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The emergence of middle voice structures with and without agents

Abstract: This article presents evidence that, cross-linguistically or within the same language (family), there appears to be no morphosyntactic properties and/or structures specifically designated for the formation of middle voice constructions. What has been labeled a ‘middle voice construction’ is a semantic interpretation that, crucially, is blocked when an event variable is existentially closed by T. This article focuses on two ways of expressing a middle statement; namely (i) middle voice readings that occur with lexical-s passives, and (ii) adjectival middles – in Mainland Scandinavian, showing that properties such as the availability of an agent in middles pattern with whether an event variable is present (in the structure) or not. These are the result of two equally valid and productive grammatical structures: one where an event variable is present, an agent is projected and a modal operator blocks existential closure of the event variable, and another one where the event variable is not present in the structure, and therefore the operator is not necessary – hence impossible.

Keywords: middles, agents, event variable, operators, Mainland Scandinavian

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1 Introduction: there is no middle construction

One potential consequence of the dismissal of phrase structure rules (including X-bar structure, Stowell 1981, Chomsky 1981) and the hypothesis that the properties of syntactic constructions follow derivationally from the properties of the items selected in a numeration is that long-standing notions such as subject, passive voice or middle construction dissolve as potential primitives of analysis. What is more, following this line of thought we have no guarantee that what has been classified as a “passive” or a “middle voice construction” is a homogeneous concept cross-linguistically, or even within the same language and closely related

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languages. For instance, recently Gallego (2013) has argued that the same interpretation and linear sequence can be obtained through two different derivations that minimally differ in the items included in their numeration. Sensitive tests for constituency and movement differentiate between them, but their interpretation is essentially identical.

This possibility is even more acute when we consider notions or constructions that have been defined primarily on the basis of their semantic composition, that is, attending to properties of their interpretation that become obvious at LF. Middle voice constructions constitute such a notion. Following Lekakou (2005) and others, we assume that (1) defines what has been called a middle statement:

(1) Middles are generic dispositional ascriptions that predicate from a subject a set of properties that are not necessarily instantiated in a particular event.

What a middle voice construction is, then, is a particular interpretation of a (generated) morphosyntactic structure that contains a verb. The problem lies in the fact that this description is extremely vague, given that there are several conceivable ways in which this interpretation might be obtained. The statement in (2) represents our main theoretical claim in this article:

(2) There is no designated middle structure cross-linguistically, or even inside one language. Middle is an interpretation that can be obtained through different ways and means.

This view of middles has the advantage that it can be the starting point of a theory that explains an otherwise unexpected fact of natural languages: namely, that cross-linguistically no language has ever been discovered (that we know of) that has a special morphology that is only used for middle interpretations. The empirical goal of this paper is, in relation to this point, to address the problem that in some languages middle statements are compatible with syntactically overt agents, while in other languages a middle is incompatible with a syntactic agent. We will argue that this property depends on whether the structure that each language prefers to express a middle contains an event variable or not. Some languages, like Norwegian, use a passive construction for the middle and consequently allow agents; other languages, like Swedish, use an adjectival participle construction for middles, and consequently reject agents.

To take middles as (semantic) interpretations rather than structures has been proposed, although from a slightly different perspective, previously in the litera-
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What we would like to highlight here is that the statement in (2) has obvious consequences for some of the debates that have been carried on in the literature with respect to the proper definition and treatment of middle voice constructions from a cross-linguistic perspective. In this paper we concentrate on one of the debates about middle interpretations that has received significant coverage: whether or not the thematic role of agent is syntactically projected in a structure interpreted as a middle. Even though there is strong agreement that middle interpretations conceptually presuppose the existence of an agent, there is disagreement with respect to whether or not an agent can be overtly licensed in such structures. As we will see, most theories argue that agents are suppressed from the syntactic structure of middle voice constructions altogether (Condoravdi 1989, Fagan 1992, Ackema & Schoorlemmer 1994, 2002, Cabredo-Hoffher 1997, Steinbach 2002), while others argue that agents are, in principle, present in the structure but become unavailable as an effect of the semantic interpretation (Stroik 1992, 1999; Hoekstra & Roberts 1993) and others argue that middles are present in the syntactic structure in a similar form as they are preserved inside passives (as Lekakou 2005: §3.5.1, 2008 claims for Greek, French or Spanish, vs. Germanic languages).

In this paper, we adopt a compromised analysis by asserting that agents are in principle neither compatible nor incompatible with middle voice semantics. Whether the agent is syntactically available or not depends on the semantic event structure upon which the morphosyntactic requirements of a middle voice construction in a given language are dependent. Specifically, we argue that the presence or absence of an agent is an effect of whether the structure contains an event variable or not. Our primary empirical claim is summarized in (3) below:

(3) There is a positive correlation between the availability of an agent and the evidence of the existence of an event variable in the structure.

Consider what goes wrong – from the perspective of obtaining a middle voice reading – when a full-fledged verbal structure is projected in a declarative sentence. Assume, as we do in this paper, that an event becomes specific when the

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1 However, in order to derive similar patterns of data to those we will discuss here, Lekakou has to postulate, rather than derive, a division between unergativity and passivization which requires the assumption that derivations can be both pre-syntactic and syntactic (in accordance with lexicalist tenets, cf. Halle 1973, Williams 1981, Reinhart & Siloni 2005). In her theory, depending on whether aspect is grammaticalized or not, languages differ with respect to whether they suppress the agent lexically, giving an unergative verb as a result, or syntactically, getting a passive construction.
event variable is bound by Tense through existential closure, as in (4). In the normal case, when tense (T) is merged in the structure, it will license and bind this variable (cf. Roeper & Van Hout 1998), situating the event in a particular temporal interval. The interpretative effect associated with it is that the event is instantiated in a particular time, or, in other words, it is stated that the event has taken place. This is clearly the interpretation that we want to avoid in the middle statement. We assume that in such cases the event variable is satisfied and bound by existential binding.

(4)

\[
\begin{array}{c}
\text{T} \\
\text{vP} \\
<e>_e \\
\exists e[P(e) \& T(e)]
\end{array}
\]

In order to avoid this existential closure, which would trigger a reading where an event is denoted as opposed to a reading where a set of properties is predicated from a subject without any further entailment, two solutions are conceivable in principle. The first one is to introduce an operator between T and v that bounds the event variable and, through Vacuous Quantification (Hall Partee, Ter Muellen & Wall 1990, Kratzer 1995), bleeds existential closure by Tense.

(5)

\[
\begin{array}{c}
\text{T} \\
\text{Op} \\
\text{OP}_1 \\
\text{vP} \\
\text{v} \\
\text{VP} \\
\text{e}_e
\end{array}
\]

However, the same result can be obtained if vP is removed from the derivation, because, assuming that the event variable is placed in v, in such cases there would be no event variable that could be bound.

(6)

\[
\begin{array}{c}
\text{T} \\
\text{vP}
\end{array}
\]
There are, thus, at least two ways to reach the same result at LF – preventing an event variable from being existentially closed by T. The choice between these two options of arriving at that interpretation would be determined by the items selected in the numeration in each case (v or no v), but also by the availability of an adequate operator in that (variety of a) language that can behave as in (5). We expect, thus, that there would be potentially three kinds of languages with respect to these two ways of obtaining a middle interpretation:

i. The middle interpretation of a passive construction like (5) will be available for languages that have an operator with a by-virtue-of dispositional semantics.

ii. The middle interpretation of an adjectival participle construction, as in (6) would not be available to a language that, for whatever reason, cannot project V without v.

iii. Languages that have an adequate operator and can project V without v: they are predicted to be able to derive middles as in (5) or as in (6).

It would be impossible, within the limits of one paper, to explore all the different possible syntactic structures that could potentially license a middle reading from a cross-linguistic, typologically-diverse perspective. For this reason, we will concentrate on a small subset of cases that we believe demonstrate and clarify the initial plausibility of our claims. By concentrating on two distinct constructions where the linguistic evidence strongly suggests presence vs. absence of syntactic agents, we will be able to explore the other correlative properties of each structure, and see how syntax operates through different paths to reach outputs, which are equivalent from the perspective of a middle voice interpretation.

In this paper we argue that in Norwegian there are two distinct constructions that can receive a middle reading, one corresponding to (6) and, crucially, another one corresponding to (5). The properties of each one of these constructions are sharply different. One of the differences is that the first, but not the second, allows for an overt expression of the agent. We will show that, in correlation with this, there is evidence that (7a), but not (7b) contains an event variable. Example (7a) is a syntactic passive that receives a middle voice interpretation thanks to the presence of the operator; (7b) is an adjectival construction where the participial form is used because the event layer has been removed, from where a middle interpretation emerges.
This fabric wash-pass easily of all because it has a composition that rejects dirt.

‘This fabric is easy to wash by anyone because its chemical composition rejects dirt.’

b. Dette stoffet er lett-vaske-t (*av alle)

this fabric is easy-wash-ed (by all)

Intended: ‘This fabric is easy to wash by anyone.’

Although closely related to Norwegian, Swedish, for most speakers, rejects a middle interpretation of (5), and uses the structure in (6), which fails to overtly license agents, just as (7b) in Norwegian.2

(8) Den här boken är lätt-läst (*av nunnor)

this here book-def is easy-read (by nuns)

Intended: ‘This book is easy to read by nuns.’

In this paper, we provide a detailed analysis as to why Swedish appears to reject the co-occurrence of thematic agents in morphosyntactic structures associated with middle voice semantics, while Norwegian, in certain syntactic constructions, permits them.

