

English middles and implicit arguments

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Abstract The proper analysis of English middles (*Politicians bribe easily*) has always been a matter of debate. I argue that they involve three crucial components: (1) A base-generated subject that is interpreted as the logical internal argument; (2) a logical external argument that is not syntactically projected at all; (3) the semantics of an ability modal. Regarding (1), I provide new data indicating that the surface subject of the English middle is not derived by A-movement and has no representation in the VP. I propose that the subject is interpreted as the logical internal argument by means of two mechanisms independently proposed to account for other facts: (a) a head that binds a verb's internal argument, proposed for implicit arguments by Bruening (2021); and (b) an abstraction rule triggered by certain varieties of Voice in English, proposed to account for properties of the verbal anaphor *do so* by Bruening (2019). The abstraction rule causes the unexpressed internal argument of the verb to be bound by the base-generated surface subject of the middle. As for the logical external argument, I show that it is present only semantically and not syntactically. Putative binding in both short passives and middles is logophoric, not syntactic. The final component of the analysis is the semantics of an ability modal. English middles are not necessarily generic, they are not necessarily dispositional, they are not necessarily stative, and they do not require adverbs. The middle, like the passive, is a morphosyntactic category, and it is not useful to try to define a “middle semantics” cross-linguistically.

Keywords: English, middles, A-movement, implicit arguments, passives, binding

1 Introduction

English middles have a logical object in surface subject position but lack the morphosyntactic marking of the passive:

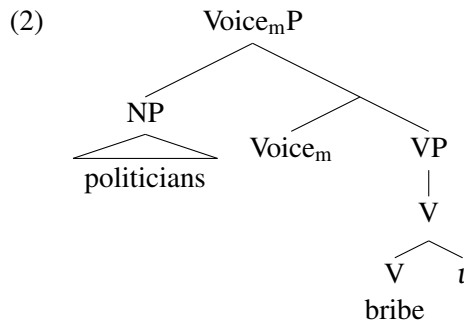
- (1) a. Politicians bribe easily.
- b. Klingon poetry does not translate well.

The logical external argument is also missing (the briber and the translator in the above examples), but is semantically entailed. In addition, middles tend to be interpreted generically, and often require some kind of adverbial modification to be felicitous. However, the last two tendencies are just tendencies and are not true of all middle sentences, as we will see.

It is fair to say that the proper analysis of middles has been the focus of much research (for an overview see Ackema & Schoorlemmer 2006), but a satisfying analysis has yet to be proposed. In this paper I present some new observations to add to old ones which point to a particular syntax. First, the surface subject is base-generated as such, as it does not have any of the characteristics of A-movement as in passive and raising. Second, the logical external argument is not projected syntactically at all, and is only present in the semantics. Third, middles involve the semantics of an ability modal.

I propose an analysis where there is a variety of Voice head (Kratzer 1996), Voice_{m(iddle)}, which adds an agent to the VP but does not project it in the syntax. It is essentially an index semantically, which is assigned a value by an assignment function. The logical internal argument is projected

in a specifier of Voice_m . It is interpreted as the internal argument of V through two mechanisms, independently proposed to account for other facts. First, there is a head ι , which adjoins to V and binds its internal argument as a definite, essentially as an index. This head was proposed by [Bruening \(2021\)](#) to account for definite implicit arguments. Second, [Bruening \(2019\)](#) proposed that certain varieties of Voice in English trigger an abstraction rule. I propose that Voice_m is one of these. The abstraction rule abstracts over the index introduced by the ι head, and the NP introduced in the specifier of Voice_m then binds the semantic argument of V. In this way, the surface subject of the middle is interpreted as the logical internal argument of the V, without ever having occupied any position within VP. The following diagram represents the proposed analysis:



The NP projected in the specifier of Voice_m moves on to the surface subject position, Spec-TP (not shown). V (along with ι) moves to Voice and forms a complex head with it (also not shown).

In addition to introducing an agent in the semantics, Voice_m also includes the semantics of an ability modal. Paraphrasing, Voice_m says that the agent has the ability to V the NP. In a generic middle like *politicians bribe easily*, the semantics will be that generic *one* (people in general) can bribe politicians easily. Since the logical internal argument is the surface subject, it is taken to be the topic about which the rest of the predicate is predicated. This leads to a discourse organization like, ‘politicians are such that one can bribe them easily’.

An ability modal is in this analysis an essential part of a middle, but generic quantification is not. If there is any, it comes from a generally available GEN operator ([Carlson 1977](#); [Krifka et al. 1995](#)) that can be inserted with bare plurals and/or present tense, both of which middles lend themselves to. In the examples in (1), this is what happens. When GEN is present, the logical external argument is typically interpreted as generic *one*. An appropriate paraphrase of (1a) is then, ‘In general, politicians are such that one is able to bribe them easily.’ If the middle is instead episodic, as in (3) below, there is no GEN operator, and the agent is assigned a value by a contextually determined assignment function (here, probably the speaker, given the adverbial clause):

- (3) The butter spread easily after I microwaved it.
 ‘There was an event in the past where the butter was such that a contextually determined agent was able to easily spread it.’

In past tense contexts, there is an actuality entailment with the ability modal, exactly as with the overt English modal *was able to* (e.g., [Bhatt 1999](#); [Hacquard 2006; 2020](#)). So this example entails that the agent did in fact spread the butter.

This analysis of the middle then involves three components. The first is that the logical object of the verb is not projected in the VP. It is merged much higher, in an external argument position (Spec- Voice_m P here). There is no movement from object position to subject position as there is in the passive. Note that others have argued for this position as well, most notably [Ackema & Schoorlemmer \(1994; 1995\)](#). Section 2 presents old and new evidence in favor of this aspect of the analysis.

The second component involves the logical external argument. Most previous researchers have argued that this argument is not syntactically present at all (e.g., [Fagan 1992](#); [Ackema & Schoor-](#)

lemmer 1994; 1995; Marelj 2004; Lekakou 2005; Klingvall 2007). However, some others have argued that it is (Hoekstra & Roberts 1993; Stroik 1992; 1995; 1999; 2005). I argue in section 3 that the logical external argument is not projected syntactically. Apparent examples of syntactic binding actually involve logophoric uses of anaphors, and the logical external argument is not capable of any other syntactic effects. Along the way, I show that binding in short passives is also logophoric, and explain why short passives behave the way they do with respect to binding, depictive secondary predicates, and control.

The third component of the analysis is the semantics of an ability modal. Section 4 motivates this component of the analysis, and shows that middles are not necessarily generic, they are not necessarily stative, they do not necessarily ascribe a disposition to the surface subject, and they do not require adverbs. They do require ability.

Finally, section 5 addresses cross-linguistic facts. The middle is a morphosyntactic category, not a semantic one (contra Lekakou 2005; Klingvall 2007; Fábregas & Putnam 2014), and it is not helpful at all to try to define it in semantic terms. If one does, then many examples of English middles will be excluded from the category, which is clearly a mistake. What has been identified as a “middle” in some other languages is just a generic passive, and should be treated as such.

2 Component 1: No object-to-subject movement

The first component of the analysis is that the surface subject of the middle never occupies a position internal to the VP. That is, although it is a logical object, it never occupies the object position. This section presents much data indicating that this is correct. First, I show how the analysis works, then I turn to the empirical data that support it.

2.1 The analysis of the surface subject/logical object

Bruening (2021) proposes that objects of verbs are left implicit through a head that merges with the verb and stops it from projecting its internal argument. There are two such heads. One binds the verb’s argument as an existential (indefinite implicit objects of verbs like *eat*), while the other binds it as a definite (implicit objects of verbs like *watch* and *win*). Here I propose that middles involve the latter. Definite implicit arguments can be bound by quantifiers (see Williams 2015). So the following sentence can mean the same thing with and without the pronounced pronoun:

- (4) Every contest₁ turned out to have been rigged by the person who won (it₁). (Williams 2015: (81a))

I propose that in the middle, the object of the verb is an implicit definite that comes to be bound by the surface subject.

Bruening (2021) calls the definite head “*t*.” It merges with the V as a head and stops it from projecting its internal argument:

- (5)
$$\begin{array}{c} \text{VP} \\ | \\ \text{V} \\ \wedge \\ \text{V} \quad t \end{array}$$

I modify the denotation of *t* from Bruening (2021) to treat the bound object of the verb as an index *n* (it can be any index; type *e* is individuals, *s* eventualities, *t* propositions):

- (6)
$$\llbracket t \rrbracket = \lambda f_{(e,st)} \lambda e_s. f(e,n)$$

This essentially treats the implicit object semantically (but not syntactically) as a pronoun. An assignment function will assign the index a referent if the discourse context is felicitous. Or, the index can be bound by a lambda operator associated with a quantifier, as in the quantificational example in (4). ι will combine with a verb like *win* as follows, selecting an index at random:

- (7) a. $\llbracket \text{win} \rrbracket = \lambda x_e \lambda e_s. \text{winning}(e, x)$
 b. $\llbracket \text{win } \iota \rrbracket = \lambda e_s. \text{winning}(e, 7)$

Which verbs ι can combine with is a matter of selection: individual verbs say in their lexical entries whether they can combine with it. Turning to the middle, I propose that ι can combine productively even with verbs that do not select for it, provided that the output can combine with Voice_m so that the index comes to be bound. The way this works is as follows. First, there is a head, Voice_m , that combines with VPs of the form in (5). Voice_m is constrained so that it must form a complex head with V and ι , which it does by virtue of the complex head $V-\iota$ undergoing head movement to Voice_m . We can state this in terms of feature selection: V_m has an ι feature, but since ι strictly selects V (see section 2.2), the only way to check off this feature is for ι to combine with V and then have the result combine with Voice_m .

