

The Middle Construction in Minimalist Syntax: English and Slovenian

ABSTRACT

The paper discusses the argument structure of the English middle construction and its Slovenian equivalent from the perspective of minimalist syntax. The paper first introduces Bruening's (2012) recent approach to syntactic middle formation, which posits that middle sentences are derived via an operator that existentially quantifies over the open agent variable introduced by an active Voice projection. Subsequently, the paper argues that the adverbial modifier in the middle construction is not a semantic argument of the null operator, contra Bruening (2012). Finally, the paper proposes that the reflexive morpheme *se* in the related Slovenian *se*-sentences plays a role of valency reduction similar to that of the null English operator.

Keywords: valency; middle construction; reflexive morpheme; syntactic minimalism; argument structure

Srednjiška zgradba v minimalistični skladnji: angleščina in slovenščina

POVZETEK

Pričujoči prispevek obravnava vezljivost angleške in slovenske srednjiške zgradbe z vidika minimalistične skladnje. Prispevek najprej predstavi Brueningovo (2012) skladijsko razčlenbo srednjiške zgradbe, kjer ključni del skladijske izpeljave sloni na fonološko ničtem skladijskopomenskem operatorju. V formalnopomenskem smislu je tovrstni operator funkcija, ki uvaja eksistencialni kvantifikator, ta pa se v pomenski ravnini veže s spremenljivko, ki jo uvaja jedro zveze glagolskega načina Voice. Prispevek tudi predloži, v nasprotju z Brueningom (2012), da prislovna zveza v srednjiški zgradbi ni pomenski argument ničtega operatorja. V povezavi s slovenščino prispevek argumentira, da prosti morfem *se* igra podobno vlogo v povezavi z vezljivostjo kot angleški ničti operator.

Ključne besede: vezljivost; srednjiška zgradba; povratni morfem; minimalistična skladnja; argumentna struktura

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1 Introduction

The argument structure of the middle construction (1) has been a long-standing grammatical puzzle.

(1) Politicians bribe easily.

The main point of contention in the formal literature relates to the syntactic representation of the implied agent argument of (1); that is, the person or people who can easily bribe the politicians. The problem is that the construction behaves inconsistently with respect to tests that diagnose the structural presence of the agent. On the one hand, the middle sentence in (1) differs from a prototypical passive construction (2) in that it cannot licence the *by*-phrase (3), by means of which the implied agent can be represented overtly.

(2) The politician was bribed (by John).

(3) Politicians bribe easily (*by John).

What is puzzling, however, is that middles are able to select an instrumental *with*-phrase (4), which is also allowed in the passive (5), but not in the ergative anticausative construction (6), which is standardly analysed as completely omitting the agent argument in its syntactic, as well as semantic, representation (for an overview of recent approaches, see Alexiadou Anagnostopoulou, and Schäfer 2015, Chapter 3). In this sense, it is often observed that the agent in the middle is only “implicit” (Klingvall 2005), so absent from the syntactic derivation.

(4) The door opens easily with a key.

(5) The door was opened with a key.

(6) The door opened (*with a key).

The cross-linguistic grammatical properties of middles differ widely from language to language (Lekakou 2004). For instance, the Slovenian middle equivalent of sentence (4), which is given in (7), contains in its structure an additional category in the form of the reflexive morpheme *se*.

(7) Vrata se zlahka odprejo s ključem.

doors.NOM REFL easily open with key

“The door opens easily with a key.”

Apart from *se*, Slovenian middles differ from English ones in that they do not involve the so-called *generic repair* strategy (Härtl 2012), which means that the majority of predicates are licit in the English middle construction if and only if the interpretation is generic (8b), whereas the equivalent of eventive (8a) is perfectly fine in Slovenian (9a).

(8) a. *The bread cut.

Intended: “Somebody cut the bread.”

b. The bread cuts easily.

(Levin and Rappaport-Hovav 1995, 95)

(9) a. Kruh se je rezal.
 bread.NOM REFL AUX cut

“Somebody was cutting the bread.”

b. Kruh se zlahka reže.

bread.NOM REFL easily cut

“The bread cuts easily.”

The aim of this paper is to discuss how middle sentences can be syntactically accounted for, taking into consideration both their selection properties stated in (2–6) with respect to the implicit agent and the cross-linguistic structural properties that distinguish English middles from Slovenian ones (7–9). In terms of theory, the paper will follow a syntactic approach in the spirit of constructional minimalism (Ramchand 2008, Bruening 2012, Alexiadou, Anagnostopoulou, and Schäfer 2015, to name a few), in which the formation of lexically complex predicates, such as those in the middle construction, takes place entirely during the syntactic derivation. Within this framework, the paper will first present and discuss the empirical and theoretical advantages of Bruening’s (2012) recent proposal of syntactic middle formation in English, where the construction is derived by means of a null operator that targets the open agent variable that is introduced by a Voice head. Subsequently, the paper proposes that the adverb, although obligatory in many middles, is not a semantic requirement of the null operator, contra Bruening (2012). Finally, the paper will discuss how Slovenian *se*-sentences are derived, and propose that *se* plays a similar role in semantics to the English middle operator, but has fewer selectional requirements. In this respect, the paper will also propose that sentences (9a) and (9b) are structurally the same (i.e., *se* has the same function in both sentences, in that it binds the open agent variable introduced by Voice), with the only difference being that the event variable in (9b) is bound by a generic quantifier.

The paper is organized as follows. Section 2 lays out the theoretical framework and presents Bruening’s (2012) proposal as an alternative to the traditional lexical account of middle formation, and discusses how his syntactic approach elegantly accounts for the key properties of English middles, such as the arbitrary reference of the agent, the generic interpretation, and the licensing of the *with*-phrase. Section 3 discusses the role of the adverb in the middle construction in relation to Bruening’s (2012) operator. Section 4 discusses related Slovenian *se*-sentences and proposes a semantics for *se* contrasted with the English null middle operator. Section 5 is the conclusion.