2 It has to be noted right away that the terms ‘Norwegian’ and ‘Swedish’ are idealizations, as it is always the case when one considers languages that have different varieties. In the Norwegian varieties spoken in areas where bokmål is in contact with Nynorsk, such as Vestlandet, speakers report a pattern closer to what here we describe as Swedish: the passive construction does not receive easily a middle reading, and a participial construction similar to Swedish is preferred to express a middle statement – with correlative rejection of agents. Conversely, one anonymous reviewer, presumably a native speaker of Swedish, reports that given an appropriate context s/he can accept a middle reading in a passive construction like (i):

(i) Den här typen av hus riv-s lätt eftersom det är gjort av papp.

this here type of house demolish-pass easy because it is made of carton.

‘This type of house demolishes easily because it is made from carton.’

What is crucial for the purposes of this article is that speakers that accept a middle reading in (i) can also express an agent overtly in that construction. Thus, while some Swedish varieties are closer to the more general situation in Norwegian and vice versa, the generalization that we explore in this article is real: the use of the passive morphology for a middle allows an agent, and the use of the participial construction rejects a middle. See Lundquist (in press) for an analysis of the different properties of -s passives in Mainland Scandinavian languages.
Our paper adheres to the following structure. In the next section, §2, we introduce our main claim with respect to agent availability in structures interpreted as middles semantically: agents are only available when the structure chosen is essentially a verbal passive with a modal operator with a by-virtue-of semantics (Lekakou 2005). If the middle interpretation is obtained by removing verbal structure, agents are (perhaps unsurprisingly) not available. §3 provides further evidence for the distinct structure underlying each one of the two structures that arrive to a middle interpretation. §4 shows how our two structures license equally the main properties of middles. §5 takes a more detailed look at the structural properties of adjectival middles and presents some speculations about why Swedish accepts only one of the two construals. §6 sheds some light on the key theoretical puzzle exposed by our analysis; namely, how can middle voice semantics be assigned to two (slightly) different derivational structures? §7 concludes this paper and presents interesting theoretical concerns and relevant research questions resulting from our investigation discussed here.

2 Agents and middles

Obviously, each one of the two structures available for middle voice interpretation in Norwegian, (i.e. both adjectival and the one employing the lexical -s passive), comes with further consequences. Assuming, as it is standard, that the event-variable introducing $vP$ is the projection where agent arguments are introduced (cf. Chomsky 1995, Torrego 1998, Folli & Harley 2007, among others), the two constructions would differ with respect to the availability of agents in middle interpretations. Specifically, a construction like (7a) would be able to introduce agents syntactically, while a construction like (7b) might be able to still presuppose conceptually the existence of an agent, but will not be able to project it in the syntactic structure because $vP$ is missing.

This question – whether the construction licenses an agent or not – is one of the classic issues in studies focusing on the syntax and semantics of middle statements. It is generally agreed that middles are interpreted at a conceptual level involving an agent, and that, for instance, in (10) the statement is interpreted still as describing the propensity of participating in a causative event of reading, as opposed to an anticausative reading like the one that The window broke gets.

(10) This glass breaks easily.

There are other interpretations, though, that emphasize how difficult it is to find consistent agent properties in statements that are interpreted as middles:
Klingvall (2007), in line with Rappaport (1999), treats the English sentences in (11) as middles, independently of whether it is possible to understand a disposition to an internally caused event (‘this type of glass breaks easily because its structure is unstable’) or to an externally caused event (‘this type of glass breaks easily when someone hits it’). Depending on the modifiers that accompany the predicate, the internally-caused reading can be selected (11b), but also the externally-caused one (11c), which is accepted by some speakers in the presence of an instrumental phrase. Data like (11b) suggest that the middle interpretation does not even require a conceptual agent.

(11) a. This glass breaks easily.
    b. This glass breaks when the temperature changes.
    c. This glass breaks with a blunt object.

These problems – as well as the disagreements among a number of studies on this topic – are stronger when the question is directed toward the controversial issue regarding whether or not middle constructions actually project agents in their syntactic structure. A considerable part of the debate on the structure of middles concerns the exact place of projection for the potential agent (i.e., whether the agent is projected or not inside this particular structural position). The variety of analyses proposed disagree with one another in several key aspects, centrally among them whether the agent is suppressed from the verb’s argument structure and conceptually inferred (Ackema & Schoorlemmer 1995) or whether it is present somehow in the structure and blocked from appearing overtly instantiated by independent mechanisms (such as the absence of eventivity in the verb’s interpretation, Stroik 1999).

Our proposal in this article is that it is impossible to categorically connect agentivity with middle interpretations, because there is no clearly designated ‘middle construction.’ As a result of adopting this position, the middle interpre-

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3 As an anonymous reviewer points out, the conceptual agent is easily available in (8c), but not entirely impossible in (11b). What is crucial for us is that (11b) can be interpreted as a middle statement even if we do not assume that an agent causes the breaking of the glass.

4 The proposal that there is no designated middle voice construction and middle readings emerge from independent syntactic constructions like passives. This position has other consequences that we will not explore in this paper. A significant one – and we are grateful to an anonymous reviewer for directing our attention to this – is that part of the properties of middle readings can emerge in constructions that traditionally have not been analyzed as such. In English, a sentence like (i) has two properties of middle readings: the statement does not denote a specific event, but a disposition to participate in an event – John can be a baby who has not spoken yet, but who we assume to have English as a mother tongue –, and this disposition de-
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tation can be obtained both with and without the head that defines agents, which is tied to the presence of an event variable. Even more, one language might allow two constructions interpreted as middles, one with and another one without agents, which is the exact situation that appears to play out in modern Norwegian.

2.1 Languages with agents overtly projected with middle interpretations

Strong evidence for the syntactic expression of an agent would be the overt presence of a DP introduced by a preposition, which in other constructions involving agents such as the passive is responsible for introducing agents, and with a clear entailment that the description of the properties involves the potential event being performed by that constituent.

In this respect, it seems inescapable that languages could vary with respect to their licensing of middle voice constructions from a morphosyntactic perspective. Contrast Spanish (12a) with English (12b). Spanish speakers do not reject agents with middles, provided they are generic,\(^5\) but this possibility does not exist in English.

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\(^5\) More in general, Spanish only allows agents with the passive form of stative verbs to the extent that they are generic. For the relation between stativity and genericity, see Kratzer (1995) and Chierchia (1995).

(i) John speaks English.

Thus, middles are not only parasitic of different syntactic constructions, but arguably what has been described as a middle reading emerges from the combination of different, in principle independent, semantic ingredients – dispositionality, by-virtue-of, kind-denotation, non-agentive subjects, etc.

(i) Juan es conocido por {todos / *Pedro} Juan is known by everybody / Pedro
(12) a. *Este libro se lee con gusto por niños y mayores.*
   
   this book se reads with pleasure by children and grown-ups.

   b. *This book reads with pleasure (*by children and grown-ups)*

   One interesting difference between English and Spanish is that Spanish uses passive/non-agentive morphology in the middle statement in (12) (e.g. se). English, which does not use passive/non-agentive morphology to express the middle, allows for for-phrases to license potential agents, but not by-phrases.6

(13) a. *This treatment of Norwegian middles reads easily for most linguists.*
   
   b. *This car sells easily for talented salesmen.*

(14) *This car sells easily by talented salesmen.*

Some linguists, such as Stroik (1992, 1995, 1999, 2006), argue that the DP present in the for-phrases in (13a) and (13b) are in fact true agents, while others, such as Hoekstra and Roberts (1993), Lekakou (2005) and Klingvall (2007), maintain that rather than agent-interpretation, these DPs are better described as Experiencers. Under this view, the phrase for talented salesmen in sentence (13b) does not state that any talented salesman actually sold the car under discussion. Rather, what is stated here is that it is the car’s general/generic property of being easily sold that holds for any talented salesman. As clarified by Klingvall (2007:134), “Agents are disallowed because they presuppose events, and, as stated, middles do not entail the existence of events. Although Agents are disallowed, Experiencers can be permitted. The Experiencer is the one for whom the property holds, and moreover corresponds to the potential Agent.” As a result, the availability in English of what seems to be a minimal clause predicated from the agent is dependent on whether the state denoted by it can plausibly be experienced while taking part in the event (data from Lekakou 2005: 96):

(15) a. *This bread cuts easily when sober.*
   
   b. *This wall paints easily when not half asleep.*

(16) #*This bread cuts easily when naked/sad/happy.*

6 Stroik (2006, p.c.) suggests that the reason why for-PPs can license (potential) agents while by-PPs cannot in middle voice constructions reduces to the attachment site of these PPs. According to Stroik, for-PPs attach to VP whereas by-PPs attach to vP. The reader is directed to Stroik (2006) for more details of this analysis.
In examples (15a) and (15b), the secondary predicates specify when a particular property can be experienced. The ill-formedness of (16) is due to experiencing those states being irrelevant to a given/particular experience at the same time the properties of the grammatical subject. As such, these conditions are closely tied with the EXPERIENCER, not with the AGENT: “this means, then, that a secondary predicate does not restrict the disposition itself, although one might get that impression at first glance” (Klingvall 2007: 135).

In this paper we adhere to Klingvall’s claim and explore one of its consequences: agents can only be projected syntactically when an event variable is present in the structure. The immediate consequence of this claim is that there should be a positive correlation between the existence of an event variable and overtly licensing the expression of an agent. In its simplest technical implementation, this correlation can be codified if agents – perhaps as opposed to involuntary causers, Folli & Harley (2007) – are introduced as specifiers of vP (Chomsky 1995). Under this assumption, the functional head that defines the event variable of a predicate also simultaneously endows it with dynamicity.

Consequently, when vP is present in a structure that is eventually interpreted as a middle, agents will be available and there will be an event variable; when vP is absent, agents will not be available and there will be no event variable. Moving forward, throughout the remainder of this paper we will continue to refer to these units as AGENTS, rather than attempting to disambiguate the differences between “agents” and “experiencers.” This, of course, is not an attempt to sweep this important debate under the rug at this time. On the contrary, we infer that the findings of our analysis are a step forward toward solving this puzzle, which we leave for future research endeavors.