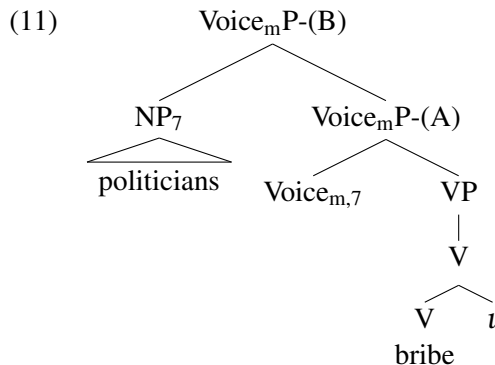
Voice_m is one of several Voice heads made available by UG. There is also a Voice_{tr} (transitive or active Voice) and a Voice_{un} (unaccusative Voice), as well as a Pass head (Bruening 2013). Voice_m has some additional unique properties. First, like Voice_{tr} , it introduces an agent. However, unlike Voice_{tr} , it does not project this argument in the syntax. The argument is instead also just an index in the semantics. See section 3 for more details on this aspect of the analysis.

Second, Voice_m counts as an A-movement head for the proposal in Bruening (2019), although it does not actually trigger A-movement the way Voice_{un} and Pass do (so middles could never involve A-movement, since movement must be triggered). Bruening (2019) proposes that A-movement heads trigger a special abstraction rule (Bruening 2019: 28, (83–85)):

- (8) A-Movement Rule
 If α is a branching node whose daughters are β and a head H such that H is an A-movement head with index 1, then $\llbracket \alpha \rrbracket^g = \lambda x \in D_e. \llbracket H \rrbracket (\llbracket \beta \rrbracket^{g[1 \rightarrow x]})$
- (9) A-movement heads in English are Voice_{un} , Pass, **Voice_m**, ...
- (10) A-movement heads bear the index of their specifier, through Agree.

The A-Movement Rule performs lambda abstraction. The rule creates a predicate where, typically, the A-trace in the sister of the A-movement head is the open argument position. In the case of middles, there is no trace, but because of ι , there is an index in the semantic representation. The lambda operator is able to bind this index.

Voice_m is also unusual in that it projects a specifier. That is, it takes a syntactic NP argument in addition to its complement VP. However, this NP argument is not a semantic argument of Voice_m . It is only interpreted through the A-movement rule. Voice_m bears the index of its specifier (10), and this enables the specifier to bind the index introduced by ι :



The agent that Voice_m introduces is an index in the semantics, just like the argument that ι binds (see section 3). Below is a simplified semantics, ignoring modality for now (see section 4):

- (12) a. $\llbracket \text{bribe } \iota \rrbracket = \lambda e_s. \text{bribing}(e, 7)$
 b. $\llbracket \text{Voice}_m \rrbracket = \lambda f_{(s, \iota)} \lambda e_x. f(e) \ \& \ \text{Agent}(e, n)$
 c. $\llbracket \text{Voice}_m \text{P}-(A) \rrbracket = \lambda x_e \lambda e_s. \text{bribing}(e, x) \ \& \ \text{Agent}(e, 9)$ (by function application and the A-Movement Rule)
 d. $\llbracket \text{Voice}_m \text{P}-(B) \rrbracket = \lambda e_s. \text{bribing}(e, \text{politicians}) \ \& \ \text{Agent}(e, 9)$ (by function application)

These two mechanisms, the ι head proposed for implicit arguments, and the abstraction rule triggered by certain Voice_m heads in English, combine together in the middle to permit an NP generated in $\text{Spec-Voice}_m \text{P}$ to bind the logical internal argument. Thus, the surface subject of the middle is interpreted as the internal argument, without it ever having occupied a VP-internal position.

We do have to explain why long-distance middles are impossible in this analysis. Implicit objects can be bound long distance, as in example (4), for instance. We might expect an example like **Politicians easily believe that lobbyists bribe* to be grammatical, on the meaning, ‘One can easily believe that lobbyists bribe politicians’. The answer is licensing. The ι head is typically licensed only by particular verbs, through selection (see Bruening 2021). As stated above, ι can be added productively to verbs that do not select for it just when they combine with Voice_m . Voice_m can locally license the ι head, by virtue of combining with V and ι as a complex head (and it must do this, as described above). It cannot do this across phase and clause boundaries. Long-distance middles are therefore impossible.

The rest of this section motivates the first component of the analysis by describing numerous ways in which middles pattern very differently from passives, where object-to-subject movement is very well motivated. The hypothesis that the semantic object is base-generated as a surface subject, and no object position is projected, explains these differences.

2.2 Surface subject can't be object of P

I start with an old but underappreciated—and contentious—observation. This is that the surface subject of a middle cannot be the semantic argument of a preposition. In my judgment and the judgment of every native English speaker I have consulted informally, objects of P are completely unacceptable. Middles contrast strikingly with passives in this regard:

- (13) a. These trees can be climbed up easily.
 b. * Such trees don't climb up so easily.
- (14) a. Smooth politicians are rarely laughed at.
 b. * Smooth politicians don't laugh at easily at rallies.
- (15) a. This bed has not been slept in.
 b. * This bed sleeps in well.
- (16) a. This bar can be hung from.
 b. * This bar does not hang from well.
- (17) a. Crying children need to be sat with.
 b. * Crying children do not sit with well.
- (18) a. Trump's wall can easily be tunneled under.
 b. * Trump's wall tunnels under easily.

- (19) a. This divan should not be stepped on.
 b. * This divan steps on easily.

If middles involved a step of A-movement, exactly like passives, then we would expect that they would be well-formed with objects of prepositions. English is generally quite free in allowing movement of objects of prepositions, both in A-movement and in A-bar movement. The fact that middles do not allow objects of prepositions is a first indication that they do not involve movement.

This judgment has been contested over the years. Keyser & Roeper (1984: 400) say that prepositional middles are marginal but consider them acceptable. They give the following examples one question mark:

- (20) (Keyser & Roeper 1984: 400, (56a–b), (57b))
 a. ? John laughs at easily.
 b. ? John depends on easily.
 c. ? The room breaks into easily.

Fagan (1988: 194) argues that Keyser & Roeper (1984) are not correct, and states that all the native speakers she has consulted find them unacceptable. Massam (1992) gives one example and gives it a question mark:

- (21) ? Mary laughs at easily. (Massam 1992: 129, (35b))

McConnell-Ginet (1994) says that prepositional middles are unacceptable but gives no examples (and credits the observation to Massam 1992).

Most recently, Newman (2020) claims that middles are well-formed with objects of prepositions. While she notes that many speakers do not like them, she says that many do, and marks the following examples with “(?)”:

- (22) (Newman 2020: Appendix A.1, (5c), (7a–b))
 a. (?) This board doesn’t write on easily.
 b. (?) vPs don’t extract from easily.
 c. (?) That shower doesn’t walk into easily.

Because judgments on prepositional middles have been contested since 1984, I decided to do a large-scale survey using Amazon Mechanical Turk. For this purpose I made use of the free tools described in Gibson et al. (2011) and available at <http://tedlab.mit.edu/software/>, modified for the purposes of this experiment. The experiment had a two by two design, crossing factors Passive-Middle and Verb-Preposition, as follows:

(23)

Items for Experiment 1: Prepositional Middles	
PPassive	These trees can be climbed up easily.
PMiddle	These trees don't climb up so easily.
VPassive	These trees can be climbed easily.
VMiddle	These trees don't climb so easily.
PPassive	Smooth politicians are not laughed at easily at rallies.
PMiddle	Smooth politicians don't laugh at easily at rallies.
VPassive	Smooth politicians are not mocked easily at rallies.
VMiddle	Smooth politicians don't mock easily at rallies.
PPassive	Crying children should be sat with calmly.
PMiddle	Crying children do not sit with easily.
VPassive	Crying children should be comforted calmly.
VMiddle	Crying children do not comfort easily.
PPassive	The border wall can be tunneled under easily.
PMiddle	The border wall tunnels under easily.
VPassive	The border wall can be bypassed easily.
VMiddle	The border wall bypasses easily.
PPassive	This footstool can be stepped on.
PMiddle	This footstool steps on easily.
VPassive	This footstool can be repositioned.
VMiddle	This footstool repositions easily.
PPassive	This blackboard can't be written on easily.
PMiddle	This blackboard doesn't write on easily.
VPassive	This blackboard can not be cleaned easily.
VMiddle	This blackboard doesn't clean easily.
PPassive	This bar can be hung from only with difficulty.
PMiddle	This bar hangs from only with difficulty.
VPassive	This bar can be pulled only with difficulty.
VMiddle	This bar pulls only with difficulty.
PPassive	This shower can be walked into easily.
PMiddle	This shower doesn't walk into easily.
VPassive	This shower can be entered easily.
VMiddle	This shower doesn't enter easily.

There were eight sets of items (all given above), and each subject saw only one member of each set. Subjects answered a comprehension question about every sentence and also rated every sentence on a scale of one to five (1: Extremely unnatural, 2: Somewhat unnatural; 3: Possible, 4: Somewhat natural, 5: Extremely natural). Subjects also rated 16 fillers. Eight of these were items for an unrelated study on adverbs and adjectives. The other eight were true fillers, created by modifying sentences from online newspaper articles. All sixteen fillers came in pairs of grammatical and ungrammatical, and each subject saw only one member of each pair. Subjects rated a total of 24 items.

83 workers were recruited from within the USA, limited to those classified as “masters” by Amazon Mechanical Turk. Several completed the survey more than once; in those cases, all beyond the first were thrown out. Subjects' data were also discarded from the analysis if the subject was not from the USA, did not identify their native language as English, or got fewer than 75% of the comprehension questions correct. Data from 6 subjects were thrown out for these reasons (most for repetitions). This left 77 subjects whose data entered the analysis. 42 identified as male, 33 as female, one as other (one did not answer). 5 were age 20–30, 48 were 30–45, 10 were 45–55, and 13 were over 55 (one did not answer).