2 Deriving Middles – From the Lexical Approach to a Minimalist Syntactic Account

2.1 Middle Formation in a Lexical Framework

The traditional approach to the derivation of the middle construction is the lexical account, in which the middle construction (11) is understood as a pre-syntactic derivational transformation (i.e., detransitivisation) of an otherwise active transitive sentence (10).

(10) John reads this book easily.

(11) This book reads easily.

Ackema and Schoorlemmer (1994, 65–67) describe a very detailed implementation of such an idea, which – at least to some degree – informs much subsequent work on middles (e.g., Marelj 2004 for Slavic). The gist of their proposal is that there is a pre-syntactic level of representation called *Lexical Conceptual Structure*, which contains lexical rules that can modify the argument structure of a predicate like *read* before syntactic projection takes place. In this sense, they propose that there is a rule called Middle Formation that pre-syntactically transforms an otherwise active transitive entry, (12), into a middle one, (13).

(12) $\text{read}_{\text{active}} (\theta_{\text{Actor}}, (\theta_{\text{patient}}))^{\text{ext}}$

(13) $\text{read}_{\text{middle}} (\text{ARB}, (\theta_{\text{patient}}))^{\text{ext}}$

Such a lexical approach is conceptually very appealing, as it accounts for a host of disparate grammatical facts of the middle construction. For instance, the transformation of the lexical entry *read* from (12) to (13) shows that the Middle Formation is an operation in which the agent θ -role is pre-syntactically realised as a non-projecting arbitrary participant (ARB in (13)). Since the agent is thereby saturated in the lexicon, it is not present in the syntactic component, which explains why middles cannot license the *by*-phrase, whose admissibility is otherwise assumed by the lexical approach to be contingent on some kind of structural presence of the external argument (e.g., for a passive sentence, which admits the *by*-phrase in contrast with a middle, Marelj (2004) assumes that the external argument is present in the syntax as a demoted oblique argument).

Notice, lastly, that lexical middle formation posits an argument-linking rule called *Externalize*, abbreviated with the superscript *Ext* in (12) and (13). This rule entails that the remaining θ -role is realised VP-externally; that is, as an external argument. The rule is assumed in order to explain a host of cross-linguistic data, such as the fact that middles morphosyntactically pattern with the intransitive unergative construction, which selects an external argument. For instance, in Dutch, middles – like unergatives – select the auxiliary verb *have* (14) in periphrastic tense constructions, whereas unaccusatives, which realise their sole argument VP-internally, select *be* (15).

(14) Dit vlees **heeft**/***is** altijd gemakkelijk gesneden. (Dutch middle)

this meat has / is always easily cut.

“This meat has always cut well.”

(15) De spanning **is**/***heeft** dagenlang toegenomen **de spanning**. (Dutch unaccusative)

the tension is/ has for-days increased.

“The tension has increased for days.”

(Examples taken from Ackema and Schoorlemmer 1994, 61, 64)

2.2 Introducing the External Argument in a Minimalist Theory of Grammar

In contemporary theories of grammar, however, there has been a longstanding aim to reduce the complexity of such a model – i.e., to make the grammar “more minimalist” in Chomsky’s terms (2001) – by placing all the compositional burden of word-formational processes on the syntactic component (e.g., Marantz 1997; Ramchand 2008). One of the problems of a non-minimalist grammar that employs pre-syntactic rules for altering argument structure is that it invariably

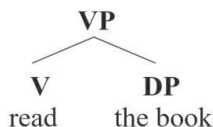
leads to what Ramchand (2008, 15) calls “massively stipulated homonymies”; in the case of middles, this is the idea that there are actually two separate entries for the verb *read* – one regular active (12) and one middle (13) – in the English lexicon, which is additionally suspect from the point of view of learnability (Borer 2004).¹ Consequently, what is needed from the point of view of such constructional minimalism is a theory of middles in which the structural and selectional quirks of the construction (i.e., the licensing of *with*-phrases and the inadmissibility of *by*-phrases, their generic interpretation, their patterning with unergatives) are all handled during the syntactic derivation.

I start the discussion by looking at how the argument structure of a predicate is built in a minimalist theory of language. Since the main concern is the status of the agent in middles, the crucial component for this purpose is Kratzer’s (1996) influential proposal that the external thematic role of a predicate enters the syntactic derivation outside the lexical Verb Phrase, which hosts solely the internal argument. In her proposal, a verb like *read* lexically denotes a relation between an event of reading and an entity (i.e., the patient) that is read in the event (16).

$$(16) \llbracket \text{read} \rrbracket = \lambda x_{(e)}. \lambda e_{(s)}. [\text{READ}(e) \wedge \text{PATIENT}(x, e)]$$

Note that the way the syntactic structure is built closely reflects the semantic requirements of a given predicate. Concretely, the merger of the lexical item *read* and the DP *the book*, which results in the syntactic structure in (17), semantically corresponds to functional application, in that the verb *read* denotes a function (16) that selects the denotation of the DP *the book* as its first semantic argument, as shown in (18).