As the attentive reader certainly has noted by now, our proposal and its technical implementation takes side with the proposals that argue that true agents – perhaps as opposed to causers – are introduced by the same head that contains an event variable (the strong little v head of Chomsky 1995). We therefore part ways with the line of research started by Kratzer (1996) and continued by many other authors (see e.g. Pylkkänen 2002, Alexiadou, Anagnostopoulou & Schäfer (2006), Folli & Harley (2007), among others). However, our approach is not
necessarily incompatible with a split-\(vP\) view of verbs. First, some approaches, while accepting that Voice\(P\) is an independent head, still introduce agents in \(v\) (Merchant 2013); secondly, it might be that Voice and \(vP\) can both introduce external arguments and assign to them different theta-roles (as Folli & Harley 2007 suggest). Third, even if all external arguments are introduced in Voice\(P\) (contra the empirical evidence presented in Folli & Harley 2007 or Merchant 2013), this does not eliminate the possibility that the agentive interpretation requires an event variable; other interpretations could be available if the event variable is not present, but not an agent reading. What is crucial for our proposal is that, at a syntactic level, agents (vs. causers, for instance) cannot be present in structures without a syntactic event variable.

2.2 Agents in Norwegian and Swedish

As stated in the introduction of this paper, even within the same language, middle statements can vary with respect to whether they accept or reject the overt expression of agents. Our claim is that this depends on whether passive structures can also be used for a middle statement or not. Thus, a language that allows middles to carry overt syntactic agents is a language that uses passive constructions as one of the ways to express middles, something that is made possible by the availability of an operator that prevents an eventive reading.

Here we illustrate this point with Norwegian examples. In the following sentence (18a), a middle interpretation is obtained and the agent can be projected overtly. Notice that, as in the case of Spanish and unlike English, Norwegian uses passive morphology -\(s\), which marks in Norwegian the so-called \(s\)-passive– in this structure. The structure of the examples in (18) is, for all intents and purposes, that of a passive construction. The middle voice interpretation in Norwegian is, thus, built over a passive construction.

\[(18)\]

a. **Denne typen hus gjen-opp-bygge-s lett av alle.**
   Lit. this type house again-up-build-pass easy of everyone
   ‘This kind of house can easily be rebuilt by anyone.’

b. **Denne bandasjen fjerne-s lett fra huden.**
   this bandage-DEF removes-pass easily from skin-DEF
   ‘This bandage is easy to remove from the skin.’

Some Norwegian speakers accept the sentence in (18b) to express the characteristics of a type of bandage that is easy to remove from the skin, and can therefore
use it in a context where it is clear that the event expressed by the verb has never taken place: for instance, when that sentence is part of the theoretical description of a new bandage design that is being submitted to a pharmaceutical company so that they consider producing it.

As an anonymous reviewer points out, the question is how different are the examples in (18) from passive sentences. Our claim is precisely that (18) are passive structures. The syntactic structure has all the ingredients of a passive, but, in addition to it, there is an additional constituent that, as we shall see, gives rise to a middle interpretation.

There are two differences between the structure in the examples in (18) – passives with a middle reading – and a run-of-the-mill passive, and they are both semantic in nature. The first difference has to do with whether there is an instantiation of the event, i.e. whether it is interpreted that the event has taken place already involving those participants. A sentence like (19) is a passive without a middle reading because it must be interpreted that at least some entity belonging to the immigrant class has already been identified with that database.

(19) Innvandringer fra Spania identifiseres ved hjelp av en database.

‘Spanish immigrants are identified through a database.’

Secondly, example (19), which is a passive without a middle reading, does not have a by-virtue-of reading; that is, it does not follow from (19) that the identification through a database is possible thanks to any of the internal properties of the subject. These two ingredients, namely, dispositional semantics vs. instantiated event and by-virtue-of readings, are made possible, in our analysis, thanks to an operator that scopes over the passive predicate, as we will see in §4. Even though both (18) and (19) are syntactically passive, the examples in (18) involve also presence of that operator.

Contrast the kind of passive-middle in (18) with the following sentence, also a middle statement in Norwegian, but this time, one that does not allow the projection of the agent because it does not take advantage of a passive syntactic construction.

(20) Denne typen hus er lett-byg-d (*av alle).

Intended: ‘This type of house can easily be built by anyone’
Although it possesses a lexical verbal passive -s morpheme, Swedish is unable to express the middle statement with this form of the verb. Example (21a) is only interpreted as a habitual statement where the event must have taken place, that is, the bandage must exist and have been habitually removed from the skin for the sentence to be true. In order to express a middle statement a copulative sentence involving a participial adjective with an adverbial modifier and the verb to be is used (21b); note that this is the same construction as (20) in Norwegian.

(21) a. #Detta förband ta-s bort lätt från huden.
   this bandage take-pass away easily from skin-DEF
   ‘This bandage is normally removed easily from the skin’

b. Den här bok-en är lätt-läst.
   this here bok-DEF is easy-read
   ‘This book reads easily’

The sentence (21a) in Swedish is interpreted as a (habitual) passive. As, for example (21b), it is similar to the Norwegian equivalent in that it rejects the overt licensing of agents.

(22) *Den här bok-en är lätt-läst av alla.
   this here bok-DEF is easy-read of everyone
   Intended: ‘This book reads easily by everyone’

As we will see in §3, other properties correlate with each one of the two structures. Before moving on, we briefly discuss the acceptability of the middle interpretation with the lexical-s passive in Norwegian.

2.3 Acceptability of the middle reading of a lexical-s passive in Norwegian

The middle interpretation of the verbal structure with the lexical-s passive is not accepted equally by all Norwegian speakers and is not possible with all verbs. We conducted an experiment providing 18 native Norwegian speakers – researchers, lecturers and students – with a set of sentences where the -s form of the verb was used in a middle context to rate from 1 to 5 (with 1 being completely unacceptable; 5 being perfectly acceptable). The context was provided to the informants; they all involved situations where a habitual interpretation of the verb form was impossible, because the event clearly had not ever happened at that point. The con-
text was set to cases where the statement had to be interpreted as part of the project description of the properties of a non-existent entity that someone was sending a company in order to convince them of producing such a product for the first time. For instance, we provided them with a context where a researcher is trying to get funding from a company in order to build a prototype of a house made of a substance that makes it easy to rebuild in case of an earthquake. The researcher sends as part of the project description the blueprint of the house and explains:

(23) Denne typen hus gjenn-opp-bygge-s lett fordi det er laget av papp.
‘This type of house is easy to build up again because it is made of carton’

15 of our 18 speakers gave very high marks to this sentence in that interpretation (4 or 5), although some of our informants noted that the sentence is not idiomatic in this reading, and that they would prefer to use a tough-construction like (24).

(24) Denne typen hus er lett å gjenn-opp-bygge fordi det er laget av papp.
‘This type of house is easy to rebuild because it is made of carton’

The following sentence was ranked as a “5” (highly acceptable) by almost all our informants in a context where it is part of the description of a non-existing type of bandage that someone submits to a pharmaceutical company for consideration. Again, some informants noted that it is not idiomatic in their use of Norwegian, and that they would prefer a tough-construction.

(25) Denne bandasjen fjerne-s lett fra huden.
‘This bandage is easy to remove from the skin’

Based on our pilot research findings, the differences between speakers do not appear to be dialectal. If anything, impressionistically, younger speakers tended
to accept the construction better than older ones, but the sample of speakers interviewed is admittedly not large enough to allow for any generalization. However, the age difference seems to suggest that Norwegian, which used to be like Swedish in being unable to associate a middle reading to an s-passive, is moving towards a situation where this interpretation is allowed.

In light of these initial findings, we propose that there are three factors that are playing a role in the different acceptability of these structures as middle statements for Norwegian speakers. The first one is the independent availability of adjectival structures to express these statements, particularly the adjectival participle and the tough-construction. Tough-constructions are not homophonous with another kind of statement and transparently and unambiguously ascribe properties to the subject without entailing participation in an actual event.

(26) Denne boken er lett å lese. Norwegian
this book-def is easy to read

(27) Denna bok är lätt att läsa. Swedish
this book is easy to read

In contrast, the use of -s also allows for a habitual passive interpretation. Plausibly, the pragmatic principle that encourages speakers to be as clear as possible in their utterances makes some of them prefer any of the two alternative solutions, if they are independently available given the grammatical properties of the verb. Some of the individual preferences seem to be related to this, with some speakers accepting the use of the vague form better than others.

A second factor that influences the acceptability of these sentences as middle statements has to do with the aspectual modifiers in the utterance. One crucial difference between the participial construction and the verbal one is that in the former there is no event variable. Based on this structural difference, when the verb contains modifiers that quantify or modify this event, the participial structure is impossible (mainly because it lacks the object that the aspectual constituent modifies) and many speakers find the verbal construction more acceptable. This is what happens with the sentence in (20), which contains both a resultative (opp-, ‘up’) and an iterative (gjenn- ‘again’). In contrast, when the verb does not contain such modifiers, as in (28), the acceptability was, in general, lower in a

7 8 of the informants were between the ages of 19 and 25; these are the speakers that most systematically accepted the middle reading with the passive. However, another speaker that accepted these interpretations without problems is 63 years old, which suggest that the age data are not systematic either.
middle context, although it still received the evaluation mark of “4” (highly ac-
ceptable) for many speakers.8

(28) *Denne typen vogn skyve-s lett fordi den nye*  
This type trolley push-PASS easily because the new  
*modellen har en ny type hjul.*  
model has a new type wheel  
‘This type of trolley is easy to push because the new model has a new type of  
wheel’

The causativity or inchoativity of the verb also plays a role for some speakers.  
Although marginally acceptable for a few speakers, example (29) received in gen-
eral very low grades in a middle context. In contrast, some speakers that rejected  
(29) found example (30) acceptable as a middle statement. The difference be-
tween the two predicates has to do with external vs. internal causation. A car is  
driven by an external causer, but it can start its engine based on internal proper-
ties of its functioning.

