (43) only have the interpretation that Ana was in the kitchen alone, and cannot be interpreted as ‘Ana’s being in the kitchen was uncaused/unhelped’. This indicates that the A-reading is the result of scope of *sam* only over some small syntactic unit within the predicate. The B and C-readings are only available when the preadjacent of agreeing *sam-o/a* contains an event, which is not the case when *sam-o/a* is modifying the object directly.

One explanation for this subject/object asymmetry is that predicates like that in (43) include a small clause, into which *sam* can scope. In these object agreement constructions, *sam* is scoping within the predicate clause ‘Ana (be) in the kitchen

¹⁰ Interestingly, the English translation ‘Ana didn’t come by herself yet’ is a reasonably felicitous sentence in English; though ‘Ana hasn’t come by herself yet’ is better. This reading changes the question under discussion and presupposes that Ana is going to come by herself, and merely asserts that she has not yet done so. It is interesting that this shifting of the background information is apparently unavailable in Serbian, a fact perhaps related to Serbian’s lack of present perfect. Regardless, even the English sentence requires narrow scope of ‘by herself’ to get a reasonable interpretation—the ‘by herself’ part cannot be negated and projects through negation when *yet* is present.

(yesterday)', which would not contain an event variable due to the stative nature of these clauses. This parallels the data with *be* predicates in English and *by himself*, as shown below in (44).

- (44) John was by himself.
 → A reading (John was alone)
 → B reading (John's existence was unhelped)
 → C reading (John's existence was uncaused)

So, we can make the claim that copular predicates like *be* can only have the A-reading. When *sam-o/a* agrees with an object, only the scope within the predicate small clause is possible, which involves a copula and therefore results in the A-reading.

Furthermore, the same animacy effects we observed when *sam* modified the main predicate are present in object agreement constructions, as shown in (45).

- (45) # Video sam lampu juče samu u kuhinji.
 Seen am lamp-ACC yesterday sam-ACC.F.S in kitchen
 Intended meaning: 'I saw the lamp in the kitchen yesterday by itself.'

Here, as this is an object agreement construction, the only available reading for *samu* is the no-company reading. However, this is disallowed due to the fact that *samu* is agreeing with an inanimate object, which for reasons beyond the scope of this paper do not allow the no-company interpretation (see also footnote 4).

4.4 Emphatic/Intensifying *sam*

Finally, in this section we want to address another aspect of the meaning of *sam*. In particular, as discussed in Despić (2013), the agreeing *sam* can also be used as an intensifier, as illustrated in (46) below:

- (46) Sam Jovan je priznao da je ukrao biciklu.
 Sam-N.S.M John is admitted that is stole bicycle
 John himself admitted that he stole the bicycle.'

Here *sam* directly precedes noun *Jovan*, and somehow singles out its referent as the most relevant individual to admit stealing the bicycle (as indicated in the English translation). Despić (2013) show that the intensifying *sam* must be linearly adjacent to the nominal it modifies; e.g., *sam* in (47) cannot have the intensifying function—it can only mean 'alone/by himself':

- (47) Jovan je sam priznao da je ukrao biciklu.
 John is sam-N.S.M admitted that is stole bicycle
 'John admitted by himself that he stole the bicycle.'

We follow Despić (2013) in assuming that this indicates that the intensifying *sam* directly combines with the nominal it modifies and is not adjoined to *vP* (see Despić 2013 for more arguments in support of this conclusion). And just like any other nominal modifier (adjectives, demonstratives, etc.), the intensifying *sam* also shows agreement/concord with the noun it combines with, as expected.

As in Despić (2013), we adopt Eckardt's ? semantic approach to the intensifying *selbst* in German and extend it to the intensifying *sam*. German has two different versions of the particle *selbst*: the intensifying *selbst* (\approx E *N*-self) and the focus particle *selbst* (\approx E *even*), which are illustrated in (48) (? : 372):

- (48) a. Selbst JANE FONDA nascht manchmal Yogurette.
Even Jane Fonda eats sometimes Yogurette
'Even Jane Fonda sometimes eats Yougurette.'
- b. Jane Fonda SELBST nascht manchmal Yogurette.
Jane Fonda herself eats sometimes Yogurette
'Jane Fonda herself sometimes eats Yougurette.'