(17) The syntax of VP



(18) *The semantics of merging V and DP*

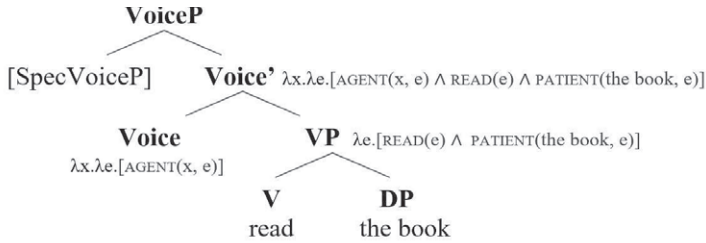
- a. $\llbracket \text{VP} \rrbracket = \llbracket \text{V} \rrbracket(\llbracket \text{DP} \rrbracket) = \llbracket \text{read} \rrbracket(\llbracket \text{the book} \rrbracket) =$
- b. $\lambda x_{(e)}. \lambda e_{(s)}. [\text{READ}(e) \wedge \text{PATIENT}(x, e)](\text{the book}) =$
- c. $\lambda e_{(s)}. [\text{READ}(e) \wedge \text{PATIENT}(\text{the book}, e)]$

At the next step of structure building, the external participant is introduced into the semantics of VP. To this end, VP merges in Kratzer’s system (1996) with a functional head labelled Voice, as in (19). Semantically, this head expands the denotation of VP, given in (18c), by transforming it into a two-argument function that selects an additional participant at the level of the intermediate projection Voice’; since *read* lexically denotes a dynamic event, the Voice head identifies this participant as the agent of the event.²

¹ Such stipulated homonymy is even more apparent with causative predicates, where it is assumed in the lexicalist framework that there are three separate entries for the verb *open* – (i) the anticausative entry, as in *This door opened*^{anticausative}, created by the process of anticausativisation, which involves pre-syntactic external argument deletion (Levin and Rappaport Hovav 1995); (ii) the middle entry, as in *This door opens*^{middle} *easily*, created by Middle Formation as described in Section 2.1; and (iii) the default causative active entry, as in *John opened*^{causative} *the door*.

² Some of the examples in the paper have bare plural nouns as internal arguments (e.g., *Physics books read easily*). Strictly speaking, such DPs are semantically complex functions, but for the purposes of this paper, I assume a simplified representation

(19) The syntax and semantics of VoiceP without an external argument



To derive a prototypical transitive sentence such as *John read the book*, what the syntactic computation needs to do is simply merge the DP *John* in the [Spec, VoiceP] position to saturate the open variable of Voice' (20b). The final semantics for VoiceP is given in (20c).

(20) **The semantics of VoiceP with external argument John**

- a. $\llbracket \text{VoiceP} \rrbracket = \llbracket \text{Voice}' \rrbracket(\llbracket \text{John} \rrbracket) =$
- b. $\lambda x(e).\lambda e(s).[\text{AGENT}(x, e) \wedge \text{READ}(e) \wedge \text{PATIENT}(\text{the book}, e)](\text{John}) =$
- c. $\lambda e(s).[\text{AGENT}(\text{John}, e) \wedge \text{READ}(e) \wedge \text{PATIENT}(\text{the book}, e)]$

2.3 A Syntactic Account of English Middles

There is an agreement in the syntactic literature (e.g., Bruening 2012, Legate 2014, Alexiadou, Anagnostopoulou, and Schäfer 2015) that VP-external valency reduction (that is, the omission of an overt external argument in middles, anticausatives, passives, etc.) occurs at the stage in which VoiceP is built. The proposal that I will now adopt for middles is taken from Bruening (2012, 29–31).

Bruening suggests that the derivation of a middle sentence proceeds initially in the same manner as that of a prototypical active transitive structure, in the sense that a VP containing the internal argument first merges with a Voice head introducing the open agent variable. The point of syntactic departure in the middle sentence, however, happens because it merges a semantic operator that selects an unsaturated Voice projection (i.e., the denotation of the intermediate category *Voice'* in (19)), and thereby blocks the merger of a referring DP as the external argument. The semantics for such an operator are given in (21).

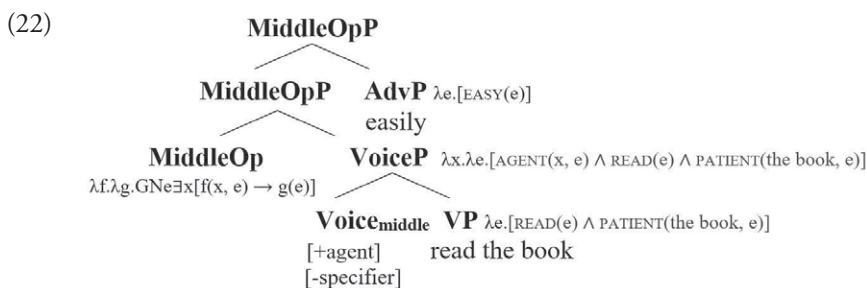
$$(21) \llbracket \text{MiddleOp} \rrbracket = \lambda f_{(e,(s,t))}.\lambda g_{(s,t)}.GNe\exists x[f(x, e) \rightarrow g(e)]$$

(Bruening 2012, 31)

According to (21), MiddleOp selects as its first semantic argument a syntactic category that logically corresponds to a function with an open agent variable, and maps it onto a scope where the agent variable is bound by an existential quantifier. The second argument fed into (21) is an event modifier of type $\langle s, t \rangle$, which corresponds to the adverbial modification in middles (i.e., an adverb like *easily* is interpreted as a function from easy events to truth values; see the syntactic tree in (22) below).

where they combine via Functional Application with the predicate in the same manner as the simple definite descriptor, which is of type $\langle e \rangle$, in (18c).