(29) *Denne bilen kjøre-s lett fordi denne nye modellen*  
This car drive-PASS easily because this new model  
*har et forbedret kjøresystem.*  
has an improved driving-system

(30) *Denne bilen starte-s lett fordi denne nye modellen*  
This car start-PASS easily because the new model  
*har et forbedret system.*  
has an improved system

‘This car is easy to start because the new model has an improved system’

Almost all of our informants accepted the sentence in (31) and assigned a 5 (per-
fectly acceptable) to it, which is necessarily externally caused. One of the differ-
ences between (29) and (31) is that the verb is atelic in the first but telic in the

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8 In correlation with this, it should be noted that one anonymous reviewer reports that the two  
native Norwegian speakers s/he consulted accepted (i), which is a version of (23) without aspec-
tual modifiers. Thus, aspectual modifiers might force a passive-middle, but the passive-middle is  
available to at least some Norwegian speakers even when the modifiers are not present.

(i) *Denne typen hus bygge-s lett av alle.*  
This type house build-PASS easy by everyone  
‘This type of house is easy to build for everyone’
former, and it expresses a change of state. Indeed, telic change-of-state or change-of-location verbs seem to be more acceptable as verbal middle statements than atelic verbs, for reasons that remain obscure to us.

\[(31) \text{"Dette stoffet vaskes lett fordi det har en utforming som avviser skit."} \]

This fabric wash-pass easily because it has a composition that rejects dirt.

‘This fabric is easy to wash because its chemical composition rejects dirt.’

Finally, there seem to be preferences for some verbs in these constructions over others. One of our informants, who belongs to an older generation and rejected all the proposed examples as non-idiomatic, volunteered one verb with which he can get the middle interpretation: få ‘get’, which can express a non- causative event and denotes a telic change.

\[(32) \text{"Riggen er liten og veier lite, få-s lett inn i f.eks stationsvogn."} \]

rig-def is small and weighs little, get-pass easily in to e.g. station wagon.

‘The rig is small and has little weight, so it is easy to get inside the station wagon.’

It seems, therefore, that the -s construction can be used by at least some Norwegian speakers as middle statements in a variety of different environments. Admittedly, a more detailed analysis of exactly which classes of verbs (generally) allow and disallow a middle voice reading in connection with the lexical-s passive morphology, which we leave for future research.

### 3 A comparison of the grammatical properties of adjectival and verbal middles

In this section we compare the grammatical properties of the verbal middle construction with the passive -s morpheme in Norwegian to those of the participial construction used in Swedish. We will see that the independent evidence suggests, as we have advanced earlier in this paper, that the verbal middle contains an event variable which is absent from the participial construction, and that – for most Norwegian speakers – the verbal construction projects an agent. In other words, and to be clear: the empirical evidence suggests that Norwegian can use a
syntactic structure that, for all intents and purposes, corresponds to a passive. The passive construction, even in the context of a middle interpretation, is able to project an agent and contains an event variable. The middle reading, as we will argue in the next section, is built over this passive construction by introducing an operator that is responsible for preventing that the event variable is bound by tense.

Consider, for starters, an example such as (33), which can be interpreted as a middle statement for younger speakers of Norwegian. Here, the middle is marked through the verbal affix -s, which attaches to verbal bases. The question at this juncture is how many verbal projections are present in the middle reading.

(33) Denne typen hus gjenn-opp-bygge-s lett (fordi det er laget av papp).

‘This type of house is easily rebuildable because it is made of paper.’

First of all, it seems that the verb to which the -s attaches includes the syntactic projection that introduces the agent, at least for some speakers. Direct evidence of this comes from the fact that these Norwegian speakers accept an overt prepositional phrase (34a) interpreted as the agent of the potential event and, crucially, marked with the same preposition that introduces the agent in other cases (34b).

(34) a. Denne typen hus gjenn-opp-bygge-s lett av alle.

‘This type of house is easily rebuildable for everyone.’

b. Denne boken ble skrevet av Ibsen.

‘This book was written by Ibsen.’

Contrast the situation with English (35), where the preposition used in such cases is one used to mark the beneficiary. This shows that one cannot claim that middles always contain, or always lack, syntactic agents. Thus, the contrast provides support for the idea that something structural takes place in Norwegian to allow the presence of an agent: we claim that it is precisely that Norwegian, but not English, uses a passive structure.

(35) This kind of book reads well for university teachers.

What about Swedish? Swedish cannot interpret the verbal passive construction as a middle and uses an adjectival structure composed of a participle and an
adjective meaning ‘easy’, ‘difficult’, ‘fast’, ‘slow’ or other predicates whose concep-
tual semantics allows them to be taken as predicates of actions. This modifier
is compulsory, and without it the sentence cannot get a middle interpretation.

(36) a. Den här boken är lätt-läst.
    this here book is easy-read
    ‘This book is easy to read.’

b. Varm metall är mera lätt-hamrad.
    warm metal is more easy-hammered
    ‘Warm metal hammers easier.’

c. Stora väggar är inte så lätt-målade.
    big walls are not so easy-painted
    ‘Big walls don’t paint easily.’

As pointed out by Klingvall (2007, §6.1.1; 2011), the Swedish middle employs
a passive-like structure where a past participle is present.9 We demonstrate
here that Swedish exhibits empirical evidence that suggests that this con-
struction contains a very impoverished verbal structure. In fact, we directly
follow Klingvall’s (2007, 2012) analysis of Swedish middle voice constructions,

9 Klingvall (2007: 128) points to an observation originally put forward by Sundman (1987) that in
limited, unproductive environments Swedish exhibits a construction that strongly corresponds
to an English-type middle:

(i) Den här boken säljer väldigt bra.
    this here book sells very well
    ‘This books sells very well.’

Although this construction is fairly unproductive in Swedish, it can be used to create structures
related to middles, which Klingvall (2007, Chapter 5) refers to as Instrumental dispositions (from
Klingvall 2007: 129):

(ii) Den här kvasten borstar bra.
    this here broom sweeps well
    ‘This broom sweeps well.’

(iii) Den här maskinen syr bra.
    this here machine sews well

Note, however, two properties of these constructions, which leave them outside of the scope of
this paper. First, crucially for our purposes, it does not contain passive morphology. Secondly,
the subject is not a (semantic) object, but a non-animate initiator of the event described. The
object is interpreted generically and the subject easily allows a type-reading, properties which
suggest presence of a generic operator, but

‘This [sewing] machine sews well.’
where she asserts that the construction displays the properties of an adjectival participle.

Compare the availability of overt agents in Norwegian with the following data that suggest that the adjectival construction cannot project an agent (example 35b from Klingvall 2007: 138). Other modifiers are possible, like a beneficiary, but it is not possible to introduce an agent PP marked as such.

(37) a. Den här bok-en är lätt-läst (*av nunnor)
   this here book-DEF is easy-read (by nuns)
   b. Den här uppsats-en är lättläst (*av mig)
   this here paper-DEF is easy-read (by me)

3.1 Evidence for presence or absence of an event variable

In correlation with the availability or lack thereof of an overt agent, we have phenomena that diagnose for presence or absence of an event variable.

Even though both constructions – the passive and the participial – are morphologically built from verbs, the verbal construction in Norwegian displays the expected behavior of the units that contain an event variable, while the participle structure used in Swedish behaves as expected from a unit that does not have it.

One first reason that indicates this is that the verbal middle can combine with QPs that quantify over events.

(38) Denne typen produkt bruke-s med hell mange ganger
   this type product use-pass with success many times
   før det må bli erstattet.
   before it must be replaced
   ‘This kind of product can be used with success many times before it must be replaced.’

The sentence in (38)10 is accepted by the Norwegian speakers that allow s-middles in the reading where given the properties of this new kind of product – a cleaning flannel that has not been produced yet – it can be used with success a number of times.

10 An informal query done by one anonymous reviewer – whom we thank here – confirms this pattern. Other quantifiers also give acceptable results with the passive-middle in Norwegian:

(i) Denne typen produkt bruke-s med hell {gjentatte ganger / ofte} .
   this type product use-pass with success {repeated times / often}
times before it has to be replaced. In this reading, there is clearly a quantifier over the events in which the subject can potentially take part.

Compare this with the participial construction used in Swedish. There is evidence here that the participle does not include in its denotation any event variable and displays the expected behavior of a qualitative adjective, which denotes qualities rather than states. Note first that the participle can combine with degree modifiers unavailable for verbs.

(39) *Den här boken är väldigt lett-läst.
   this here book is very easy-read

In contrast, Swedish middles do not appear to license event quantification. In the same intended meaning of (38), the event quantifier *mange ganger ‘many times’ is not allowed (cf. 40). This is an instance of Vacuous Quantification: the operator does not find an appropriate variable under its scope. Some Swedish speakers can interpret the modifier as degree, meaning ‘extremely’, but none accepts the reading where an event repeats many times (i.e. a repetitive reading).

(40) *Den här sortens produkt är (*mange ganger) lätt-använd.
   this here type product is many times easy-used
   Intended ‘This type of product can be used several times.’

One could hypothesize, in contradiction to the analysis we present here, that perhaps what is ungrammatical in (40) is related to the stative or atelic nature of the participial construction. A consideration of other data involving event quantification shows that this cannot be the explanation. Rothstein (1999: 364 et seq.) shows that verbs, even stative verbs, have event variables that can be quantified over, in contrast to adjectives. Remember that states are both atelic and non-dynamic. Consider the minimal pairs in (41) and (42).

(41) a. The witch made her love the prince every time he drops in to visit.
     b. *The witch made her fond of the prince every time he drops in to visit.