According to (?), in (48a), two presuppositions related to the assertion are: (i) the proposition expressed is the least plausible, or most surprising proposition among the set of focus alternatives and (ii) all focus alternatives hold true as well. In (48b), on the other hand, the alternatives in question arise by replacing the referent of the individual/NP that is intuitively linked with *selbst* by alternative individuals. Thus, sentences with the intensifying *selbst* exhibit centrality effects on the alternatives to 'N-self'. In (48b) we understand that Jane Fonda is perceived as the central figure in the contextually given alternative set. These alternative individuals have to somehow "form the entourage" of the referent of NP to induce the centrality effects.

? proposes that the core meaning contribution of *selbst* is the identity function ID on the domain of objects D_e .

- (49) ID: $D_e \rightarrow D_e$
ID(a) = a for all $a \in D$

The claim is that adnominal I of the sort seen in (48b) denotes a partial function lifted from a function on D_e . This lifted partial function can take certain, but not all, generalized quantifiers as their arguments (see Despić (2013) for evidence that this is true for the intensifying *sam* as well). The claim is that adnominal *selbst* denotes Lift1 of ID, where Lift1 is defined as follows (? : 380):

- (50) Let f be function on D_e . Then Lift1(f) := $f : D_{((e,t),t)} \rightarrow D_{((e,t),t)}$ is defined as follows: If $Q \in D_{((e,t),t)}$ is a principal ultrafilter, i.e., of the form $Q = \lambda P(P(a))$ for some $a \in D_e$, then $f(Q) := \lambda P(P(f(a)))$. Else, f is undefined.

An important difference between the intensifying *sam*, on the one hand, and *samo* and the *vP*- adjoined agreeing *sam*, on the other, is that the alternatives are not part of the assertion, but most likely the presupposition. For example, if both the speaker and the addressee share the assumption that the most important person in a company X is its president and that only his signature on a contract can make it effective, the

sentence in (51) is appropriate in a context in which it is reported that a deal has come though:

- (51) Sam predsednik je potpisao ugovor.
 sam-N.S.M president is signed contract
 ‘The president himself signed the contract.’

The sentence in (52), on the other hand, would in the same context be inappropriate, but not necessarily false:

- (52) # Sam generalni direktor je potpisao ugovor.
 sam-N.S.M general director is signed contract
 ‘The general director himself signed the contract.’

Also, the assumption that the president is the most important individual among the alternatives in the given context cannot be directly negated. Thus, (53b) can only express disagreement with the claim in (53a) that the president signed the contract, not with the assumption that the president is the central individual among the alternatives (without additional clarification).

- (53) a. Sam predsednik je potpisao ugovor.
 sam-N.S.M president is signed contract
 ‘The president himself signed the contract.’
 b. Ne, to nije tačno.
 No that is not correct
 ‘No, that is not correct.’

Samo and the *v*P-adjoined agreeing *sam* are different in this respect. (54b) directly negates the claim in (54a) that the only thing that the president did, was to sign the contract (if focus in (54a) was on *predsednik*, then (54b) would negate the claim that the only person who signed the contract was the president etc.).

- (54) a. Predsednik je samo [potpisao]_F ugovor.
 President is only signed contract
 ‘The president only [signed]_F the contract.’
 b. Ne, to nije tačno.
 No that is not correct
 ‘No, that is not correct.’

Similarly, (55b) directly negates the claim in (55a) that the president was without any company when he signed the contract, or that he was the only person in the event of making a decision to sign the contract.

- (55) a. Predsednik je sam potpisao ugovor.
 President is sam-N.S.M signed contract
 ‘The president signed the contract by himself.’

- b. Ne, to nije tačno.
 No that is not correct
 ‘No, that is not correct.’

We suggest that the intensifying *sam* is an identity function (of type $\langle e, e \rangle$) with the locus of alternative formation in the presupposition. This is similar to a presuppositional account of gender features (e.g. Heim and Kratzer 1998: 244), whereby a feminine feature, for instance, denotes a partial identity function and has a lexical entry like (56). It is syntactically a node of its own, directly adjoined to the DP.

$$(56) \llbracket \textit{feminine} \rrbracket = \lambda x : x \text{ is female} . x$$

Finally, there is another way in which the intensifier *sam* can be disambiguated from *samo* and the vP-adjoined *sam*. ? notices a distinction between so-called “additive” and “exclusive” uses of the intensifying *selbst*. The so-called “additive” uses of *selbst* suggest that in addition to N-*selbst*, other persons acted, too, whereas “exclusive” uses indicate that N was involved in a particular event instead of someone else. The following examples this distinction (? : 392):

- (57) (Unfortunately it wasn’t only a simple soldier but...)