Syntactically, note that Bruening’s (2012) proposal is cast within a theory of bare-phrase structure where operators can be merged before a grammatical head – Voice, in this case – fully projects. Differently put, the semantics in (21) suggests that MiddleOp is merged in the [Spec, VoiceP] position, but this position is canonically (e.g., in X-bar theory, whose notation the paper has partially adopted) associated with nominal expressions (DPs saturating the agent variable), and not with operators that select their own semantic arguments. Although such an assumption is empirically and theoretically well motivated (see the discussion in Bruening 2012, 27–28), it seems that the whole derivation can be simplified – at least for ease of exposition – by assuming that MiddleOp heads its own phrase and selects a VoiceP which has not merged an external argument in its specifier slot. That is, the VP of a middle construction merges with a special Voice head, which introduces an open agent variable, but does not require a filled specifier slot.³ I thus propose that an English middle construction has the syntactic representation in (22).



Applying MiddleOp to the specifier-less Voice projection, the syntactic derivation arrives at the semantic representation of the middle sentence *This book reads easily* that is given in (23).

(23) **The interpretation of *This book reads easily***

- a. $\llbracket \text{MiddleOp} \rrbracket (\llbracket \text{VoiceP} \rrbracket) (\llbracket \text{easily} \rrbracket) =$
- b. $\lambda f_{(e,(s,t))} . \lambda g_{(s,t)} . GNe\exists x [f(x, e) \rightarrow g(e)] (\lambda x_{(e)} . \lambda e_{(s)} . [AGENT(x, e) \wedge READ(e) \wedge PATIENT(\text{the book}, e)]) (\lambda e_{(s)} . [EASY(e)]) =$
- c. $GNe\exists x [AGENT(x, e) \wedge READ(e) \wedge PATIENT(\text{the book}, e)] \rightarrow [EASY(e)]$

Since the existentially bound agent variable is within the scope of a generic quantifier, i.e. GN, the final interpretation of a sentence such as *This book reads easily*, given in (23c), is *Generally, whenever someone reads the book, she does so easily*.

Such a semantics and its corresponding syntactic derivation account for many of the properties of middles discussed in Section 2.1. First, recall that, cross-linguistically, middles do not pattern morphosyntactically with unaccusative sentences, which merge their sole argument VP-internally, but rather with unergative sentences, which merge their argument VP-externally, in that they select the auxiliary *have* instead of *be* in periphrastic tense constructions in languages such as Dutch (examples (14)–(15)). On the current account, the patterning with unergatives simply follows from the fact that middles contain a Voice projection whose head semantically brings about the external participant. Such a VoiceP is also present in unergatives and transitives,

³ This assumption is in line with recent work on the grammatical properties of the Voice domain (e.g., Legate 2014; Alexiadou, Anagnostopoulou, and Schäfer 2015), whose central claim is that languages employ a set of different Voice heads with unique selectional (e.g., a Voice head may or may not introduce the external participant variable) and syntactic (e.g., a Voice projection may or may not require a filled specifier slot) properties.

but not in unaccusatives, which is why they select *be*. Furthermore, note that the English middle construction can only be headed by a lexically transitive predicate (24a), in contrast with a prototypical unaccusative sentence (24b).

- (24) a. Obedient daughters **raise/*rise** easily.
 b. The sun **rises/*raises** in the east.

(Examples from Schäfer 2007)

An additional advantage of this syntactic approach is that it does not need to posit a special lexical operation whereby the external participant in the middle is realised as an arbitrary agent (Fagan 1992; Ackema and Schoorlemmer 1994; Lekakou 2004; Marelj 2004). The arbitrary flavour simply comes from the fact that the existentially bound agent variable x occurs within the scope of the generic operator (which binds a situation variable); that is, the final LF of a middle sentence in (23c), which corresponds to the paraphrase *Generally, whenever someone reads the book, she does so easily*, is interpretatively very similar to Fagan's (1992) proposed paraphrase *Anyone can read this book easily*, in the sense that "anyone" is simply "someone" who differs from one generic situation to another. Conceptually, then, such a syntactic account allows us to derive a middle sentence without recourse to a transformative phase in the lexicon that pre-syntactically turns a verb like *read*, which is inherently transitive, into a middle variant with an independently posited arbitrary agent role (cf. (12)–(13)).

The greatest advantage of the derivational syntactic account, however, is that it offers a principled formal explanation as to why a middle sentence licenses an instrumental *with*-phrase. Recall that, in this respect, the middle sentence in (25a) patterns with the regular active sentence in (25b), but not with the anticausative structure in (25c) formed from the same predicate.

(25) **The licensing of an instrumental *with*-phrase**

- a. **Middle:** This door opens easily with a key.
 b. **Active:** John opened this door with a key.
 c. **Anticausative:** The door opened (*with a key).

Bruening (2012, 27) proposes that *with* is interpretatively a function that selects the denotation of its syntactic complement DP, which denotes some instrument used by the agent, as its first semantic argument.

$$(26) \quad \llbracket \text{with} \rrbracket = \lambda_{X(e)} . \lambda f_{\langle e, \langle s, t \rangle \rangle} . \lambda y_{\langle e \rangle} . \lambda e_{\langle s \rangle} . [f(y, e) \wedge \exists e' \leq e [\text{USING}(x, e') \wedge \text{AGENT}(y, e')]]$$

Let us assume that there is an event e in which someone opens the door. The semantics in (26) say that there exists a subevent of e – namely e' –, in which a person interpreted as an agent y opens the door by using an instrument x . In other words, what the preposition *with* does semantically is it expands the denotation of the syntactic structure by introducing an additional participant that interpretatively corresponds to the instrument.