Mean ratings and standard deviations are shown below, both raw and z-scores:

(24)

Results for Experiment 1: Raw Scores						
	Filler: Gr	Filler: Ungr	PMiddle	PPassive	VMiddle	VPassive
mean	4.391447	2.199346	1.915033	4.019481	3.090909	4.623377
SD	0.9516665	1.2737448	0.9930529	1.1112660	1.4433242	0.7504066
Results for Experiment 1: Z-Scores						
	Filler: Gr	Filler: Ungr	PMiddle	PPassive	VMiddle	VPassive
mean	0.7536416	-0.7767131	-0.9855794	0.5025850	-0.1343145	0.9195554
SD	0.6686520	0.8748345	0.6203609	0.7153940	0.9483428	0.5628340

Participants behaved as expected on the fillers: They rated the grammatical ones very high, above 4, and the ungrammatical ones very low, close to 2. The two Passive conditions were also rated above 4, while the two Middle conditions were rated lower. In fact, the PMiddle condition had the lowest ratings I have ever seen from Amazon Mechanical Turk participants. Ratings below 2 are virtually unheard of.

Statistical analysis was run using R (R Core Team 2012). Z-scores were analyzed by means of linear mixed-effect modeling using the R-package lme4. In the model, the two fixed effects were Factor 1 (verb versus preposition) and Factor 2 (middle versus passive), and subjects and items were included as random slopes and intercepts. The full model failed to converge, so it was simplified until it did.¹ Reported p-values were extracted from the fitted model objects using the Satterthwaite approximation implemented by the lmerTest package. Both factors were significant, as was their interaction. Middles were consistently rated worse than passives, and items with prepositions were consistently rated worse than items with just verbs. At the same time, prepositional middles were rated even worse than would be expected from the combination of these two main effects.

(25)

	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	0.07614	0.14424	7.09000	0.528	0.613692
Factor1	0.63135	0.10387	7.01000	6.078	0.000500 ***
Factor2	-1.26577	0.18126	7.31000	-6.983	0.000175 ***
Factor1:Factor2	0.45797	0.09151	74.59000	5.005	3.62e-06 ***

I conclude from this survey that prepositional middles are very unacceptable. This matches my judgments and the judgments of every native speaker I have asked.

Newman (2020) also claims that there is an effect of repeated exposure, such that speakers start to accept prepositional middles after hearing multiple examples of them. I was unable to test this hypothesis in the current experiment because each participant saw only two tokens of prepositional middles (a statistical model with presentation order as a factor found no effect, not surprisingly). If this were true, however, it would be unclear what its significance would be. One possibility is that speakers' initial unhappiness with prepositional middles is only the result of never having encountered them before, and repeated exposure relieves this unhappiness. On this view, prepositional middles are produced by the grammar, they just happen not to have been produced by a single speaker of English until two linguists (Keyser & Roeper 1984) decided to try them out. I find this extremely unlikely, since English speakers are generally quite productive with prepositional passives and preposition stranding in general. They even do it in word-formation, producing such adjectival passives as *unheard of* and *unasked for*. If the grammar did allow prepositional middles, surely some creative English speaker would have used them before now. The counter hypothesis, which seems to me to be more likely, is that the grammar does *not* allow prepositional middles. Only linguists ever thought to try them out, since no native speaker merely using their grammar (rather

¹ Model that did converge: $\text{lmer}(\text{Zscore} \sim \text{Factor1} * \text{Factor2} + (\text{Factor1} * \text{Factor2} \mid \text{Participant}) + (\text{Factor1} + \text{Factor2} \mid \text{Item}))$

than experimenting with it) ever would. I suspect that only linguists, who are used to experimenting with their grammar, would find improvement under repeated exposure to prepositional middles. However, it will take additional experimentation to be able to evaluate this, and this additional experimentation I will have to leave for future work. For the moment, I conclude that prepositional middles are *not* grammatical, and our model of the grammar of middles will have to rule them out.

Having concluded that prepositional middles are ungrammatical, let us consider why. Massam (1992) suggests that the restriction on middles here is just like the restriction on object drop in recipes and instructions. They often cannot be the object of a preposition, either:

- (26) a. Take foil; lay — over dough.
 b. * Take foil; cover cookies with — immediately. (Massam 1992: 131, (39a))
- (27) a. Crack two eggs; beat — into milk.
 b. * Crack two eggs; beat milk into —.

Massam points out that null objects in recipe contexts are also not allowed to be the theme of a double object construction:

- (28) Take cookies from oven. *Serve your guests — immediately. (Massam 1992: 131, (40))

As we will see in more detail in section 2.7, middles are not allowed with double object constructions. However, middles contrast with null objects as the goal of a double object construction in this respect. Middles are not well-formed with goals, but null objects are fine as goals:

- (29) a. * Pet snakes feed live animals well.
 b. (Directions that come with pet snake:) Do not feed — live animals!

It therefore does not appear fruitful to try to explain all the restrictions on middles by positing a null pronoun in object position.

Additionally, while the examples of null objects of prepositions in (26b) and (27b) are indeed unacceptable, other cases do seem to be allowed:

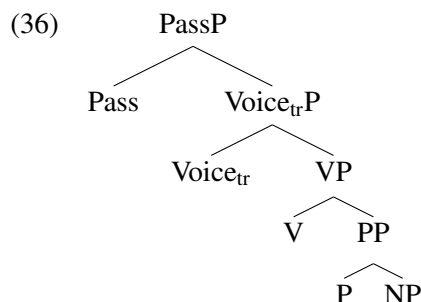
- (30) a. Do not climb on or around. (sign noted on dumpster by Marc Authier)
 b. Do not step on. (sign that can be purchased at <https://www.etsy.com/>)

I therefore conclude that we cannot explain the preposition ban in middles by positing a null object of the type that appears in instructions. However, there is something right about the idea. Objects of prepositions may not be implicit outside of instructions the way objects of verbs can be. The entire PP can be implicit, but not just the object of P:

- (31) a. I just sold the house (to someone)!
 b. * I just sold the house to!
- (32) a. She was telling stories last night (to the guests).
 b. * She was telling stories last night to.
- (33) a. She wouldn't pass the ball (to anyone).
 b. * She wouldn't pass the ball to.
- (34) a. They offered a compromise (to us).
 b. * They offered a compromise to.
- (35) a. That depends (on something).
 b. * That depends on.

So, while objects of P can be the type of null object that appears in instructions, they cannot be the type of implicit argument that figures in the current analysis of middles (see Bruening 2021 and section 3.5 for discussion of the differences between these two types of null objects). This means that the head ι (and its indefinite counterpart) can only combine with Vs, and never with Ps. We can model this as selection: ι strictly c-selects category V. It follows that a middle may never be formed with the object of a preposition.

In the passive, in contrast, a head Pass combines with Voice_{tr} and blocks the projection of the external argument (e.g., Bruening 2013):



Some NP then needs to move to the surface subject position (in English, which does not allow impersonal passives). An object of a P can serve for this purpose as well as an object of a V can. A trace as the object of a P can also be abstracted over by the A-movement rule.

2.3 Idiom chunks

Middles also contrast quite strikingly with passives when it comes to verb-object idioms. As is well-known, many verb-object idioms can be passivized quite easily. However, none of them form middles:²

- (37) a. The beans have been spilled. ('the secret is out')
- b. * The beans spill easily in cases like this.
- (38) a. The ice is easily broken by serving alcohol. ('initial social awkwardness is overcome')
- b. * The ice breaks easily by serving alcohol.
- (39) a. Some feathers got ruffled at that board meeting. ('some people took offense')
- b. * Feathers easily ruffle at board meetings.
- (40) a. Some fires had to be put out. ('minor catastrophes had to be fixed')
- b. * Fires don't put out easily around here.

This is even true of verb-object idioms that appear canonically in the passive:

- (41) a. His goose is cooked. ('he is in trouble with no hope of success')
- b. * His goose won't cook so easily.
- (42) a. My lips are sealed. ('I won't say anything')
- b. * My lips don't seal so cheaply.
- (43) a. The die was cast in 2012 when ... ('the situation became irreversible')
- b. * The die casts easily when ...

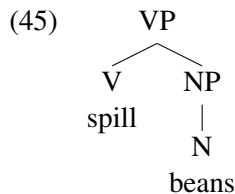
² Ackema & Schoorlemmer (1995: 183) cite **Advantage takes easily of naive customers*. However, *take advantage* is not really a non-literal idiom, and *take* does not form good middles, either (**Backpacks take easily to school*).

Newman (2020) claims that some idioms are acceptable as middles. She gives the following examples (her judgments):

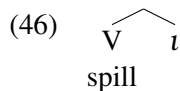
- (44) (Newman 2020: 35, (66))
- a. The ice breaks easily when the participants are seasoned conversationalists.
 - b. ? (One's) appearances keep up easily when the stakes are high.

Once again these judgments do not match mine, or those of anyone I have asked. Note also that *keep up appearances* is not particularly idiomatic, as all items in it are interpreted literally. Additionally, *break* has an unaccusative use and could be being used in that way for speakers who accept this example (in my judgment, the idiom *break the ice* is necessarily transitive and cannot be an unaccusative). I conclude that idioms do not form good middles, even when they do form good passives.

We can understand this fact if idioms are stored as partial syntactic structures, as in O'Donnell (2015); Bruening (2020b). For instance, *spill the beans* is stored as a VP:³



These partial syntactic structures can be altered once merged into the syntax, but they must be merged with the structure they are stored with. In the passive, the VP can be merged into the structure and then the NP object can move away (near obligatorily, with the canonically passive ones). This is allowed. However, if in the middle the head t stops the projection of the argument of V, the idiom will not be usable:

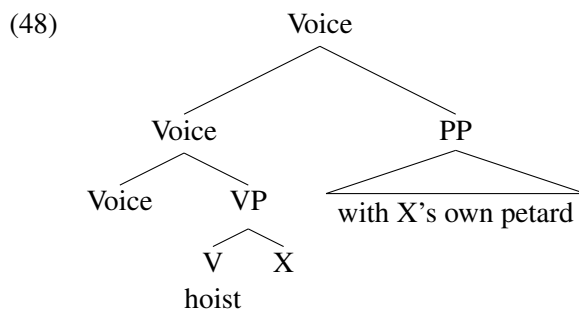


Thus, the current analysis explains why idioms chunks can passivize but cannot form middles.