Dar König SELBST wurde gefangengenommen.
 The king himself was captured

‘The king himself was captured.’ (exclusive)

- (58) Aphrodite SELBST ist nicht schöner als Maria.
 Aphrodite herself is not more-beautiful than Maria

‘Aphrodite herself isn’t more beautiful than Maria.’ (additive)

(57) states that the individual who is in some sense more important than the alternatives (i.e., the king) has been captured instead of a soldier. In (58), on the other hand, we understand by world knowledge that if Aphrodite, being the goddess of beauty, is less beautiful than Maria, then all other women will be less beautiful too. That is, even Aphrodite is “added” to individuals that are less beautiful than Maria. As shown in Despić (2013), this subtle distinction exists in Serbian and can be indicated with the use of the conjunction particle *i* ‘and’. In particular, when this conjunction appears with the intensifier *sam*, the “additive” reading is strongly preferred (Despić, 2013: 64–65):

- (59) a. Exclusive:

Ma nisu zarobili bilo kakvog vojnika!
 But haven’t captured any how soldier

‘They haven’t captured just a simple soldier!’

- i. ✓ Sam Kralj je zarobljen!
 Intens king is captured

‘The king himself has been captured!’

ii. ?? I sam Kralj je zarobljen!

b. Additive:

Rat je bio strašan. Zemlja je izgorela a mnogi vojnici i oficiri
 War is was awful Country is burned and many soldiers and officers
 su poginuli ...
 are died

‘The war was awful. The country was burned and many soldiers and officers died...’

i. ✓ I sam Kralj je zarobljen.
 And intens king is captured

‘The king himself has been captured.’

ii. ?? Sam Kralj je zarobljen.

In (59a), similarly to Eckardt’s (57), the so-called “corrective exclusive” context is set up. The speaker here assumes that the hearer, incorrectly, thinks that another person participated in action X and corrects this presumptive error by uttering the sentence in (59a). Combining the intensifier with the particle *i* in this context is not very felicitous, since this context implies that the king was captured instead of someone else. (59b), on the other hand, suggests that the capturing of the king happened “in addition” to other events, which the use of *i* directly indicates. For example, if the particle *i* is added to (51) (as shown in (60)), the implication is that in addition to other important persons who may have signed the contract, the most important person (i.e., the president) has signed it as well. That is, the president is “added” to the alternatives.

(60) I sam predsednik je potpisao ugovor.
 And sam-N.S.M president is signed contract
 ‘The president himself signed the contract.’

The conjunction *i* cannot easily be added to *samo* and the *vP*-adjoined *sam*, and when it can, its semantic effects are quite different. In (61), for instance, the use of *i* indicates that in addition to other things happening there was an event in which Ana was the only person who swam (as shown in the English translation). But (61) cannot mean that the alternative individuals swam and that Ana was added to them.

(61) I samo je Ana plivala.
 And only is Ana swam
 ‘And only Ana swam.’

Similarly, (62) means that in addition to other types of events, there was an event (or events) in which Ana swam without any company or was the only person involved in the event of deciding to swim. It cannot mean, for example, that within a single swimming event Ana was added to other alternative individuals who were making a decision to swim.

- (62) Ana je plivala i sama.
 Ana is swam and sam-N.S.F
 ‘And Ana swam by herself.’

This demonstrates that the semantic effect of the conjunct *i* depends on the denotation of the element it combines with and its domain. Since the intensifying *sam* is an identity function which takes individuals as its arguments, the facts in (59) and (60) are not surprising.

In this section we have discussed another use of the exclusive *sam*. We hope to have shown that in addition to propositional (i.e., *samo*) and event level (ν P-adjoined agreeing *sam*) this exclusive can also appear at the individual level, where it functions as an intensifier. We have argued that the intensifier *sam* is an identity function and we have provided evidence that its alternatives are not part of the assertion. We present our conclusion in the next section.

5 Conclusions

In this paper, we discussed morphosemantic differences between the standard focus operator *samo* ‘only’ in Serbian and its agreeing counterpart *sam(-alo)* ‘alone, by himself/herself’. We proposed that agreement on the latter restricts its semantic domain of quantification to individuals and events which introduce those individuals, which accounts for its different interpretation and distribution. In effect, the meaning of Serbian exclusives is taken to be predictable from its syntactic adjunction position, which is made apparent through the presence or absence of agreement morphology.