Syntactically, the key idea behind (26) is that a *with*-phrase can only attach to a structure which contains an open agent variable, as seen in the fact that *with* obligatorily selects as its second semantic argument a function of type $\langle e, \langle s, t \rangle \rangle$. On the syntactic account, middles are indeed built on top of such a structure (VoiceP in (22)), hence the reason why a *with*-phrase is admissible. By contrast, an anticausative structure such as (25c) is standardly analysed as either omitting a Voice

projection or containing one that is semantically vacuous, which means that the denotation of VP is not expanded to contain an agent variable.⁴ The denotation of a non-expanded VP is of type $\langle s,t \rangle$ (a function from eventualities to truth values), as in (18c), so an instrumental PP cannot be structurally adjoined to it, as it would result in a type mismatch.

I believe that this is, from the point of view of minimalist theory, the best way in which the Instrument Generalization, which states that “an [instrumental PP] requires the explicit (syntactic) or implicit (semantic) presence of an agent in order to be realized syntactically” (Marelj 2004, 116), can be accounted for in a formal manner. The key advantage of the syntactic approach is that it re-states this rather informal – and quite vague – distinction between an agent that is present only implicitly and one that is present explicitly in much clearer terms: the implicit agent in a middle is one that begins its grammatical life as an open variable denoting a volitional participant, only to be later on saturated by existential closure brought about by an operator such as (21). Hence, because the agent is at one point an open variable, the *with*-phrase is admitted.

3 The Role of the Adverbial Modifier

In this section, I propose an amendment to Bruening’s (2012) account related to the adverbial modifier, which is posited as a necessary requirement of the middle construction because MiddleOp introduces the generic operator GN. According to the literature on genericity (Krifka et al. 1995), a generic quantifier GN partitions the LF of a generic sentence into two parts – the restrictive and the nuclear scope. It is a necessary condition of such a two-part LF that the nuclear scope have semantic content (Krifka et al. 1995, 25–27), which explains why a sentence like *This book reads *(easily)* is ill-formed if *easily* is omitted.

Crucially, the semantics of MiddleOp currently predict that the LF partitioning is taken care of by the syntactic derivation itself; namely, by the fact that the operator requires an AdvP as its second semantic argument, which it then maps into the nuclear scope. I will now show that such a requirement is too strict to account for all English middles, and that the formal representation of MiddleOp should be simplified from its original formulation in (21), repeated here in (27), to (28).

$$(27) \quad \llbracket \text{MiddleOp} \rrbracket (\text{original version}) = \lambda f_{\langle e, \langle s, t \rangle \rangle} . \lambda g_{\langle s, t \rangle} . \text{GNe} \exists x [f(x, e) \rightarrow g(e)]$$

$$(28) \quad \llbracket \text{MiddleOp} \rrbracket (\text{revised version}) = \lambda f_{\langle e, \langle s, t \rangle \rangle} . \text{GNe} \exists x [f(x, e)]$$

What is key to the simplified semantics in (28) is that the adverbial modifier, although obligatory in many middles, is no longer a semantic argument of the operator itself. There are two pieces of evidence for this assumption and the consequent revision. First, there are middle sentences in English that are perfectly licit without an AdvP, as shown by the following two examples, taken from Marelj (2004, 125).

(29) This umbrella folds up.

(30) This dress buttons.

⁴ According to Schäfer and Vivanco (2016), an anticausative sentence like *This door opened* simply means *There was an event in which this door became open*; since *Voice* is either not merged or semantically inert, no specific type of external participation is entailed. The syntactic and semantic lack of an external participant makes the sentence compatible with describing a number of possible situations in which the door becomes open; the external participant might be a non-human causer (e.g., *The wind opened the door*), or there even might not be any apparent external cause, as is evident by the fact that an anticausative sentence admits the *by-itself* phrase: *The door opened by itself*.

Despite the absence of the AdvP, the LF of such sentences is still partitioned into a restrictive and nuclear scope, as required by the generic quantifier. According to Marelj (2004, 127–128), the LF partitioning has an extra-semantic source in contrast to the original semantics of MiddleOp in (27) – i.e., it is licensed by prosodic structure, in that “the focused part of an utterance with an operator such as [GN] is always in the [nuclear scope]” (Krifka et al. 1995, 27). What then licenses an adverb-less middle sentence like example (30) is the placement of focus stress on the verb *buttons* (McConnell-Ginet 1994). Such focus placement brings about the LF in (31), where (a part of) the denotation of the verb *buttons* is mapped into the nuclear scope.

(31) $\text{GNe}\exists x[[\text{C}(e) \wedge \text{agent}(x, e) \wedge \text{theme}(\text{this dress}, e)] \rightarrow [\text{buttoning}(e)]$

(Adapted from Marelj 2004, 127)

The LF in (31), in which C is taken to be a variable ranging over contextually relevant information, can be paraphrased as *Whenever someone does something to this dress in a contextually determined event, she buttons it*, where the contextually determined event is “most likely associated with some aspect of x putting on a dress in an appropriate way” (Marelj 2004, 128).⁵ Such an LF, however, is not predicted by the original formulation of MiddleOp in (27), which banks on the assumption that the LF partition necessarily requires the syntactic presence of an additional constituent (i.e., the adverbial modifier), which is then mapped into the nuclear scope. In other words, this assumption goes against the adverb-less middle example (30), as the partitioning of its LF takes place without the additional piece of structure.

The second piece of evidence lies in the fact that the operator’s requirement for a second semantic argument derives word order that is too rigid. To see this, recall from Section 2.3 that an instrumental *with*-phrase enters the derivation as a Voice adjunct. What is crucial is that this takes place before MiddleOp enters the structure, given that *with* semantically needs an open agent variable (26). Consequently, if MiddleOp had the semantics in (27), the word order would be invariably as in (32); namely, the AdvP would necessarily be higher in the structure than the *with*-phrase because of the second semantic requirement of the operator, making the standard word order in (33) difficult, if not impossible, to derive.

(32) ?This door opens with a key easily.