In contrast with the idioms illustrated above, if the surface subject of the middle corresponds to an open slot in an idiom, then that idiom can form a middle:

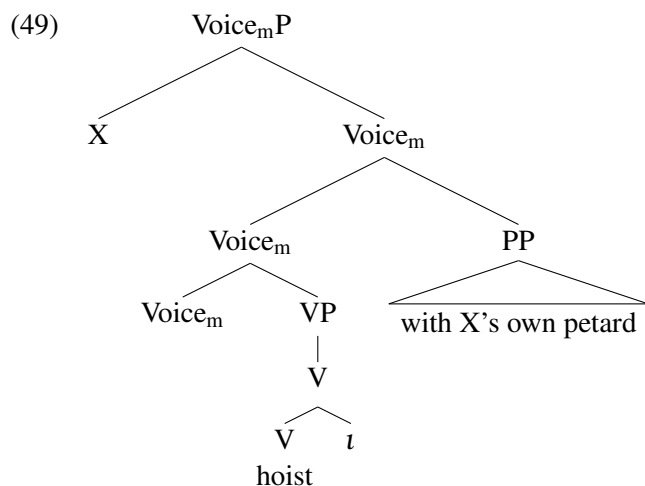
- (47) a. He was hoisted with his own petard. (passive; 'he was harmed by his own plot against another')
- b. He won't hoist with his own petard so easily. (middle)

Instrumentals adjoin to a projection of Voice (see Bruening 2013). I therefore assume that this idiom is stored as the following partial structure (where Voice is unspecified, it can be Voice_{tr} or Voice_m):



³ See Bruening et al. (2018); Bruening (2020a) on determiners in idioms; according to these works, determiners are never part of idioms but are included according to general requirements of the language.

I assume that X just indicates an argument that needs to be saturated. It does not necessarily need to be projected. In the passive, it is projected, and it then moves to the surface subject position. In the middle, it is instead suppressed by t , but the argument role is later saturated by the base-generated surface subject. If the only constraint on open slots is that they need to be saturated, then the middle will be well-formed. All the rest of the structure in (48) besides X will be present:



Thus, the current analysis correctly predicts that open slots in idioms can be the surface subject of a middle, but NPs that are a fixed part of the idiom cannot be.

2.4 Expletives

Expletives are particularly revealing, as they often constitute the strongest argument for A-movement. Expletives readily undergo object-to-subject movement in the passive, with *believe*-type verbs (or “ECM verbs”):

- (50) a. There are believed to be more than 3,000 species of goldfinch.
 b. There were claimed to be 3,500 practitioners of black magic in that one town.

I have been able to find three ECM verbs that seem to form middles well, when they are used just with an NP object. These are *calculate*, *compute*, and *explain* (since *calculate* and *compute* are close synonyms, I only illustrate with *calculate*). As shown in the (a) examples below, they do form middles. As shown in the (b) examples, they also form passives as ECM verbs taking a non-finite complement. An expletive can raise from object to subject in the passive in the (b) examples. However, the (c) examples show that this is completely unacceptable with a middle. To the best of my knowledge, this is a new observation.

- (51) a. These numbers won't calculate!
 b. There are calculated to be around 3,000 tombs at this site.
 c. * There won't calculate to be more than 3,000 tombs at this site.
- (52) a. These exceptions won't explain so easily.
 b. There were explained to be seven exceptions.
 c. * There won't explain to be seven exceptions so easily.

It expletives are just as unacceptable as *there*:

- (53) a. It is calculated to be extremely unlikely that global warming can be limited to two degrees celsius.

- b. * It calculates (easily) to be extremely unlikely that global warming can be limited to two degrees celsius.

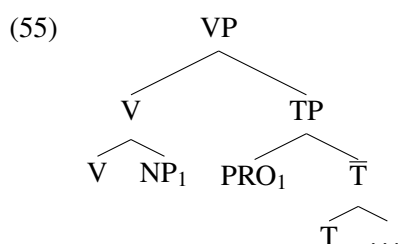
In the current analysis, the head *t* blocks projection of the argument of V, but this argument comes to be bound from a higher position. An expletive fills no argument role, so there is nothing that the head *t* could suppress but allow to be bound. The current analysis therefore explains why middles differ from passives in this respect.

2.5 ECM in general

Turning to ECM in general, Keyser & Roeper (1984: 407), Ackema & Schoorlemmer (1995: 183), Ackema & Schoorlemmer (2006: 172) state that middles are not well-formed with ECM verbs. However, they only give examples with *believe* and *expect*. These do not form middles even with NP objects. As noted above, I have only found three ECM verbs that seem to be compatible with the middle, namely, *calculate*, *compute*, and *explain*. Speakers that I have consulted find that ECM is acceptable with *calculate/compute*, but not with *explain*:⁴

- (54) a. The number of tombs easily calculates/computes to be more than 3,000.
b. * Such motions explain (well) to be merely prospective (well).

I suggest that some verbs are ambiguous between raising and control. The verbs that work here, *calculate* and *compute*, have a control derivation available to them. They can take an internal NP argument in addition to an infinitive. The NP controls the null subject PRO of the infinitive:



t can combine with such a verb, blocking the projection of the NP argument. The argument filling that role is then projected higher, as explained above. From the higher position, it can still control PRO in the embedded clause. This control derivation does not work with expletives, as shown in the previous subsection, because expletives are not capable of control.

2.6 Non-selected arguments in resultatives

Resultatives are well-formed with middles (Hoekstra & Roberts 1993):

- (56) a. This metal hammers flat easily.
b. This surface wipes clean with very little effort.
c. I don't squash flat that easily! (said to giant)

⁴ Newman (2020) says that *prove* is acceptable as an ECM middle for some speakers:

(1) ?% President Gromit won't prove/*believe to be guilty easily. (Newman 2020: 35, (65))

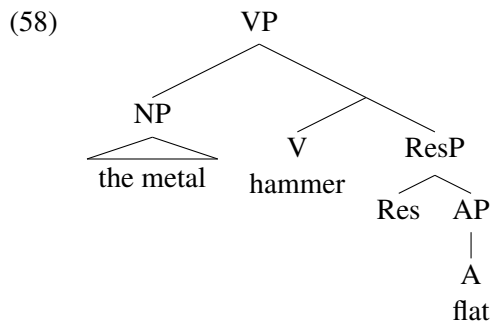
A reviewer suggests an example that sounds better to my ear, *a claim that proved to be wrong with the help of a simple calculation*. However, *prove* has an unaccusative raising use, with no external argument entailed: *a schedule that proved to be too demanding*, *a series of appeals that proved to be unsuccessful*. It is not clear to me whether Newman's and the reviewer's examples do entail an external argument, so I will leave *prove* aside here.

This might at first be taken to indicate that the surface subject must be an underlying object, since it is generally thought that only underlying objects may be the subjects of resultatives (Levin & Rappaport Hovav 1995). I will show momentarily that this does not follow. First, it is important that resultatives do not form middles when the NP involved is not a selected argument of the verb:

- (57) a. *This pub drinks dry easily. (cf. We drank the pub dry. The pub was drunk dry.)
 b. *These shoes run ragged too easily. (cf. She ran her shoes ragged. These shoes have been run ragged.)
 c. *I don't crow awake that easily. (cf. The roosters crowed me awake at the crack of dawn. I was crowed awake at the crack of dawn.)

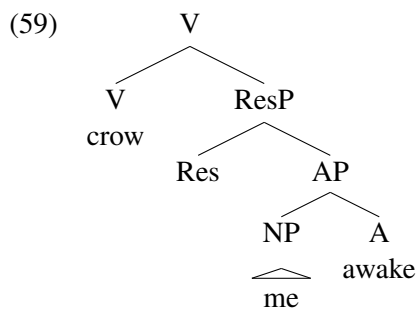
Middles again contrast with passives in this respect. To the best of my knowledge, this is a new observation.

To explain these facts, we need a minimal analysis of resultatives. I propose that resultatives involve a head Res(ult) that mediates between the adjective and the VP (on different versions of a Res head, see Ramchand & Svenonius 2002; Jung & Choi 2023 and references there):



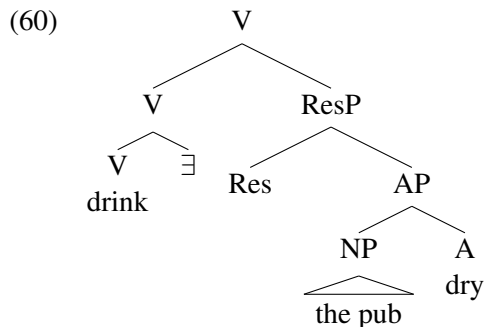
The argument of the adjective can either be saturated within AP, or not. Res can take either an argument of type $\langle e, st \rangle$ or type $\langle s, t \rangle$. Either way, it introduces resultative semantics (the adjective state comes about as a result of the VP event). If Res takes an AP argument of type $\langle e, st \rangle$, then its V argument must also be of type $\langle e, st \rangle$. In this case, it unifies the two individual arguments to create a predicate of type $\langle e, st \rangle$. The output of this then combines with an NP, *the metal* in the tree above. This NP is interpreted as both the object of the verb and the subject of the adjective. (The V moves to Voice, not shown, putting the V before the object.)