In the case of the agreeing *sam-alo* the agreement operation requires that the exclusive operator take scope within the event denoted by the predicate in question, while in the case of *samo* ‘only’ the exclusive operator is scoping over the entire proposition. We discussed three different readings of *sam-alo* and we argued that their availability depends on the argument structure of the verb *sam-alo* combines with (e.g., whether the verb in question has VoiceP and CauseP, or just the latter). In particular, the differences between the B (no-help) and C (no-other-cause) readings lies in the location in the verbal projection layer where agreeing *sam-alo* takes scope: either at the VoiceP level or the CauseP level.

Overall, this analysis provides support for bieventive analyses of causative structures, as arguments introduced by both VoiceP and CauseP are available for quantification by exclusives. This required modifying the bieventive analysis to include a CauseP projection even when the verb in question is an anticausative.

Finally, we showed that *sam(-alo)* is an exclusive operator which does not associate with a prosodically focused element in the preadjacent (unlike *only/samo*), and is in this sense similar to the ‘unexplanatory’ *just* (Wiegand, 2017, 2018). Future work should be devoted to applying this syntactically-driven explanation to the English data, as previous accounts have been purely semantic. It should also further investigate the connection between quantificational scope and locality, as other languages besides Serbian also exhibit constraints on the locality of exclusives when they are interpreted as anticausal or emphatic. In English, unexplanatory and emphatic uses

of *just* are much more constrained in terms of syntactic position than ordinary ‘only’ uses of *just*, and likewise with emphatic reflexives in both Serbian and English.

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References

- Alexiadou A, Schäfer F (2006) Instrument subjects are agents or causers. In: Baumer D, Montero D, Scanlon M (eds) *Proceedings of the 25th West Coast Conference on Formal Linguistics (WCCFL 25)*, Cascadilla Proceedings Project, Somerville, MA, pp 40–48
- Alexiadou A, Anagnostopoulou E, Schäfer F (2015) *External Arguments in Transitivity Alternations: A Layering Approach*. Oxford University Press, Oxford
- Bonomi A, Casalegno P (1993) Only: Association with focus in event semantics. *Natural Language Semantics* 2(1):1–45
- Champollion L (2015) The interaction of compositional semantics and event semantics. *Linguistics and Philosophy* 38(1):31–66
- Copley B, Martin F (2014) *Causation in grammatical structures*, vol 52. Oxford University Press
- Coppock E, Beaver D (2011) Mere-ology. *Alternatives in Semantics*
- Despić M (2013) Intensifiers, focus, and clitics: Is pronoun position truly an argument for D in SC? *The Nominal Structure in Slavic and Beyond* 116:39–74
- Dowty DR (1979) *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague’s PTO*. Reidel
- Heim I, Kratzer A (1998) *Semantics in Generative Grammar*. Blackwell Publishing, Malden, MA
- Kratzer A (1996) Severing the external argument from its verb. In: *Phrase structure and the lexicon*, Springer, pp 109–137
- Kratzer A (2005) Building resultatives. *Event arguments: Foundations and applications* pp 177–212
- Levin B, Rappaport Hovav M (1995) *Unaccusativity: At the Syntax-Lexical Semantics Interface*. MIT Press, Cambridge, MA
- Pesetsky D (1995) *Zero Syntax*. MIT Press, Cambridge, MA
- Progovac L (1998) Determiner phrase in a language without determiners (with apologies to jim huang 1982). *Journal of Linguistics* 34(1):165–179
- Pylkkänen L (2002) *Introducing arguments*. PhD thesis, MIT
- Reinhart T (2003) The theta system—an overview. *Theoretical linguistics* 28(3):229–290
- Rooth M (1985) *Association with focus*. Dissertation, University of Massachusetts
- Rooth M (1992) A theory of focus interpretation. *Natural Language Semantics* 1(1):75–116
- Selimović M (1970) *Djevojka crvene kose*. Agencija TEA BOOKS via PublishDrive, Belgrade (reprinted 2018)

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- Wiegand M (2017) Morphosyntax of exclusives and the underspecificity of *just*. In: Nee J, Cychosz M, Hayes D, Lau T, Ramirez E (eds) Proceedings of Berkeley Linguistics Society (BLS), Berkeley, CA, vol 43, pp 351–375
- Wiegand M (2018) Exclusive morphosemantics: *Just* and covert quantification. In: et al WGB (ed) Proceedings of the West Coast Conference on Formal Linguistics (WCCFL), Cascadilla Proceedings Project, Somerville, MA, vol 35