(33) This door opens easily with a key.

Additionally, it has been observed by Fellbaum (1986) that the AdvP cannot precede the verb in the middle construction (34), while such word order is possible in a non-middle anticausative structure (35):

(34) This book (*easily) reads (easily).

(35) Yesterday, the door (quickly) opened (quickly).

Schäfer (2007) claims that the difference in the potential placement of the AdvP follows from the fact that (34) is structurally richer than (35) (that is, it contains VoiceP) and from the additional assumption that the verb moves to the Voice head, as in (36a). By contrast, the anticausative sentence in (35) lacks the Voice layer, so the verb remains in situ (36b), and the adverb is able to precede it.

⁵ In this sense, a sentence like **This book READS* is still bad without the adverb because placing focus on *reads* leads to trivial information getting mapped into the nuclear scope, as all books are such that one can read them, whereas not all dresses are such that one can button them (Marelj 2004).

- (36) a. [TP *this book* [T' T [VoiceP [Voice' Voice+reads [VP *easily* [VP *reads this book*]]]]]]]
 b. [TP *this door* [T' T [VP *quickly* [VP *opened the door*]]]]

(The structures in (36) are modelled after Schäfer 2007.)

This fact can only be accounted for if the adverb is merged low in the structure as a VP adjunct, so before MiddleOp even enters the syntactic derivation. What follows, then, is that the adverb is not a semantic requirement of the operator itself. It is, however, needed in a sentence like *This book reads easily* by the generic quantifier because of the well-formedness condition on its bipartite scope structure (i.e., the nuclear scope mustn't be empty and must contain non-trivial information, cf. footnote 5). Crucially, this requirement on part of the quantifier is not built into the syntactic component, as predicted by the revised semantics of MiddleOp in (28), but holds at LF, given that it can be satisfied in middles that lack adverbs (examples (29)-(30)) by non-semantic means (i.e., focus placement).

4 The Slovenian *se*-Construction

In this section, I turn to some of the main grammatical characteristics of the Slovenian middle construction and contrast them with those of the corresponding English construction. Recall from Section 1 that Slovenian middles differ from English middles in two key ways. First, they contain an additional syntactic category in the form of the reflexive morpheme *se* (37).⁶ Second, they allow a non-generic interpretation (38), which is not admissible in the English construction (39).

- (37) Ta knjiga se bere zlahka.
 this book.NOM REFL read.3SG easily
 “This book reads easily.”

- (38) Ta knjiga se je včeraj brala.
 this book.NOM.FEM REFL AUX.3SG yesterday read.L-PTCPL.FEM
 “Yesterday, this book was read.”

- (39) *Yesterday, this book read.

Intended: “Yesterday, someone read this book.”

The general intuition in the formal literature is that *se* is the source of cross-linguistic differences; as Alexiadou (2010, 3) succinctly proposes, “the morphology we see in the alternation should be taken seriously and is the device that helps us explain why [superficial valency reduction] is freer in some languages than others”. Hence, it is the lack of *se* in English middles that limits their distribution in comparison to those in Slovenian.

⁶ Note that sentences (37) and (38) are similar to the Slovenian impersonal *se*-construction, in which the external argument DP (denoting the reader of the book) is also superficially absent from the overt structural representation, as in the following example, which is interpretatively equivalent to (37).

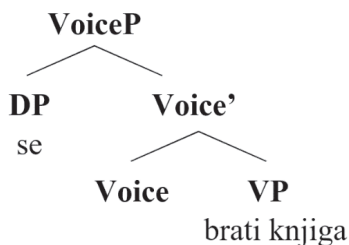
- (i) To knjigo se zlahka bere.
 this book.ACC REFL easily read.
 “This book reads easily.”

Rivero and Milojević Sheppard (2003) argue at length that an impersonal sentence such as (i) is a two-argument structure; in addition to the overt internal argument DP (*To knjigo*), the sentence contains a thematic agent argument, which is realised as a phonologically null pronoun. By contrast, sentences (37) and (38) contain only one syntactic thematic argument (i.e., the internal one), whereas the agent is present only semantically as an existentially bound agent variable; cf. section 4.2 below.

4.1 The Syntax of *se*

As regards the syntactic role of *se*, I will adopt a recent proposal by Alexiadou, Anagnostopoulou, and Schäfer (2015, Chapter 4) and Schäfer (2017), in which a reflexive morpheme like *se* is analysed as a nominal DP that occupies the specifier position of a VoiceP, as in (40).⁷

(40) **The VoiceP of a *se*-sentence (Schäfer 2017)**



The core syntactic idea underlying (40) is that a sentence with *se* is built up in the same manner as a prototypical active transitive construction in terms of argument structure, in the sense that it contains both an internal argument in the VP, *knjiga*, as well as an external argument in the specifier of VoiceP; that is, *se*. At first look, the only thing that distinguishes a *se*-sentence like (38), *Ta knjiga_{NOM} se je včeraj brala*, from a prototypical active transitive sentence such as *Marija_{NOM} je včeraj brala to knjigo_{ACC}* (“Yesterday, Mary was reading this book”) is the distribution of case, in the sense that the internal argument is assigned nominative case in the *se*-sentence while accusative case appears to be absent. Otherwise, the syntactic spine is the same in both sentences in the sense that either *se* or a referential DP such as *Marija* is merged as the specifier of a VoiceP.