(42) a. The witch made her know Latvian three times.
     b. The witch made her clever three times.

11 Similarly, other quantifiers also give negative results with this construction, as again one anonymous reviewer tested (whom we once again thank for his/her efforts):

(i) *Dette stoffet er lett-vasket {gjentatte ganger / ofte}.
    this fabric is easy-washed {repeated times / often}
In (41), we see a clear contrast between having a stative verb embedded under *make* and having an adjective: only the first can be used as a variable under the scope of the temporal quantifier. In (42a), the sentence is ambiguous; the most salient reading is one in which there has only been one spell making someone know Latvian one day and forget it after a while, then know it again and forget it again, then know it again. That is: the adverbial expression can quantify over the stative verb, which means that it contains a variable. It can also, as expected, quantify over the verb *make*, meaning that there were three separate spells of making her know Latvian. However, in (42b) the reading is necessarily that there are three different spells, each one of them making her clever, and we cannot interpret that there is only one spell. This is expected if the adjective does not contain any event variable.

What this suggests is that nothing prevents stative verbs from being quantified over. Note that the predicate *know Latvian* is, presumably, an individual-level stative predicate (Carlson 1977/1980), and even in that case, quantification is possible. Given this background, we conclude that the contrast between (38) and (40) is related to the verb / adjective contrast, and that, even if the participle in (40) is derived from a verb, it lacks one crucial ingredient of verbal predicates: an event variable. We will return to this issue later, as this will lead us to a minimal modification of Klingvall’s analysis of adjectival middles.

The absence of an event variable in the participial middle in contrast to its presence in the verbal one is also visible in the co-occurrence with aspectual prefixes and particles. In Norwegian, we have already seen an example where the verbal middle statement hosted two aspectual markers (43).

(43) *gjen-opp-bygge-s*  
*again-up-build-PASS*

This was one of the examples that our Norwegian speakers assigned high marks to, and it contains two different kinds of modifiers that operate over the aspectual structure of the verb. The prefix *gjen* – ‘again’ can invoke either a restitutive or a repetitive meaning. Interestingly, and in contrast with *igjen* ‘again’, *gjen* requires the presence of an event in the structure. *Gjen* is ungrammatical with stative verbs such as *elsker* ‘to love’ in example (44a), even though one could expect a reading where a state is restituted in such cases – a reading that is available with *igjen* ‘again’ (44b) (see von Stechow 1996 for a proposal about *wieder* ‘again’, the German equivalent of this adverb).

(44) a. *Jeg gjen-elsker det.*  
*I re-love it.*

Intended: ‘I love it again’
b. Jeg elsker det igjen.
   I love it again
   ‘I love it again’

This property is also shared by other repetitive / restitutive prefixes in other languages, cf. English and Spanish re-. This suggests that repetitive / restitutive prefixes require an event to be present in the structure, and therefore can be taken as a diagnostic for the presence of an event variable.

(45) a. *I re-love it.
   b. *Me re-gusta.
      me re-likes.
      Intended: ‘I like it again’

The second kind of modifier that operates over aspect does so only over the result state, and measures its extent. The particle opp- ‘up’ provides the event a completeness meaning, i.e. a result attained in its full amount; in (43), it entails that the state of being built has been attained to its maximal degree, or, in other words, that the entity is now completely built.

In Swedish, we observe a contrast between these two kinds of aspectual modifiers in the adjectival participle construction with a middle reading interpretation. Example (46) shows that both modifiers are available in a participial construction without a middle interpretation.

(46) Hundkapps hus åter-upp-byggd efter branden.
    greyhound house re-up-built after fire
    ‘Greyhound house rebuilt after fire’ [sverigesradio.se, August 20, 2010]

In participles with a middle voice reading, Swedish also accepts modifiers that operate over the extension of the state, such as bort ‘away’ and upp ‘up’.12

(47) a. lätt-bort-tvätta-d
    easy-away-wip-ed
    ‘easy to wipe away’
   b. lätt-av-tvätta-d
    easy-off-wip-ed
    ‘easy to wipe off’

12 We are grateful to an anonymous reviewer for directing our attention to this contrast.
The emergence of middle voice structures

c. lätt-upp-bygg-d
   easy-up-built
   ‘easy to build up’

That is, in Swedish participial middles, modifiers of the state are grammatical. The grammaticality of such examples, which contain more than one constituent to the left of the participle, also suggests that there are no (morphological) constraints dictating a maximal size to the participle.

In contrast, and crucially for our purposes, a repetitive / restitutive prefix like åter ‘re’ is not acceptable in such contexts (contrast with example 44 above).

(48) *lätt-åter-upp-bygg-d
   easy-re-up-built
   Intended: ‘easy to rebuild completely’

Example (49) presents, again, a contrast that shows that åter-, acceptable as modifier of other participles, is impossible when there is a middle interpretation.

(49) a. Åter-konstruera-d gaskammare i Auschwitz.
   re-build-PART gas-chamber in Auschwitz
   ‘Rebuilt gas chamber in Auschwitz’ [Picassa, July 4, 2010]

b. *lätt-åter-konstruera-d
   easy-re-build-PART
   Intended: ‘easy to rebuild’

This contrast suggests that a property that åter- requires is absent from a participle with middle reading. This property, given the other patterns, is presumably the presence of an event variable. Consequently, this suggests, again, that participles interpreted as middles in Swedish lack an event variable, while they keep the state interpretation that licenses modifiers like upp or bort.

To summarize, in this section we have motivated two differences between the Norwegian verbal middle and the Swedish adjectival middle:

a. The Norwegian verbal middle shows the behavior expected of a structure that contains an event variable, but the Swedish middle does not, but displays the behavior of an adjective.

b. For some Norwegian speakers at least, the verbal middle can project an overt agent marked by a preposition, but this is not accepted by any Swedish speaker in the adjectival participial construction.
4 Passives and middle readings

In this section we present our analysis for the Norwegian examples. We argue that the data presented and discussed earlier in this article are explained in a straightforward manner if Norwegian is able to build middle interpretations over the syntactic structure that is originally used as a passive. The difference between a run-of-the-mill passive construction and the middle reading built over the same passive has to do with whether tense binds the event variable or not. In a normal passive construction, there is an entailment that an event takes place at a particular temporal interval because tense binds the event variable; in minimal contrast, the middle reading is obtained when an operator is introduced between the event (placed at v) and tense (place at T), preventing the latter from binding the former. We have provided evidence that the Norwegian verbal middle construction, in contrast to the adjectival middle, contains an event variable, which can be bound by quantifiers (cf. 36); this correlates with the availability of an agent.

We assume that the functional head responsible for introducing the event variable is v (cf. Harley 1995; it has received other labels in the literature; e.g. Proc in Ramchand 2008) and the one responsible for the agent is Voice (Kratzer 1996; Init in Ramchand 2008). Presence of a full verbal structure would introduce an event variable, on the assumption that the verb is eventive.

4.1 Mood prevents T from licensing the verb’s event

Following commonly held generative assumptions regarding the structure and composition of the verb phrase (Chomsky 1995), we assume that vP is a projection that introduces an event variable and an agent (see also Emonds 2000). This head is above VP, which we assume contains the internal argument in a Larsonian-shell structure (Larson 1988), and can be dominated by Voice and Mood.

(50) [vP [Agent] v <e> [VP V [Internal argument]]]

In its current condition, this structure above (47) will not satisfy the requisites of middle voice semantic requirements, because, crucially, in this configuration the agent is hierarchically higher than the internal argument. Ceteris paribus, the agent will move to TP and become the subject of the clause. This would block the middle interpretation, which crucially implies ascription of a disposition to a non-active participant in a potential event. Thus, the middle reading will not be possible, if vP introduces an agent, unless passive VoiceP is introduced above vP.

(51) [VoiceP Voice0 [vP v0 <e>]]
The presence (or absence) of the event \( e \) contained in \( v \) is crucial in our analysis. In the normal case, when tense (T) is merged in the structure, it will place this variable (cf. Roeper & Van Hout 1998), situating the event in a particular temporal interval. The interpretative effect associated with it is that the event is instantiated in a particular time, or, in other words, it is stated that the event has taken place. This is clearly the interpretation that we want to avoid in the middle statement. We assume that in such cases the event variable is satisfied by existential binding.

(52)

\[
\begin{align*}
\text{TP} \\
T_i & \quad \ldots \text{vP} \\
\text{v} & \quad \langle e \rangle_i \quad \ldots \\
\exists e [P(e) \& T(e)]
\end{align*}
\]

This representation in (52) is not the structure of a middle statement. We follow Lekakou’s (2005) proposal that verbal middles involve the presence of an operator with modal meaning at the verbal level (a by-virtue-of operator, OpP). This operator directly dominates VoiceP. As is presumably the case with any other operator, it requires a variable to bind, or else a Vacuous Quantification violation will take place. The modal finds the event variable within its scope domain and binds it. This has the result of converting the event into a derived stative, since now the set turns to denote a dispositional ascription of the derived subject (Lekakou 2005: 90–99).

(53)

\[
\begin{align*}
\text{TP} \\
T & \quad \text{OpP} \\
\text{Op}_i & \quad \ldots \text{vP} \\
\text{v} & \quad \langle e \rangle_i \quad \ldots 
\end{align*}
\]

Furthermore, tense cannot place the event directly. Existential binding cannot take place due to the fact that the by-virtue-of operator already binds the event. What tense places in the temporal axis in this case is the set of properties that the sum of the operator and the event denote: the meaning is, therefore, the time
period during which the disposition can be ascribed to the subject. Consequently, when the modal is present there is no entailment that the event has taken place.