If the argument of A is instead saturated within AP, then Res takes an AP argument of type $\langle s, t \rangle$ and also a V argument of type $\langle s, t \rangle$. That is, whichever type Res's first argument is, its second argument has to be that, too. This gives us non-selected arguments in resultatives:

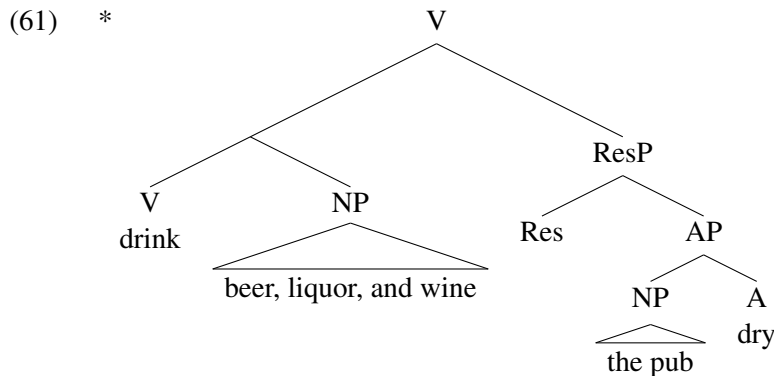


Object drop with verbs like *drink* is analyzed in the theory adopted here as suppression of the object of the verb by a head that merges with the verb. In this case, the implicit object of *drink* is indefinite, so the head \exists merges with the verb rather than the head t (Bruening 2021). Merger of \exists completely suppresses the argument of the V, so that there is no NP object of *drink* in the

syntax. This makes *drink* exactly like *crow*: they do not have objects in the syntax. Res takes an AP argument of type $\langle s,t \rangle$, and a V argument of type $\langle s,t \rangle$:

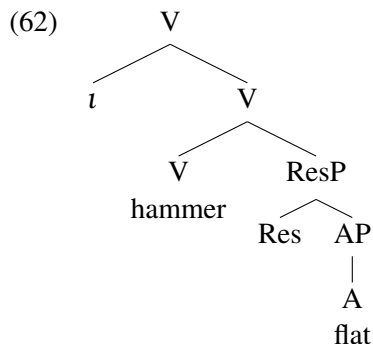


There would be nothing semantically wrong with Res combining with a verb after it has combined with its object. The output of that would be type $\langle s,t \rangle$, and so the AP could also be type $\langle s,t \rangle$:



The problem here is not semantic, but syntactic. In an English transitive, only one object can be case-licensed. Spelling this out formally, Voice_{tr} can case-license exactly one VP-internal NP, through Agree (Chomsky 2000). **They drank beer, liquor, and wine the pub dry* is ungrammatical because Voice_{tr} can only case-license one of the two NPs (*beer, liquor, and wine* and *the pub*) that need case-licensing. In contrast, *they drank the pub dry* is well-formed because Voice_{tr} can case-license *the pub*. The object of *drink* was existentially closed by the head \exists and was not projected into the syntax at all.

Turning back to middles, they are well-formed where the arguments of the A and the V are unified. In the analysis proposed here, the head t must merge with the combination of V and ResP:



t fills in an index for the unified arguments of *hammer* and *flat*, which then comes to be bound by an NP merged in Spec-Voice_mP, exactly as before. This is well-formed.⁵ V moves to t and on to Voice_m, satisfying Voice_m's requirements.

⁵ Note that we do not expect objects of verbs to be able to be implicit when a resultative secondary predicate is present (*I was hammering *(metal) flat all day*). In Bruening (2021), particular verbs select the head t . A verb would have to select

The reason non-selected arguments are not well-formed (**This pub drinks dry easily*) is that the NP is an argument of the adjective, not the V. t only combines with verbs, not with As. It therefore cannot suppress the argument of the A. The NP cannot be projected in Spec-AP and then move to Spec-VoiceP as in the passive, because Voice_m does not trigger A-movement the way Pass does. Thus, the current analysis explains the facts of resultatives, and why passives and middles differ.

Note that the generalization that emerges from PPs, resultatives, ECM, and expletives is that the surface subject in a middle must be a semantic argument of the verb. The current analysis captures this generalization: the head t can only combine with a V and in doing so it binds the V's internal (individual) argument. If the V does not have an internal argument, t cannot combine with it.

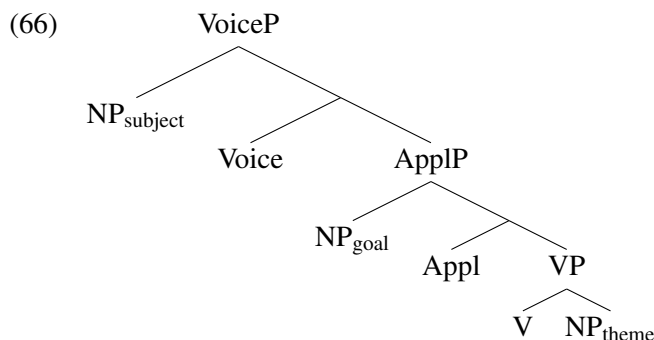
2.7 Double object verbs

As mentioned briefly above, double object verbs do not form middles (Kayne 1982). Middles are well-formed with the prepositional dative, but they are unacceptable with the double object construction:

- (63) a. These books don't sell to linguists. (Kayne 1982)
 b. *Linguists don't sell these books easily. (on middle interpretation)
 c. *These books don't sell linguists easily.
- (64) a. ?These books read easily to children.
 b. *These children read books easily. (on middle interpretation)
 c. *These stories tell children easily. (Massam 1992: 129, (35d))
- (65) a. *Waiters tip \$10 easily.
 b. *\$10 tips waiters easily.

As can be seen, double object constructions do not form middles with either the goal or the theme as the surface subject.

These data follow naturally from the current use of t from Bruening (2021) plus the analysis of the double object construction from that same paper. Bruening (2021) adopts the proposal that the double object construction involves an Appl(licative) head between Voice and V (Bruening 2001; 2010):



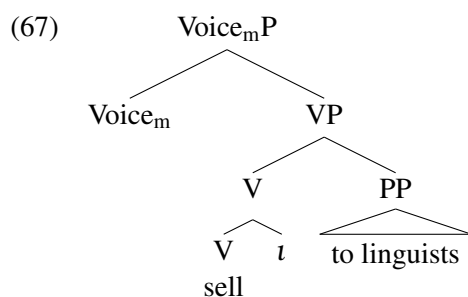
Bruening (2021) proposes that both the verb and the Appl head take two arguments (the verb optionally). The verb moves to Appl and Appl unifies both their arguments, such that the goal is both a goal in a verbal event and a possessor in a possession eventuality, while the theme is both

a resultative to combine with and then t , in that order, in order for an object to be implicit with a resultative. Verbs do not select resultatives (they are adjuncts), so we would not expect this to be possible. As for the facts, I have been unable to come up with a verb that can take an implicit object in the presence of a resultative. In middles, t productively combines with Vs, so it can combine with a V that has a ResP adjoined to it.

the theme in the verbal event and the possessee in the possession eventuality. Importantly, V cannot combine with one of the heads that creates implicit arguments, ι or \exists , because these heads would close one of the arguments of V, which would then block argument unification with Appl. See Bruening (2021) for details.

This same problem is what blocks middle formation in a double object construction. The ι head needs to combine with a V and bind its internal argument. If it were to do so, however, then Appl could not unify its argument with the verb's internal argument. ι cannot combine with the output of V and Appl combining, because it strictly selects Vs, as we have already seen. (Note that implicit arguments are possible in double object constructions, but, according to Bruening 2021, this is only possible if an individual verb specifies that it can combine first with Appl and then with ι or \exists . The middle is not selected, it is a productive syntactic combination, and so this will never be possible for a middle.)

In contrast, the prepositional dative has the NP and the PP as arguments of the V. ι can combine with V and block projection of the NP, while allowing the PP to combine prior to the merger of Voice_m:



ι only blocks projection of the first argument of the verb, so the second must still merge with the V to satisfy its requirements.

The current analysis therefore explains why middles are well-formed with the prepositional dative but not with the double object construction.

2.8 CP subjects

Middles also behave very unlike cases of A-movement when it comes to CP complements. CP complements of verbs can become the subject in the passive:

- (68)
- a. That the world is round has been accepted by everyone.
 - b. That these nouns behave differently is expressed/captured/reflected/brought out by this formulation of the rule. (Alrenga 2005: 184, (32a))
 - c. That John would represent them was deliberated over by the panel. (Alrenga 2005: 186, (36d))

They can even undergo further A-movement, with raising:

- (69)
- a. That the world is round seems to have been accepted by everyone.
 - b. That John would represent them seems to have been deliberated over by the panel.

In contrast, CPs cannot be the surface subject of a middle at all. To the best of my knowledge, this is a new observation:

- (70)
- a. * That these nouns behave differently won't express/capture/bring out easily.
 - b. * That the world is round doesn't accept easily.

- c. * That 3 million people will starve will not calculate.

This is even true where the verb does form a middle with an NP complement, as well as a passive with a CP:

- (71) a. Such ideas don't contemplate well.
 b. That the moon is made of cheese was even contemplated by Aristotle. (Alrenga 2005: 184, (32b))
 c. * That the moon is made of cheese does not contemplate well.
- (72) a. These numbers won't calculate!
 b. That 3 million people will starve was calculated on the basis of existing data.
 c. * That 3 million people will starve will not calculate on the basis of existing data.

The restriction here cannot be about syntactic category. As shown by Alrenga (2005), CPs behave as though they are NPs in the passive. They are only allowed as the subject of a passive if the verb permits an NP object in the active. According to Alrenga (2005), this is an instance of the generalization that in leftward displacement, like topicalization and clefting, CPs can only be related to NP positions (Higgins 1973; Kuno 1973; Kaplan & Bresnan 1982; Postal 1994; Bresnan 1995; Takahashi 2010). This means that in some sense, the CPs in the above examples of the passive are actually NPs. If CPs can be NPs in the passive, they should be able to be NPs in the middle, too. So we cannot rule them out by saying that the middle only allows NPs. The restriction against CP subjects of middles must be about semantic categories, instead. It appears that *t* requires an individual argument of type *e* to suppress when it combines with the V. It cannot suppress a propositional argument (type *t* or something similar).

Importantly for the discussion in this section, the restriction against CPs indicates that middles are behaving very differently from instances of A-movement like passive and raising. Passive and raising do not care about semantics at all, either in terms of semantic types or thematic roles. Middles do. If middles involved A-movement, we would not expect this restriction.

2.9 Reconstruction

The first component of the proposed analysis is the base-generation of the surface subject in a high position, with no representation for it in the VP. The analysis therefore predicts that reconstruction of the surface subject into a VP-internal position should be impossible. This does not mean that we should not see reconstruction at all, however. For instance, the high base-generation position is still lower than the surface position of negation and modals, so we expect that the surface subject could reconstruct below negation and modals. To test whether reconstruction into VP is possible, then, we need to look for reconstruction specifically below the lexical verb.

One such case involves intensional verbs. Intensional verbs do not entail the existence of their object, but they do entail the existence of their subject:

- (73) a. Fairies don't exist, but she is looking for a fairy.
 b. Fairies don't exist, #but a fairy is looking for her.