Schäfer’s (2017, 5–6) account, however, posits that accusative case is actually present in the structure, and that it is assigned to *se*. Such a syntactic state of affairs arises due the fact that *se* is taken to be a minimal pronoun that is completely unspecified for φ -features, in contrast with a fully-fledged referential DP such as *Marija* in the ordinary transitive variant. Since Schäfer (*ibid.*) takes a set of valued and interpretable φ -features to be a prerequisite for a DP to be assigned nominative case, the probe that triggers syntactic agreement skips *se*, which lacks such features, and assigns nominative to the other referential DP; that is, *knjiga*. By contrast, Schäfer takes accusative case to be a type of dependent case that is assigned to a DP “if a different DP has valued the accessible phase head via AGREE” (2017, 6). This means that since the DP *knjiga* has been assigned nominative case by the regular process of syntactic agreement, *se* surfaces with dependent accusative case.

I take it that such an approach to the positioning of *se* and the consequent inverted distribution of structural case is conceptually on the right track for Slovenian *se*-sentences, since it captures two very important and quite general structural facts about the construction. On the one hand, it predicts why, in terms of the morphological marking on the main verb, *se*-sentences pattern with ordinary active sentences. This is shown by the fact that a *se*-sentence realises the main verb as an *l*-participle in a past tense construction, as in (38). The reverse verbal morphology holds of canonical Slovenian passives, where the main verb is an *n*-participle complementing the passive auxiliary *biti* (“be”) in the past tense, as seen in the sentence *Knjiga_{NOM} je bila brana*, which is the closest morphosyntactic equivalent of the English sentence *The book was*

⁷ Note that the syntactic derivation in (40) was originally proposed by Alexiadou, Anagnostopoulou, and Schäfer (2015) and Schäfer (2017) for the morphemes *sich* (in German) and *se/si* (in Romance languages).

being read. According to Embick (2004, 150), a verb surfaces with passive morphology only if it lacks an overt external argument. A *se*-sentence, however, does contain such an overt external argument, namely, *se*, hence its active morphology. On the other hand, this approach provides a straightforward explanation as to why the reflexive morpheme surfaces as *se*, and not for instance as dative *si*. That is, the morphophonological form is such precisely because *se* carries (dependent) accusative case.

4.2 The Semantics of *se*

The present contribution is tied to the semantics of *se*. First recall from Section 2.3 that the phonologically null MiddleOp is posited as quite a complex semantic operator – it introduces existential quantification over the agent variable as well as generic quantification over situations. This explains why an English middle sentence is ill-formed if it is not interpreted generically, as in (39). By contrast, the corresponding Slovenian *se*-sentence is perfectly well-formed with a non-generic (i.e., eventive) interpretation (38), so it seems that *se* is functionally a simpler but overt variant of MiddleOp that is not tied to a generic quantifier, as in (41).

$$(41) \quad \llbracket se \rrbracket = \lambda f_{\langle e, \langle s, t \rangle \rangle} . \lambda e_{\langle s \rangle} . \exists x [f(x, e)]$$

The semantics in (41) precisely illustrate Grahek’s (2008, 52) otherwise quite informal observation that *se* reduces the external argument by operating on a predicate’s argument grid in the syntax.⁸ Concretely under the present proposal, such argument reduction simply means that *se* targets a syntactic structure that contains an open agent variable introduced by Voice, and maps its denotation onto a scope in which it is existentially bound. (In terms of the θ -Criterion, this means that *se* saturates the external θ -role in semantics and thus precludes its assignment to an external argument DP in syntax.)

Evidence for (41) lies in the fact that Slovenian *se*-sentences block PPs denoting the external argument. While a canonical Slovenian passive allows its external argument to be expressed via an *od*-phrase (42a) or a *s-strani* (42b) phrase, both PPs are ungrammatical in *se*-sentences (43), although an implicit agent is present in the semantic representation of both constructions.

(42) a. Sin je bil pohvaljen od očeta.

son.NOM AUX BE praise.N-PTCPL by father

“The son was praised by his father”

b. Ta zadeva je bila že sprožena s strani mojega predhodnika.

this issue.NOM AUX BE already raise.N-PTCPL on part my predecessor

“This issue was already raised by my predecessor.”

(Examples in (42) taken from Grahek (2008))

⁸ In relation to the semantics of *se*, the current proposal is different from Schäfer’s (2016, 14), which posits that *se* does not make a semantic contribution and that the agent variable, which is introduced by a special type of Voice head that Schäfer calls “E-bound Voice” (*ibid.*), is existentially bound from the very start. However, this would mean that the syntactic structure does not contain an open agent variable, which on the present account is problematic for the fact that Slovenian *se*-sentences with causative predicates allow the *with*-phrase (example (7)), which is licensed if the agent is initially an open variable in the syntactic-semantic representation.

(43) a. Hiša se je gradila (*od delavcev).
 house.NOM REFL AUX build.L-PTCPL (by workers)

“The house was being built (*by workers.)”

b. Jagode so se jedle (*s strani mojega sina).
 strawberries.NOM AUX REFL eat.L-PTCPL (on part my son)

“Strawberries were being eaten (*by my son).”

The phrases are inadmissible in the two *se*-sentences in (43) because *se*, just like the null operator in English middles, requires as its argument an unsaturated Voice projection of type $\langle e, \langle s, t \rangle \rangle$, whose open agent variable it closes off with an existential quantifier (41). An *od*-phrase (42a) and a *s-strani* phrase (42b), however, are semantically equivalent to the English *by*-phrase in that they introduce the external argument into the structure, thereby closing the open agent variable by supplying the denotation of their complement DPs. Hence, admitting such phrases into the structure of a *se*-sentence would turn the denotation of the Voice projection into that of type $\langle s, t \rangle$, and thus preclude the merger of *se*.