According to this analysis, the anchoring of the event to the utterance is different in a verbal middle statement and in a non-middle statement. Following Enc’s (1987) Anchoring Condition, the event must be related to some salient reference point in the utterance. Ritter & Wiltchko (2005) and Amritavalli & Jayaseelan (2005) propose that, in some cases, this anchoring does not use the time axis, but can be done through person or mood, among other possible options. In the case of a middle statement, the anchoring, we suggest, takes place in the modal domain: the set of accessible worlds, from the world where the utterance is produced, where the subject has the properties ascribed to it.

From this explanation, which explores one consequence of Lekakou’s analysis of middles, it follows that if the event variable is present and we want to obtain a middle reading, then the modal must necessarily combine with the verbal projection before Tense does.

Note that the syntactic position of the by-virtue-of operator must be lower than the one occupied by deontics. The reason is that – even though not considered traditionally as a middle – the ingredients of a middle reading can be introduced by modals such as can in its deontic interpretation. The following Norwegian example illustrates this:¹³

(54) Denne typen bandasje kan fjerne-s let fra huden.

‘This type of bandage must be removed gently from the skin.’

It has been argued by several scholars in the literature that deontic modals are merged in a very low position in syntactic structure (Picallo 1990, Brennan 1993, Cinque 1999, Butler 2003). If at least one of them can combine with a verbal predicate in a middle reading, it follows that the by-virtue-of operator should be even

¹³ As an anonymous reviewer points out, the dispositional semantics is lost with other deontic modals, like must. This is entirely true: the previous example contrasts with This type of bandage must be removed (#easily) from the skin, where there is no entailment that the obligation emerges from the internal properties of the subject and in fact the presence of a modifier favors an epistemic reading. What this might suggest is precisely that a modal like must occupies exactly the same structural position required by the by-virtue-of operator. Thus, when one appears, the other must be necessarily absent. If true, and contrasting this to can, it would provide evidence of an approach like Cinque (1999), where the area between T and v is fine-grained and has designated positions for different kinds of modifiers.
lower. We suggest, thus, that it immediately dominates the highest verbal projection. In any instance, for our analysis it is only crucial that the operator is in a position between ν and T. That the by-virtue-of operator occupies a position in this area is also independently motivated by Lekakou's (2005) observation that the availability of the operator interacts with the aspectual morphology available in the language; this result follows if the operator is introduced adjacent to the area where external aspect is defined.

4.2 Passive voice

The way in which Norwegian and Spanish produce this interpretation is through passive morphology. This choice follows naturally from the interpretation of a middle statement. A middle statement predicates from an object a disposition to participate in an event where an agent might participate. Precisely, the kind of verbal structure that allows the notional object to turn into a subject and preserves a position for the agent is that of a passive. It is not surprising, therefore, that passive structures are among those commonly used to build middle interpretations cross-linguistically.

The crucial aspect of this example is that the preposition av ‘of’ is also used to introduce the agent in passive statements. Aside from this context, it can be used in a variety of meanings, such as possession or origin, but it can only be interpreted as introducing an agent in passives and middles constructions. The fact that the agent interpretation is only available in passives – and therefore, in those passives with a modal operator that can be interpreted as middles – deserves some explanation. We contend that the interpretation is possible in passive sentences because they contain Voice – Schäfer (2008) arrives at the same conclusion discussing different, but related, evidence. More specifically, we will assume that the agent interpretation of av involves checking of a [uVoice] feature contained in the prepositional phrase’s head. This agentive version of av is, therefore, only available when the structure contains Voice.

(55) PP
   P  DP
   [uVoice]

Although the technical details of how passive voice is obtained are orthogonal to our main claim and immediate goals of this paper, we will briefly present, for the sake of explicitness, how we assume the derivation would work in these cases.
Passive marked voice would select a defective version of $v$, which is unable to project a specifier, although its capacity of defining a constituent as agent will not be suppressed.

(56) VoiceP
    Voice
       vP
          $v$
              [passive]
                  [agent, <e>]

Given that $v$ still must assign a theta role, it will head-move to Voice, where the specifier will be projected.

(57) VoiceP
    PP
        Voice
           Voice+$v$
              [passive, agent, <e>]
                  $v$
                      [agent, <e>]

4.3 The modifier

The final element inside a middle statement is the adverbial modifier. Here we show that its obligatoriness across the constructions we have inspected and analyzed in this article is consistent with claims about its connection to agents made in the literature.

Lekakou (2005: 141–161) convincingly argues that languages can be divided into two classes. The first class, exemplified by French or Spanish, employs passive morphology to codify a middle voice statement. This correlates with the fact that the adverb is not necessary to express a middle statement; it can be absent, and in such cases pragmatics dictates whether the statement is informative enough without that modifier.

(58) Le papier se recycle.
    the paper SE recycles
    ‘The paper is recyclable.’ [Fagan 1992]

The second class of languages consists of those that do not use passive morphology, such as English. These languages must have an adverbial in order to allow...
for a middle reading. Even with focalization of the verb, the sentence in (59) is ungrammatical as a middle: it can only be interpreted as a habitual statement with an implied object.

(59) #Bureaucrats BRIBE.
[Lekakou 2005: 148]

The reason for this correlation is, according to Lekakou’s analysis, that in order to interpret a statement as a middle, an agent distinct from the derived subject must be interpreted/inferred. The adverb is necessary in order to recover the agent when it is not activated syntactically: the intended experiencer of the property denoted by the adverb is identified with the agent. For instance, in a middle voice statement like *Such books read easily*, the experiencer of the easiness is identified as the agent of the potential reading event. Languages that use passive morphology do not need the adverb because they syntactically activate the agent (in our proposal, licensed through a Voice projection), but those that do not use passive morphology suppress the agent from the syntax, making the use of the adverb necessary to recover it.

Norwegian neatly falls in the same class as French and Spanish, as expected if, as we argue, the agent is projected inside the structure. The adverb is not necessary to obtain the middle reading. An adjunct *av*-phrase is already enough, provided it is interpreted as generic or arbitrary.

(60) Denne typen hus gjen-opp-bygge-s av alle.
this type house again-up-build-pass of everyone
‘This type of house is rebuildable by everyone.’

In (61), the sentence also allows a middle interpretation, along the lines of ‘this kind of fabric is such that it must be washed’.

(61) Dette stoffet vaske-s.
this fabric wash-pass
‘This fabric must be washed.’

Lekakou’s analysis is consistent with the Norwegian data, and its contrast with English. Moreover, one straightforward prediction of our analysis, once we adopt Lekakou’s stance on the adverbial modifier, is that if passive morphology, and therefore Voice, is missing from the structure, the adverbial modifier will become compulsory. This is precisely what happens in the adjectival middles, which Swedish must use and Norwegian can optionally choose to use (or not). The
The crucial fact here is that the middle interpretation of the participle cannot be obtained unless there is an additional modifier of the participle that can introduce conceptually an experiencer that can be identified with an intended agent (which we discuss in more detail in the next session). In connection with this observation, we have a structure where the verbal projections $\nu$ and Voice must be absent in order to obtain a middle reading, with the result that the agent is not licensed syntactically. Consequently, the adverb is necessary in order to recover the agent.

The structure in (62) represents the complete structure of a verbal passive with middle interpretation in our proposal.

(62) a. 

```
TP
  DP
dette stoffet
  T
    Op
      VoiceP
        PP
          Voice
            vP
              lett
                v
                  VP
                    <e_t>
                      vaske-
```

b. Dette stoffet vaske-s lett av alle.
this fabric wash-PASS easy av everyone

With this in mind, let us now move to the structure of the adjectival construction interpreted as a middle voice construction.

5 Adjectival participles and middle readings

The tests that we presented in §3 show that there is evidence that two components are missing with respect to a more fledged verbal structure in the case of the adjectival middle: there is no event available and there is no agent. What this means in our analysis we put forward here is that both $vP$ and VoiceP are missing. This has severe consequences for the derivation. Given that $vP$ is missing, there is no event variable, and therefore, no danger that T will bind it and trigger a specific reading of the event. Consequently, no modal operator is necessary in the struc-
ture. In line with the previous work on middles in Swedish (cf. Josefsson 2005; Klingvall 2007, 2012), we adopt Klingvall’s proposal that the middle voice construction in Swedish (and its Norwegian participial equivalents – which Klingvall 2012: 2 calls ‘Complex Dispositional Adjectives’) consists of a past participle right-handed segment and a modifying left-handed segment. The left-handed segment of this compound unit, as we demonstrate below, is normally a bare root. Of course, there are subtle, yet distinct differences in the notational system that we employ compared to Klingvall’s analysis. We discuss these in detail (when relevant) below.

Let us follow the derivation of the adjectival middle structure step by step. A root is categorized via a lexical verbal projection, V in our representation.

Unlike the verbal structure, now vP is not introduced, so no event variable is present and there is no entailment that an event took place, explaining that this structure behaves as expected of an adjective, in the sense that it lacks an event variable and a fully-fledged argument structure. This ultimately explains that such constructions reject prefixes like åter- ‘again’, which require an event, but allow state-modifying particles like upp- ‘up’. If correct, this supports the verb-decompositional proposals where the lowest verb layer (here VP) denotes a state (Larson 1988, Ramchand 2008, among many others).

Note, however, that we part ways with Klingvall’s analysis in a crucial aspect. In line with Marantz (1997), Klingvall’s uses a light-headed projection v in order to determine the categorical status of the underspecified √ root. Under these assumptions, although the root in question here is initially merged under v, it must undergo head-movement to a (for the sake of phi-feature incompatibility).¹⁴ For our analysis, the presence of a light verb head (v) is problematic, for in Klingvall’s analysis it does not only serve the function of determining the categorical status of the root, but also the ordering of the modifying part, which we believe is better captured by a fully-fledged argument structure.