The speaker can therefore both deny the existence of the object, and still assert that a subject is V-ing the object, as in (73a). The object is in the scope of the intensional verb. In contrast, the speaker cannot consistently deny the existence of the subject, and assert that the subject is V-ing the object in (73b). The subject is outside the scope of the intensional verb.

Many intensional verbs do not form middles, but ones like *blame* and *scapegoat* do. With these verbs, we see the same pattern as with *look for*: the subject is outside the scope of the intensional verb, but the object is inside its scope:

- (74) a. Yetis don't exist, but they're blaming/scapegoating a yeti for the crime.
 b. Yetis don't exist, but #a yeti is blaming/scapegoating me for the crime.

The passive subject patterns with the active object. It can be interpreted within the scope of the verb, through reconstruction:

- (75) Yetis don't exist, but a yeti is being blamed/scapegoated for the crime.

In contrast, I get very uncertain judgments from speakers on middles. Speakers do not find examples like the following patterning clearly with either active subjects or active objects:

- (76) ? Yetis don't exist, but yetis blame/scapegoat well (for crimes).

On the analysis proposed here, the middle has a paraphrase like the following:

- (77) 'Yetis are such that it is/works well for one to blame/scapegoat them.'

I believe that this paraphrase also gives rise to uncertainty about judgments of contradiction:

- (78) ? Yetis don't exist, but yetis are such that it is/works well for one to blame/scapegoat them.

Thus, the middle is patterning as predicted by the proposed paraphrase, where the surface subject did not start as the underlying object.

The judgment becomes clearer if the middle is made episodic. It contrasts clearly with the passive in such cases:

- (79) Yetis don't exist, ...
 a. # ... but a yeti blamed well for the crime after I faked tracks in the snow.
 b. ... but a yeti was blamed for the crime after I faked tracks in the snow.

It therefore appears that the surface subject of a middle is not able to reconstruct into a VP-internal position, exactly as the current analysis predicts.

2.10 Summary

This section has presented data—some old, much of it new—which indicates that there is no movement from object to subject in the middle. Much earlier literature also argued for this conclusion, in particular [Ackema & Schoorlemmer \(1994; 1995\)](#). Taken all together, the evidence indicates that there is no object-to-subject movement in the English middle, contrary to A-movement analyses like those of [Keyser & Roeper \(1984\)](#); [Stroik \(1992\)](#); [Hoekstra & Roberts \(1993\)](#); [Newman \(2020\)](#). The surface subject has to be base-generated in a position external to the VP. See the appendix for additional support for the proposed analysis from VP ellipsis.

It should also be noted that all of the data presented here also argue against another logical possibility, where the object of the V is projected and moves as a null operator. [Bruening \(2014\)](#) proposes such an analysis for adjectival passives. In the middle, one could propose that a null object moves and abstracts, forming a predicate that gets predicated of the (base-generated) surface subject. All of the data presented above indicates that this is incorrect. Middles act both unlike passives and unlike constructions where null operators are well motivated (e.g., relative clauses, tough-movement). All of the data indicate that there is no object internal to the VP at all. See the appendix on putative parasitic gap licensing in middles.

3 Component 2: The external argument

I turn now to the second component of the analysis, which involves the logical external argument. Past research has come to no agreement on the status of this argument. Most work concludes that it is not present in the syntax at all (Condoravdi 1989; Fagan 1992; Ackema & Schoorlemmer 1994; 1995; Klingvall 2007; Lekakou 2005; Fábregas & Putnam 2014; Lekakou & Pitteroff 2018). Others, however, argue for some representation for the external argument in the syntax (Hoekstra & Roberts 1993; Stroik 1992; 1995; 1999; 2005). I argue that the external argument is not present in the syntax, and is only present in the semantics, as part of the semantics of the Voice_m head.

3.1 The external argument is entailed

First, middles are like passives in that they entail the action of an external argument, unlike unaccusatives:

- (80) a. The car started. (unaccusative: no external argument entailed)
 b. The car was started. (passive: external argument entailed)
 c. The car handled well. (middle: external argument entailed)

Maurer & Koenig (2000) showed this experimentally: subjects judged sentences like *The donated antique vase had sold immediately, yet no one had sold it* to be contradictory.

More than just entailing an external argument, Ackema & Schoorlemmer (1994) argue that middles require *agentive* external arguments.⁶ They show that only verbs that take agent subjects form middles. Verbs that have non-agent subjects do not (Ackema & Schoorlemmer 1994 gave the Dutch equivalents):

- (81) a. *Presents receive nicely.
 b. *Money loses easily.
 c. *This island inhabits comfortably.
 d. *Pain doesn't feel easily.

Earlier work on middles often posited an “affectedness constraint,” according to which the logical object needs to be affected. Ackema & Schoorlemmer (1994) show that the actual requirement is an agent requirement on the logical external argument. Verbs that do not have affected objects can easily form middles, so long as the logical external argument is agentive (all examples from Ackema & Schoorlemmer 1994; the first set were the Dutch equivalents):

- (82) a. The Matterhorn climbs more easily than Mount Everest.
 b. Long trucks do not pass easily.
 c. This article will not translate easily.
- (83) a. It will not analyze. (Mr. Chechov about a mysterious force field in Star Trek episode ‘Catspaw’)
 b. This park doesn't enter easily—there's only one gate that is hidden behind some bushes.

⁶ It is also often claimed that the agent has to be human (e.g., Marelj 2004). I do not believe that this is true in English. I could say to a hornet that I just caught, “I don't sting that easily.” Similarly, I could grab an aggressive dog and say, “I don't bite that easily.” Of course, one could argue that I am anthropomorphizing the hornet and the dog, but making this move runs the risk of rendering the claim unfalsifiable. The agent does seem to have to be animate (i.e., human or animal); *Oil does not spread easily (for that machine)* is not felicitous.

None of the above verbs have affected objects, but they all have agentive subjects.

Middles then entail an agentive external argument. The question is whether this external argument is present in the syntax, or is only present semantically. I begin with phenomena that clearly indicate that the logical external argument is incapable of participating in syntactic dependencies, before turning to binding.

3.2 Depictive secondary predicates

The unexpressed external argument of a middle cannot be modified by a depictive secondary predicate:⁷

- (84) a. * This shirt won't button up drunk.
 b. * Klingon poetry translates best drunk.
 c. * The butter spread easily naked.

Middles contrast with passives in this regard. Passives permit a depictive secondary predicate to modify the unexpressed logical external argument, as the following corpus examples show (see Pitteroff & Schäfer 2019: 160–161 for recent discussion and references):

- (85) a. Not to mention continuing the delusion that Finnegans Wake was written **to be read drunk**, and other such nonsense. (Müller 2008: 259, (13))
 b. The sport of Rugby is almost identical to an ancient Greek ball game, **which was played naked**, for an audience composed entirely of elderly aristocrats. (Müller 2008: 259, (12b))

The logical external argument of a middle is even weaker than that of a passive, then, since the two contrast in this respect. I will argue that neither is actually present in the syntax, but they are missing in different ways, which accounts for this contrast.

3.3 Control

Whether the logical external argument in a middle can control PRO has been a matter of debate. There is one obligatory subject control verb that also takes an object, namely *promise*. However, a middle seems ill-formed with this verb, regardless of control (see the finite clause in 86c):

- (86) a. One₁ can easily promise children [PRO₁ to do things with them “later”].
 b. * Children easily promise [PRO to do things with them “later”].
 c. * Children easily promise [that Santa will come this year].

It-passives of object control verbs permit control by the implicit argument of a passive, but the corresponding middle is unacceptable:

- (87) a. It was arranged [PRO to welcome the guests in the garden]. (Pitteroff & Schäfer 2019: 144, (18h))
 b. * It won't arrange easily [PRO to welcome the guests in the garden].

⁷ Ackema & Schoorlemmer (2006) present the following example:

(i) Physics books read poorly when drunk. (Ackema & Schoorlemmer 2006: 185, (160a))

This example is unacceptable without *when*. True adjectival depictive secondary predicates require the syntactic presence of an NP (or a head that projects one; see section 3.5). *When* phrases apparently only need a semantically entailed entity.

However, it is not clear whether this is due to the failure of control, or the inability of an expletive to be the subject of the middle (see section 2.4).⁸

The literature has concentrated on control into adjuncts. [Stroik \(1992\)](#) argues that the unexpressed external argument can control into an adjunct clause on the basis of examples like the following:

- (88) a. Most physics books read poorly even after PRO reading them several times. ([Stroik 1992: 134, \(18a\)](#))
 b. Politicians bribe best after PRO doing them a favor or two. ([Stroik 1992: 134, \(18c\)](#))
 c. This blouse washes normally without adding any special product. ([Iwata 1999: 544, \(69b\)](#))

However, [Ackema & Schoorlemmer \(1995\)](#) show that PRO in these adjunct clauses does not require syntactic control:

- (89) a. Most physics books are difficult even after reading them several times. ([Ackema & Schoorlemmer 1995: 182, \(24a\)](#))
 b. Bureaucrats usually are more cooperative after doing them a favor or two. ([Ackema & Schoorlemmer 1995: 182, \(24c\)](#))
 c. This blouse will be soft and wrinkle-free even without using any special products.

Control into adjunct clauses is therefore not telling.

Middles do not license purpose clauses, except of the kind that are good with anything ([Roberts 1987; Stroik 1992](#)):

- (90) a. * Politicians bribe easily in order to get a government contract.
 (cf. One can easily bribe politicians in order to get a government contract.)
 b. * The elliptical machine disassembles easily in order to transport it.
 (cf. One can easily disassemble the elliptical machine in order to transport it.)
 c. * The car handled badly in order to scare the passengers.
 (cf. The driver handled the car badly in order to scare the passengers.)
 d. This dog food cuts and chews like meat in order to make your pet happy. ([Marelj 2004: 122, \(47b\)](#))
 (cf. The window is bulletproof in order to protect the president.)