In addition, note that only anticausative verbs that are reflexively marked, such as *odpreti* (“open”) in (44), admit the Slovenian instrumental *s*-phrase, whereas a verb like *počiti* (“burst”), which is not reflexively marked, disallows it (45). On the present account, the contrast arises because sentence (44) contains an open agent variable, which is responsible for licensing the instrumental phrase and which gets closed off by *se*. Conversely, sentence (45), lacking *se*, has a semantically vacuous Voice head, so the *s*-phrase is disallowed (consequently, the possible inference of an agent popping the balloon originates pragmatically (cf. Schäfer and Vivanco 2016)).

(44) Vrata se zlahka odprejo (s ključem).
 doors REFL easily open (with key).

“These doors open easily with a key.”

(45) Ta balon (*se) zlahka počí (*s škarijami).
 this balloon REFL easily pops (with scissors).

“This balloon pops easily (*with scissors)”

Let’s now return to the intra-linguistic properties of Slovenian *se*-sentences outlined at the beginning of this section. Under the present proposal, the generic *se*-sentence in (37), *Ta knjiga se bere zlahka*, differs from the eventive sentence in (38), *Ta knjiga se je včeraj brala*, only minimally. In both cases, *se* first existentially binds the open agent variable, resulting in the fact that the denotation of VoiceP (40) is a function in which only the event variable remains open, as in (46).

(46) $\llbracket \text{VoiceP} \rrbracket = \lambda e_{\langle s \rangle}. \exists x [\text{AGENT}(x, e) \wedge \text{READ}(e) \wedge \text{PATIENT}(\text{the book}, e)]$

The semantic difference between sentences (37) and (38) arises because, in the former sentence, a generic quantifier, which is available as an independent semantic operator in all languages and is prototypically triggered when the sentence refers to an unbounded set of events temporally located in the present domain (Chierchia 1995), is introduced to saturate the remaining open

event variable.⁹ Applied to (46), the generic quantifier brings about the by now well-known middle LF, paraphrased as *Generally, when (an arbitrary) someone reads the book, she does so easily.*

4.3 The Covert English Middle Operator and the Slovenian *se*

As a final note, let's consider the fact that English middles admit fewer verb types than the corresponding Slovenian *se*-sentences. Perhaps most strikingly, an English middle sentence is ill-formed with a stative verb (47), which is otherwise admissible in the corresponding Slovenian variant (48).

(47) *This castle sees easily from afar.

Intended: "Anyone can see this castle with ease from afar."

(48) Ta grad se zlahka vidi od daleč.

this castle.NOM REFL easily see from afar

"Anyone can see this castle with ease from afar."

The fact that (48) is a well-formed sentence should come as no surprise on the present account, as its grammaticality simply follows from the general sentence composition rules that have been proposed for Slovenian *se*-sentences. Concretely, the VP *videti grad* "see castle" merges with a Voice head introducing the external participant variable (in this case, the experiencer), which is then saturated when *se* is subsequently introduced as the specifier of VoiceP. The reason as to why (47) is ill-formed, however, is quite mysterious, especially given that MiddleOp is posited as an operator that simply targets a syntactic structure with an open variable denoting the external participant.

I am unable to offer a precise explanation of this fact, but conclude on a more informal and speculative note by tentatively proposing that the difference in grammaticality between (47) and (48) is due to the fact that the English lexicon lacks a lexical item such as *se*, which is a nominal pronoun. In other words, English middles are formed by an operator that is not lexicalised as an independent nominal expression, while the operator itself plays a more complex semantic role than *se*, invariably introducing generic quantification over the event variable. In short, because MiddleOp in English middles is a more complex operator than *se* in Slovenian sentences, it is also more limited in its application.¹⁰

⁹ For the eventive variant (38), I assume that existential closure is applied to the remaining event variable at TP, so the sentence is interpreted as *There was an event (temporally included in the past time interval denoted by yesterday) in which someone was reading the book* (Dowty 1982).

¹⁰ In this respect, an anonymous reviewer questions why MiddleOp is, on the present account, taken to be a different syntactic constituent (i.e., the head of its own phrase above VoiceP) from the reflexive morpheme *se*, which is posited as the specifier of VoiceP. The reviewer claims that such an analysis potentially misses a cross-linguistic generalisation about the grammatical properties that English middles and Slovenian *se*-sentences have in common. I would like to emphasise that this is precisely the point – the English middle construction and the Slovenian *se*-construction are syntactically different beasts. English middles, lacking a nominal element like *se*, are structurally deficient, which is why their well-formedness seems to be dependent on genericity (according to Härtl (2012), genericity obviates the requirement that a transitive verb like *read* combine with an external argument, which is shown by the fact that an eventive sentence like **This book read yesterday* is bad precisely because no such argument is present in its structure) and why they cannot be formed from just about any predicate type (example (47)), whereas the formation of *se*-sentences is unconstrained (example (48)). In other words, the present proposal highlights the fact that the equivalent interpretation of Slovenian generic *se*-sentences and English middles arises due to different – albeit – similar underlying operations (i.e., MiddleOp binds the agent and event variables in one fell swoop, while *se* only binds the agent variable). Furthermore, note that this is consistent with Lekakou's (2004) cross-linguistic observation that different languages may not employ the same grammatical strategies to form middles.

5 Conclusion

This paper has discussed the formation of English and Slovenian middle sentences from the perspective of a minimalist syntactic approach to argument structure. The paper has first presented the conceptual and empirical advantages of Bruening's proposal (2012), which posits that English middles are derived via a null operator that requires an unsaturated Voice projection, showing how his approach elegantly (i.e., without additional stipulations) accounts for certain key properties of the construction, such as the arbitrary reference of the agent. In addition, it has been proposed that the adverb is not a semantic argument of the null middle operator. Lastly, the paper has discussed the reflexive morpheme *se* in Slovenian *se*-sentences, and proposed that it has a semantics similar to that of the null English operator.

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