¹⁴ Note, however, that in later work (Klingvall 2012: 17, ex. 32), the proposal is revised avoiding the incorporation of the root to a. We think this move is also problematic for independent reasons – as we think any structure containing two independent functional categorizers would be: without the incorporation, adjectival inflection should emerge between the modifier and the participle (contra the data); stating this ordering requirement through a morphophonological rule is unsatisfactory to the extent that then the ordering between a stem and its inflection could be obtained by two different means (incorporation and morphophonological reordering), against parsimony and causing serious trouble for acquisition.
of the underspecified root, but also stands as an event variable that can possibly be bound by T (which is obviously an unwanted situation for middle voice constructions). Therefore, we part ways with Klingvall’s analysis with regard to this point and eliminate the presence of the verbal light head in our analysis.

Our proposal is to divide the two roles that $v$ plays in Klingvall’s analysis into two distinct heads: $V$ to categorize the root and $v$ to introduce the event variable. There is independent evidence for this separation. The main one has to do with the possible presence of overt verbalizer affixes inside object nominalizations and other structures without event meaning (see also Borer 2012).

(64) a. big calc-ific-ation-s
    b. not-ific-ation-s
    c. author-iz-ation-s
    d. left-headed nomin-al-iz-ation-s

The presence of an overt verbalizer that can be segmented from the base shows that some head has to be present in order to turn the word into a verb at some stage, but the behavior of such nominalizations shows that there is no event variable. As noticed frequently in the literature (e.g. Grimshaw 1990, Alexiadou 2001) such nouns do not license aspectual modifiers.

(65) *We had in the pocket [two authorizations during two weeks].

If the categorization role was performed by the same head that introduces the event variable, then we would expect that overt verbalizers disappear in the object reading of the nominalizations, but this is not the case. Similarly, in adjectival middles, overt verbalizers can be present, but there is no event variable.

(66) lätt-konstru-era-d
    easy-build-verb-PART

A second difference between Klingvall’s analysis and our own is that we propose that VP is dominated by an (external) aspect projection, which is lexicalized as the participial morphology (in accordance with Schoorlemmer 1995, Embick 2004).

(67)

```
    AspP
     Asp  VP
       V
```


Next to the results provided in the cited works, consider the following pieces of evidence in favor of associating the participle morphology with an aspectual head vs. the alternative of associating it to an adjectival structure. Consider example (68), where the participle is a noun modifier, a context where presumably the higher verbal projections are necessarily absent:

(68) en konstruera-d miljö
   a build-PART environment
   'a built environment'

The meaning obtained is a resultative: an environment that has been built. Now, in this context the morphology tells us that we have a participle, and the semantics tells us that we have an aspectual meaning – a state, and moreover, a state that is interpreted as following the culmination of an event. In its verbal use (69), when there is a rich set of functional verbal heads present in the structure, the same morphology is still associated with an aspectual meaning.

(69) Jeg har konstruera-d en miljö.
   I have build-PART an environment

Thus, with or without higher verbal projections (manifested in 69, among other things, through the presence of the auxiliary), the participle carries a stative aspectual meaning, which, in the right configuration, can be interpreted as a result. These data suggest that participial morphology is closely related to aspectual information, while whether the constituent is verbal or adjectival depends on other, in principle independent, ingredients of the structure (see Bruening in press for a recent proposal). Compare our proposed structure with Klingvall’s. At this step in the derivation, Klingvall (2007: 144) analyzes these participles as adjectival compounds whose head is the first (leftmost) constituent. In her proposal, an adjectival head lexicalized as the participial morphology would be merged (70a) with the structure in (63). The root corresponding to lätt merges as an adjunct to the resulting AP (70b). The ‘verbal’ root would move to V0 and the resulting set, to A0, obtaining the right order.

(70) a. \[ \text{AP} \sqrt{\text{AP} A^0 \text{VP} V^0 \ldots} ]
   b. lätt- -t läs
      easy Part read
Our proposed modification does not affect the spirit of Klingvall’s proposal, as far as we understand it. The minimal difference is that the participle morphology is a manifestation of aspect, not of an adjectival head, which implies treating aspect as a cross-categorial property, a decision that we do not take as implausible. This does not prevent an adjectival head to merge over AspP, as Klingvall suggests. The modifier would be introduced in the highest projection, and we do not see any reason to reject her proposal that it is an adjunct. Being a root, Klingvall’s approach can explain that agreement is blocked. In (71) we see that neuter gender is marked morphologically in Swedish when the adjective svår ‘difficult’ is introduced in a full-fledged adjectival environment.

(71) Det här manifestet är {svår / svår-t} SWEDISH
the here manifest is difficult

However, in the adjectival middle, this agreement is blocked:

(72) Det här manifestet är {svår /*svår-t}-läst
the here manifest is difficult-read

The absence of agreement can be explained if the adjective does not project any further functional structure, however there is another possibility compatible with Klingvall’s analysis (and the aspects of it we adopt) that we would like to shortly present. Assume, for the sake of the argument, that agreement is instantiated in the head of the only projection present here, A. In contrast with standard cases of adjective formation, however, the root is not introduced here as a complement, so it cannot undergo head movement to A⁰. If the lexical items introduced to lexicalize agreement are morphophonologically weak and need to be supported by a root, then in this syntactic configuration they would be unable to materialize phonologically, because the root cannot support them, being in the specifier position.

With this in mind, our proposed structure for adjectival middle voice constructions is the following:

15 In fact, in Klingvall (2012) a move is adopted that is very similar to our modification: the participial morphology is dissociated from aP.
Crucially for our purposes, the structure lacks an event variable. This means that introducing the modal is not necessary to prevent tense from binding this variable, which explains why the structure is available in Swedish (and independently, in Norwegian).\footnote{An alternative variation of Klingvall’s (2012: 17) structure (and ours) would be to propose that the adjectival nature of the construction is not defined by the presence of an adjectivalizer, but is obtained by default due to lack of information about events and agents in the structure. In that case, the modifier could be introduced as an adjunct of AspP. In order to decide between these two proposals, a thorough study of adjectival participles vs. verbal participles would be necessary.}

One important remaining question at this juncture is the role that the modifier plays in this structure. As we anticipated in the previous section, assuming Lekakou’s analysis of the modifier as an element necessary to identify an agent, given the absence of $v$ and Voice in this structure, it is expected to be compulsory to interpret the participle as a middle predicate. This assumption is confirmed: Removing the modifier forces a resultative passive reading (\textit{This manifest is already read}).\footnote{Another contrast in Norwegian shows that the role of the modifier is to recover conceptually the agent: \textit{lett-vasket} (‘easy-washed’) can have a middle interpretation, but \textit{ny-vasket} (‘newly-washed’) does not. This contrast is expected if the role of the modifier is to recover at the conceptual level a syntactically-absent agent which experiences the properties denoted by it. An agent would experience the easiness of the washing, but not – while being the agent – that it is newly washed.}

\begin{verbatim}
(74) Det här manifestet är läst.
the here manifest is read
‘This manifest is read’
\end{verbatim}

The modifiers are, generally, roots meaning ‘easy’, ‘difficult’, ‘quick’, ‘slow’ and others whose conceptual entry is a property of actions and events. This is...
expected if they need to conceptually recover an agent: they allow for the interpretation, at the conceptual level, of an event which has an intended agent identified with the experiencer of the property denoted.

Note that saying that these modifiers allow an agent to be recovered, and are restricted to those that can modify an event, is not the same thing as saying that they require an event in the syntactic structure they are introduced in. There are indeed examples that show that the adjectives do not need an event variable in their syntax, but trigger the interpretation that the modified element is somehow related to an event and there is an intended agent of such event. In the example in (75), they directly modify an object denoting noun, and the interpretation that there is some kind of event associated to this noun, and an agent that experiences the speed, is still triggered.

(75) fast food

This is consistent with the revised version of Klingvall’s structure that we proposed above. In the adjectival middle construction, structurally, there is no event variable and no projection to license an agent in the syntax. The presence of the manner modifier is crucial to allow the interpretation of the participial adjective as involving some agent (an assumption that Klingvall’s proposals also concur with). As in other cases where some syntactic structure is missing (Marantz 1997), the conceptual meaning of the roots involved in the construction can allow – not force – interpretations which are otherwise licensed by the structure. There is no position to introduce the agent in this structure, but this does not mean that an agent cannot be inferred from the conceptual entry that the root has. Speakers know that the action denoted by läs- ‘read’ is one that must be performed by a sentient and volitional individual, and therefore will infer – even in the absence of specific syntactic structure – that such agent exists. The agent will necessarily not refer to a specific individual, because it is left unspecified by the verbal projections; this is a second way in which an agent can become generic in a middle statement.

Given the proposed structure, the reason why both Swedish and Norwegian can express a middle statement with an adjectival participle are clear: for some reason, Swedish cannot license the verb with a middle operator, but if the verbal structure is projected as a participle that lacks v, and thus an event variable, the middle operator is not necessary in order to express a disposition not instantiated in any particular situation. Even though Norwegian has an exponent that lexicalizes the middle operator, it can, as well, express a middle statement by suppressing the verbal event variable and the structure that carries it.
6 Deriving the semantic properties of middles from different structures

To wrap up our analysis, we now show that both structures discussed in this paper satisfy the established criteria regarding what general properties have been considered in the literature defining the (morpho)syntactic and semantic properties of middle voice constructions.

Following Lekakou (2005: 90 et seq.) we classify a middle statement as a generic dispositional ascription that predicates a set of properties from the grammatical subject without entailing that they are instantiated in any event. In a statement like Such books read easily, the semantic interpretation infers, for a whole class of books, it is true that they have the properties necessary to be read easily, even – and this is crucial – if the reading event has never been instantiated with this particular kind of books. Syntactically, these statements share with passives the property that the grammatical subject is semantically an internal argument, but they contrast with them in that in passives it is entailed that the event takes or has taken place (Such books were read easily). Even though they also involve genericity, habitual statements are different from middles in that, again, the existence of events is entailed, i.e. such books are (generally) read easily.