Middles contrast with passives in this respect, as is well known ([Roeper 1987](#)):

- (91) a. That politician was bribed in order to get a government contract.
 b. The elliptical machine was disassembled in order to transport it.
 c. The car was being handled badly in order to scare the passengers.

The contrast between middles and passives with respect to purpose clauses was verified experimentally by [Maurer & Koenig \(2000\)](#) (but note that some of their middle items were actually unaccusatives, which also do not license purpose clauses). (For more discussion of control by the implicit external argument of a passive, see [Pitteroff & Schäfer 2019](#).)

So far, then, it appears that the logical external argument of a middle is not present syntactically. It cannot be modified by a depictive secondary predicate, and it cannot participate in control.

⁸ [Pitteroff & Schäfer \(2019\)](#) argue that *it* in examples like (87a) is not a true expletive, but is a stand-in for the CP. Middles also do not allow CP subjects (see section 2.8).

3.4 Binding

Binding at first appears to contradict the evidence from depictive secondary predicates and control. Middles do appear to permit an anaphor bound by the logical external argument of a middle, as Stroik (1992) claimed:⁹

- (92) a. Some poems read better aloud to oneself than others do. (Stroik 1992: 133, (16d))
 b. Melissa was delighted to find that some of her poems read aloud to herself quite well.
 c. We were delighted to find that some of our poems read aloud to each other quite well.
 d. Randi was delighted to find that the butter spread easily on herself after she had microwaved it.
 e. To the students' consternation, tickets to the school play sold more easily to themselves than they did to others.
 f. The winter swimmers were delighted to find that the goose fat rubbed easily onto themselves once it was warmed up.

The passive equivalents of these also seem to be acceptable:

- (93) a. Some poems can be read aloud to oneself better than others can.
 b. Melissa was delighted to find that some of her poems could be read aloud to herself quite well.
 c. We were delighted to find that some of our poems could be read aloud to each other quite well.
 d. Randi was delighted to find that the butter could be spread easily on herself after she had microwaved it.
 e. To the students' consternation, tickets to the school play were sold more easily to themselves than they were to others.
 f. The winter swimmers were delighted to find that the goose fat could be rubbed easily onto themselves once it was warmed up.

One might conclude from this that the logical external argument of both the passive and the middle is syntactically represented. This conclusion would be too hasty. Anaphors can sometimes be used logophorically, meaning that they can take as an antecedent an entity that does not locally c-command them and may not even be present in the syntax (Pollard & Sag 1992; Reinhart & Reuland 1993). Charnavel & Sportiche (2016) offer a way to rule out this possibility: using inanimate anaphors. Anaphors used logophorically can only take sentient entities as their antecedents. Inanimate anaphors require a local c-commanding antecedent and do not permit a logophoric use. When we use inanimate anaphors in passives, we find that they are unacceptable:

- (94) a. *The moon's gravitational pull isn't strong enough for asteroids to be attracted to itself very easily.
 (cf. The moon attracts asteroids to itself quite frequently.)

⁹ In addition to the example in (92a), Stroik (1992) presented putative examples of binding in middles involving anaphors inside picture NPs. Since anaphors inside picture NPs are exempt (Pollard & Sag 1992), I do not take such examples to indicate the possibility of binding; see also Zribi-Hertz 1993; Ackema & Schoorlemmer 1995. I only use examples involving an anaphor inside an argument PP. Unfortunately, they, too, seem to allow a logophoric use in middles and passives, as discussed in the text.

- b. * This machine's programming has the result that oil is spread on itself once a day.
(cf. This machine spreads oil on itself once a day.)
- c. * This automatic thresher's design allows spare blades to be stored inside itself.
(cf. This automatic thresher stores spare blades inside itself.)
- d. * This machine is designed so that X-rays are constantly shot at itself.
(cf. This machine constantly shoots X-rays at itself.)

I take this to indicate that putative examples of binding by the missing external argument of a passive are not actual examples of binding (contra, e.g., Baker et al. 1989; Roberts 1987; Collins 2005). The missing external argument of a passive is not capable of binding an anaphor. An anaphor can be acceptable in the passive, but when it is, it is being used logophorically.

Unfortunately, we cannot use the same test in middles, since the logical external argument of a middle is necessarily animate (human or animal). However, it seems likely that middles and passives are behaving the same with respect to binding. The missing external argument of a passive is capable of more syntactic effects than that of a middle: it can be modified by a secondary depictive predicate and it can control PRO (see above). It would be very strange if the logical external argument of a middle could bind an anaphor but the logical external argument of a passive could not. If anything, it should be the other way around. Since apparently bound anaphors in the passive actually seem to be logophors, I conclude that they are in middles, as well. All of the data are consistent with this conclusion, and taking syntactic binding to be possible in the middle is inconsistent with the data from depictive secondary predicates and control shown above.

Further strengthening this conclusion, unaccusative examples that are similar to the examples of the middle in (92) also permit an anaphor. Unaccusatives do not have an external argument, so they must involve anaphors being used logophorically:

- (95)
- a. Some tones sound better to oneself than they do to others.
 - b. Randi was delighted to find the butter spreading out all over herself without her needing to do anything.
 - c. To the hikers' consternation, snow seemed to fall only onto themselves and not onto the bushes alongside the path.
 - d. The winter swimmers were delighted to find that the goose fat melted easily onto themselves once it was warmed up.

It is clear that the examples of the middle in (92) could involve anaphors being used logophorically, since very similar examples of unaccusatives must.

It appears that, when there is no logical external argument in the syntax, it is possible for any anaphor in the verb phrase to be interpreted logophorically rather than as a syntactic anaphor. Why this would be the case is not entirely clear.

Regardless, if binding were possible, it would perhaps be the strongest possible evidence for the syntactic presence of the logical external argument in the middle. Conversely, if the logical external argument is not capable of syntactic binding, then the logical conclusion is that it is not present in the syntax. Since middles and passives only seem to allow logophoric "binding" and not syntactic binding, I conclude that in neither case is the logical external argument represented syntactically as an NP.

3.5 Accounting for the facts

Implicit objects of verbs in English divide into two types (see Bruening 2021 for recent discussion). Those that are licensed by particular lexical items behave as though they are completely absent from

the syntax, since they cannot bind an anaphor, they cannot be modified by a depictive secondary predicate, and they cannot control PRO (Rizzi 1986):

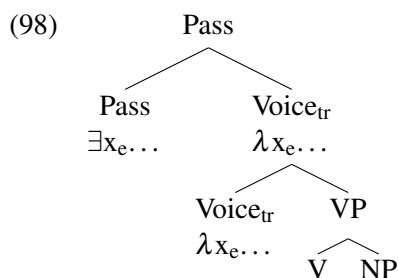
- (96) a. I drink *(alcoholic beverages) by themselves.
 b. Do you drink *(alcoholic beverages) chilled?
 c. This leads *(us) [PRO to conclude the following: ...]

In contrast, null objects that are licensed in instruction contexts (e.g., Massam & Roberge 1989) can bind anaphors, can be modified by depictive secondary predicates, and can control PRO:

- (97) a. Do not take by itself, take with food. [instructions on bottle of ibuprofen] (Bruening 2021: 1050, (87a))
 b. Serve chilled. [instructions on bottle of white wine] (Bruening 2021: 1051, (89a))
 c. Do not train to attack. [instructions that come with adopted dog]

The logical external argument of the middle seems to behave exactly like the first type of implicit object: it cannot bind an anaphor, it cannot be modified by a depictive secondary predicate, and it cannot control PRO. I will accordingly treat it in a similar manner, and not project it in the syntax at all. The logical external argument of the passive, in contrast, behaves in a non-uniform manner: it cannot bind an anaphor, but it does seem to be able to control PRO and it can be modified by a depictive secondary predicate.

To account for these facts, I propose that control and depictive secondary predicates do not require the syntactic presence of an NP. They do, however, require a head that would have projected such an NP as an argument. Following Bruening (2013), the passive involves the ordinary transitive Voice_{tr} head, which normally projects the logical external argument in its specifier. In the passive, however, another head, Pass, stops this argument from being projected and instead existentially quantifies over it:



In this structure, there is a node, namely the mother of Voice_{tr} and VP, that includes an open predicate λx . If depictive secondary predicates and purpose clauses can adjoin to this node, then they can unify their own open arguments with x , prior to it being existentially closed by Pass. This will have the result that the implicit logical external argument of the passive can control PRO in a purpose clause and can be modified by a depictive secondary predicate (cf. Pitteroff & Schäfer 2019: note 20).

In contrast, an anaphor requires a c-commanding NP in order to be syntactically bound. In (98), there is no NP that saturates the external argument role, instead that argument is existentially quantified over by Pass. Hence, the implicit external argument of a short passive cannot bind an anaphor.¹⁰

¹⁰ Angelopoulos et al. (2020) show that an overt by-phrase can bind an anaphor in English, even when it is inanimate (so this must be syntactic and not logophoric binding). This is expected, since the complement of *by* is an NP in the syntax. Angelopoulos et al. (2020) also show that some other adjunct phrases cannot do this. They claim that this indicates that the analysis of by-phrases in Bruening (2013) is not tenable, since it treats the by-phrase as an adjunct. This does

Turning now to middles, they have a head, Voice_m , which does not co-occur with Voice_{tr} . Voice_m does not take the logical external argument as an argument, instead it includes the semantics of such an argument as part of its semantic representation (see 12b). The mother of Voice_m therefore does not include an open predicate $\lambda x. \dots$, and so it is impossible for depictive secondary predicates and purpose clauses to adjoin to this node and unify their arguments with its argument. This explains why the logical external argument of a middle cannot be modified by a depictive secondary predicate or control into a purpose clause. Since this argument is also never projected as an NP, it also cannot bind an anaphor.

As for implicit objects of verbs (96), Bruening (2021) proposed that they are bound by a head that adjoins to V, as described in section 2.1. Assuming that depictive secondary predicates and purpose clauses cannot adjoin to V as a head, prior to the adjunction of the head that binds V's argument (since they are phrases and not heads), they will also fail with implicit arguments. At any phrasal node above V, V's argument will have been closed off already, and so argument unification will be impossible.