A middle structure denotes a potential situation dependent on the properties of the grammatical subject, i.e. that is, they are by-virtue-of statements. Thus, middles behave like stative predicates, even though they must be built over verbal roots that license an event reading. This property has consequences for temporal marking in some languages. For instance, in Spanish, middles, which are built with the clitic se – which like Norwegian -s also has a passive use – are different from impersonals or passives. Impersonal constructions and standard passives in Spanish can also be constructed with the same clitic, and importantly, they are restricted to imperfective tenses (present and imperfective past, for instance). As evidenced below in (76), passives and impersonals in Spanish can use the perfect tenses (perfect and indefinite past), but not if the statement has to receive a middle reading (Mendikoetxea 1999).

(76) a. Esas camisas se lava-ba-n bien. SPANISH
those shirts se wash-IMP.PAST.3PL. well
‘Those shirts were washed well’ (passive) or
‘Those shirts washed well’ (middle)

b. Esas camisas se lava-ron bien.
those shirts SE wash-PERF.PAST.3PL. well
‘Those shirts were washed well’
Stativity is a necessary consequence of the two structures that we have presented and analyzed here. In the case of the lexical-s passive structure interpreted as middle in Norwegian, stativity is obtained by means of a modal operator. Indeed, as it is well-known, modal auxiliaries can have the consequence of stativizing an eventive predicate (see Smith 1997, Boneh & Doron 2009, Rothmayr 2009 for recent overviews). Several tests confirm this point: First, modal auxiliaries reject the progressive periphrasis, which requires eventivity.

(77) *Juan está pudiendo escribir inglés.  

Juan is being-able to write English  
Intended: ‘Juan is being able to write English’

Also, modal auxiliaries reject imperatives, as their stativity makes it impossible for the agent to control an event.

(78) *Puede escribir inglés!  

can.imp write English  
Intended: ‘Be able to write English!’

As for the participial structure, stativity follows from the absence of a vP projection that introduces an event variable. An auxiliary be is part of the clausal structure, but this auxiliary lacks any event variable; consequently, stativity is a necessary property.

Secondly, as noted by Lekakou (2005), the ‘by-virtue-of’ relation codified by middles is restricted to internal arguments. Accordingly, sentences whose grammatical subject is an AGENT or a CAUSER do not allow for middle interpretations. The sentence in (79a) is interpreted as a habitual, while the sentence in (79b) is a middle statement. In other words, (79a) cannot be interpreted as ‘John has a predisposition to plant grass seeds, but has never done so’.

(79) a. John plants grass seeds.  
   b. This kind of grass seed plants easily.

The verbal structure that Norwegian can use with a middle interpretation contains passive voice, similar in many respects to morphosyntactic conventions used in Spanish middles (as demonstrated above). The presence of Passive Voice is crucial, because its role is to prevent the projection of the agent as a DP, and therefore, makes it uninterpretable as a grammatical subject. This has as a consequence that the internal argument is the only eligible DP, so it becomes the subject of the clause.
As for the participial construction, in this structure, vP is not projected. Given that vP is the structure that introduces the agents, there is no agent DP that c-commands the internal argument. As a result, the internal argument will become the grammatical subject of the clause.

Our view that middles are not designated structures has an interesting prediction in this domain. Passive Voice is necessary when vP is projected because without it the agent would become the subject of the clause. Now, if the verb that is used in the structure is unaccusative in nature, passive voice will not be necessary to let the internal argument become the subject of the clause. If we assume that introducing agents is a property of strong v, as it is standard in (most instantiations of) Minimalism, a defective v – such as the one that an unaccusative verb has – will not introduce an agent, and it will be compatible with a middle reading without a Voice-projection, provided the operator is also introduced.

This prediction is borne out. Native speakers of Norwegian report that example (80) allows for a middle interpretation.

(80) Denne boken brenner lett.
   this book burns easily
   ‘This book burns easily’

In our analysis, these verbs would have an ‘anticausative’ structure, with a defective v that does not introduce an agent argument.18

(81) Let us take a second to consider the consequences of the claims we present in this section. The mapping of “middle voice semantics” does not obligatorily require

18 Our claim about the structure used frequently for English middles would be the same as for this Norwegian example: English uses in such cases an anticausative version of the verb, where v is defective and does not assign an agent role. From here it would follow (a) the unavailability of by-phrases, as the theta role is not assigned by vP in such cases; (b) the obligatoriness of modifiers that help recover the missing argument, necessary for the conceptual interpretation.
the absence or presence of functional heads specifically designated for the licensing of “agents” or the overt presence of an event variable. A Voice-projection must be present if vP introduces an agent, because otherwise the agent would become the grammatical subject of the clause, something which is not compatible with a middle interpretation at LF. The critical component here is the result of the derivational, i.e. the resultant morphosyntactic product from derivational composition, and its connection with semantic licensing at LF. In particular, the final derivational step in the construction of middle voice statements seems to be utmost importance: At this point in the derivation it is clear whether or not the grammatical subject possesses (or does not) an agentive theta role and whether or not the clause should be interpreted as with stative semantics (i.e. lacking an event variable). This, of course, can be obtained in a number of ways, depending on the theta role structure of the verb, its aspectual information and the availability of a by-virtue-of operator in that language. Consequently, constructions that we deem to be ‘middle voice constructions’ are only valid with respect to their semantic denotation, because, as we have argued here, it is not possible to designate particular morphosyntactic units as exclusively “middle voice constructions.”

7 Conclusion and future directions

To summarize the core tenets of our analysis presented here, we argue on both conceptual and empirical grounds that languages appear to lack designated morphosyntactic structures, which are exclusively reserved for middle voice semantics. Natural languages lack a construction that can be called a ‘middle structure’, and, instead, other structures are used that – through different means – license a dispositional reading. In our abbreviated analysis of two typologically similar languages, namely, Norwegian and Swedish, we took a closer look at adjectival middles as well as those that can be formed in Norwegian with the lexical -s passive.

Although this brief analysis provides some insight into the behavior of middle voice constructions in Mainland Scandinavian languages, significant questions remain, most notably with respect to what the absence of designated morphosyntactic units to license middle voice semantics tells us about the nature of (morpho)syntactic knowledge and its connection to structural semantics. What determines whether a language has a by-virtue-of operator, and therefore, whether a passive construction can receive a middle reading? What other properties can be derived from this? We have not explored, either, the alternative possibility that middle semantics is never due to a designated operator: in that view, the middle construction would be deconstructed and its different ingredients –
The emergence of middle voice structures

genericity, dispositionality, role of the internal properties of a non-agentive subject – would be independent of each other, and obtained through possibly different means. This interesting alternative should be explored in future work.

In some respects, this set of questions requires us to develop a working hypothesis concerning the relevant atomic units of “language” and how these units are assembled in a meaningful way. Following proposals by Hinzen (2012), Stroik & Putnam (2013) and some versions of Distributed Morphology, a promising avenue of research envisages lexical items to be composed meaning sub-atomic units that are not subjected further to syntactic or semantic decomposition. For the sake of explication, we refer to these units here as EXPONENTS and label their interpretive sub-components as FORMAL FEATURES (to follow more or less standard generative convention terminology). Adopting the relatively uncontroversial axiom that natural human language is combinatorial in nature, the findings presented here suggest that we, as a field, need to revisit how these combinatorial rules work – especially with regard to similar structural and semantic properties where there is considerable overlap. This scenario is apparent and present in agent-less constructions such as passives, middle voice constructions and anticausatives. In some respects, it is quite challenging to determine exactly where the boundaries between these related structures and meanings should be demarcated.

A further consequence of our findings, and in line with the theoretical scenario presented immediately above, is that some meaning properties commonly assumed to may not exist (solely) at LF. According to the theoretical desiderata we have sketched out here, the computational system must derive the

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19 The crucial property of these theories is the assumption that the lexicon belongs to the performance systems, and that lexical items are associated with structured bundles of features. This allows us to recast the problem of whether an operator is available in terms of whether a lexical item has been built that contains the operator features as part of its endowment. The differences between these theories emerge in some of the details, crucially in (a) whether lexical items can contain uninterpretable features and (b) whether the internal complex structure of a lexical item is accessible or not for the syntactic derivation. While Distributed Morphology assumes that the internal structure of lexical items is directly accessible, Hinzen and Stroik & Putnam independently propose that after bundling they become atomic units; i.e. they might be complex in terms of their bundling, but they become atoms with respect to their interaction with syntax. Hinzen differs from Stroik & Putnam with respect to the relation between semantics and syntax in so far that Hinzen proposes a system where syntax completely determines semantics, while Stroik & Putnam argue that syntax builds interpretable structures from completely interpretable lexical items. Consequently, Hinzen assumes a system where roots are category-free, while Stroik & Putnam argue that category features are contained in roots and they are precisely what allows them to interact with the syntactic derivation.
interpretation of the morphosyntactic directly from the derivational structure. If the ability to introduce quantifiers and determine scope resided outside of the computational system, this would have to be parameterized for individual languages and language families, because, based on the empirical evidence we present here, Swedish would be unable to license this in ways that appear to be accessible to the Norwegian grammar.

Finally, we must consider the theoretical ramifications of why Swedish cannot license a verbal middle construction. As we have suggested in previous work (Fábregas & Putnam 2013), at some point in its linguistic development, Swedish (for whatever reason) failed to lexicalize the combinatorial value of features – both morphosyntactic and semantic in nature – that result in a middle voice semantics combining with an event variable: the by-virtue-of operator that prevents Tense from binding the event variable. Once again, it appears that the most promising line of research stemming from our empirical findings and our conceptual treatment of these interesting data is that explorations into the lexicalization of features to form larger meaningful units will provide insight into the macro- and micro-variation found within and across languages.

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