In contrast, null objects in instruction contexts must be full NPs, identical in all respects except pronunciation to a regular pronounced object. They can do everything an overt NP can, because they are ordinary NP arguments.

3.6 The interpretation of the external argument

The logical external argument of the passive is generally regarded as being existentially quantified (see Bhatt & Pancheva 2006; Bruening 2013). In contrast, that of the middle is typically interpreted as something like generic *one*. Paraphrases in the active with *one* and an ability modal are typically synonymous with the middle:

- (99) a. Politicians bribe easily.
b. One can bribe politicians easily.

However, we have also just seen examples where the logical external argument seems to be able to be interpreted referentially. The following example is repeated from above:

- (100) Melissa was delighted to find that some of her poems read aloud to herself quite well.

In cases of logophoric binding like this, the logical external argument is interpreted as the logophoric center, in this case, *Melissa*. We can also find cases where the logical external argument appears to

not follow. In Bruening (2013), the by-phrase saturates the external argument role, while other adjuncts do not do this. While there is obviously more to be said, this difference could be crucial to binding. Moreover, in the analysis proposed by Angelopoulos et al. (2020), the by-phrase is generated in the normal external argument position. From this position, it should be able to bind any internal argument. This does not seem to be true:

- (i) a. Archie showed Veronica himself.
b. * Veronica was shown himself by Archie.
c. * Veronica was shown by Archie himself.
(ii) a. An ascetic denies himself all pleasures.
b. All pleasures are denied him.
c. * All pleasures are denied himself by an ascetic.
d. * All pleasures are denied by an ascetic himself.

In fact the NP in the by-phrase is only able to bind into another PP. The analysis of Angelopoulos et al. (2020) leaves this unexplained, and their argument against Bruening (2013) does not go through. I have nothing to say in this paper about by-phrases. I do adopt the analysis of Bruening (2013) for short passives, and see no issue for the analysis of by-phrases in that paper, though much remains to be understood.

be bound by a higher quantifier (the first two sentences below modify examples from Stroik 1992: 133, (17a,c)):

- (101) a. [Every student at the girls' school]₁ expects the Latin text she₁ was assigned to translate quickly. (translator is *she*₁)
 b. Every customer₁ expects that the book he₁ just bought will read quickly. (reader is *he*₁)
 c. Every new lobbyist₁ hopes that all 100 senators will bribe easily. (briber is *they*₁)
 d. Every test driver₁ hopes the car they₁ are trying out will handle well. (handler is *they*₁)

It is also common to have the logical external argument be interpreted as the speaker:

- (102) The elliptical machine assembled more easily than I was expecting. (assembler is most likely the speaker)

This seems to be the most common interpretation for episodic middles.

I therefore hypothesize that the logical external argument is simply an index in the semantics. Voice_m introduces an agent in the semantics (but not the syntax), and the entity filling the agent role is an index. This index will be assigned an interpretation by an assignment function. In typical generic middles, it will be interpreted as generic *one* or *you* or *anyone*. However, the context can make it be interpreted in a variety of ways. The index can even be bound by a non-referential quantifier, as in example (101a).

3.7 By-phrases and for-phrases

Middles do not allow by-phrases (Keyser & Roeper 1984):

- (103) a. * Senators bribe easily by lobbyists.
 b. * This door opens easily by people in wheelchairs.
 c. * The bread cuts easily by children.

Much literature has taken this to indicate that the external argument of the middle is not syntactically present. In the current analysis, it follows from the fact that the logical external argument is not projected at all. In Bruening (2013), the by-phrase adjoins to a projection of Voice_{tr} and saturates the open argument of Voice_{tr} with its own argument. In the current analysis of the middle, the logical external argument is never an open argument. It is only a semantic argument of Voice_m. It is therefore impossible for a by-phrase to appear in the middle.

Stroik (1992) claims that the implicit external argument in a middle can be expressed by a different PP, one headed by *for*:¹¹

- (104) (Stroik 1992: 132, note 5, (iia–b))
 a. The car turned on a dime for Mary.
 b. The text translated without a hitch for Bill.

Some researchers have argued that these PPs are not saturating the external argument role, but are instead experiencers (Hoekstra & Roberts 1993; Ackema & Schoorlemmer 1995; Klingvall 2007). An idea that is similar in spirit is that they are benefactives, as *for*-phrases typically are. Whatever we call the role, it does seem to be true that the complement of *for* does not necessarily saturate the external argument role:

¹¹ Condoravdi (1989) cites an unpublished manuscript by A. Bature as the originator of the idea that a *for*-phrase expresses the logical external argument in a middle.

- (105) a. The car turned on a dime for Mary, since she had hired a crack driver.
 b. The text translated without a hitch for Bill, since he hired a fluent bilingual to do the translating.

This contrasts with the *by*-phrase in the passive, which does necessarily saturate the external role of the verb:

- (106) a. The car was turned by Mary, #since she had hired a crack driver who turned it.
 b. The text was translated by Bill; #he hired a fluent bilingual to do the translating.

I assume that the *for*-phrase, if present, is not saturating the external argument role. It introduces either an experiencer or a benefactive. In most contexts, this experiencer/benefactive will be understood to also be the one filling the external argument role. In the current analysis, an assignment function will assign the complement of *for* as the value of the index that is saturating the external argument role in the semantics of Voice_m .

3.8 Summary

To summarize this section, the missing logical external argument of the middle behaves as though it is not present in the syntax. It cannot be modified by a depictive secondary predicate and it cannot control PRO. Apparent examples of syntactic binding are most plausibly analyzed as logophoric. In the current analysis, there is a Voice head, Voice_m , which introduces an external argument in the semantics as an index. This argument has no syntactic representation.

See the appendix for additional facts and arguments regarding external-argument-oriented modifiers, donkey anaphora, allomorphy, and Stroik's (2005) argument that middles lack vP/VoiceP.

4 Component 3: An ability modal

The third component of the analysis is the semantics of an ability modal. This section motivates this component of the analysis, and discusses other phenomena that have been claimed to be important to middles. I will argue that middles are not always generic, stative, or dispositional. The appendix shows that adverbs are not a crucial component of the middle.

4.1 Middles are not necessarily generic or stative

It is often claimed that middles are necessarily generic (e.g., Condoravdi 1989; see Ackema & Schoorlemmer 2006). However, it is clear that not all instances of middles are generic. As previous literature has noted, episodic middles exist (e.g., Keyser & Roeper 1984; McConnell-Ginet 1994):

- (107) a. The punch bowl (finally) sold. (McConnell-Ginet 1994: 236)
 b. The butter spread easily after I microwaved it.
 c. The elliptical machine assembled more easily than I was expecting.
 d. The car handled well.
 e. ... they tamed so well so easily... (referring to rescued baby raccoons; attested example cited by Newman 2020: (8))

There is no sense in which the above sentences are generic. Yet they have all the properties of middles discussed here: the logical internal argument is in subject position but there is no passive morphology; there is a missing but entailed logical external argument.

It therefore seems that genericity is not a crucial component of middles. Middles do lend themselves well to generic statements, especially with bare plural subjects and/or present tense. However, these are factors that license generics outside of middles. There is therefore no reason to posit a generic operator as a crucial part of the middle. Rather, clauses with bare plural subjects and/or present tense license a generic operator, and so any middle clause with a bare plural subject and/or present tense can also have a generic operator. But the syntactic analysis of middles should not include any reference to a generic operator.

It is also often claimed that middles are stative (e.g., [Ackema & Schoorlemmer 1995](#); [Lekakou 2005](#)). The episodic examples above, and many of those illustrated throughout this paper, also show that this is not correct. Middles can be eventive. When they are, they can appear in the progressive, something that is not possible for statives in English:

- (108) a. The car is really handling well!
 b. The baby raccoons are taming so well so easily!
 c. It's not analyzing!

I therefore do not include either stativity or genericity in the syntactic analysis of middles. Middles, like actives and passives, can be either stative or eventive, or generic or episodic.

4.2 Middles are not necessarily dispositional

Many researchers have also noted that middles typically describe a disposition of the surface subject. This has been codified as a “responsibility condition” in [van Oosten \(1977\)](#), and in the form of disposition ascription has been argued to be one of the defining properties of middles ([Lekakou 2005](#); [Klingvall 2007](#); [Fábregas & Putnam 2014](#)). It does seem to be true that many middles ascribe a property to the surface subject. However, like the tendency to be generic and stative, this also seems to be only a tendency and not a requirement. Consider the following example from [Newman \(2020\)](#):

- (109) *Context: Two sheets were washed together. One became wrapped up inside the other so it came out less clean.*
 Sheet #1 washed better than sheet #2.
 ([Newman 2020](#), Appendix B, (11a))

In this example, it is not inherent properties of Sheet #1 that led it to wash better, it was accidental properties of the washing event. Other examples can also be constructed that show that disposition ascription is not necessary in a middle:

- (110) This knife is so dull that even this soft white bread won't cut with it!

In the above example, it is properties of the knife, not the surface subject of the middle (*this soft white bread*), that are relevant. Many such examples can easily be constructed:

- (111) Amtrak luggage racks are so roomy that even the bulkiest suitcase will stow above your seat with ease.

In this example, the ease of stowing is explicitly contrasted with inherent properties of the surface subject (its “disposition”).

[Lekakou \(2005\)](#) also argues that disposition ascription is part of the truth-conditional semantics of the middle, which makes it truth-conditionally distinct from the corresponding passive. She gives the following example:

- (112) This book reads easily, but it isn't easily read. ([Lekakou 2005](#): 94, (182))

In this example, it is possible to assert the middle while denying the corresponding passive, without contradiction. Lekakou takes this to show that the middle has an additional component of meaning that the passive lacks, which she argues is disposition ascription. In the current analysis, however, what the middle has that the passive lacks is a modal semantics of ability. The appropriate comparison for the middle is therefore the corresponding passive with an overt ability modal. It *is* a contradiction to assert the middle while denying the corresponding passive with an ability modal:

- (113) a. # This book reads easily, but it can't be read easily. (contradiction)
 b. # This car handles well, but it can't be handled well. (contradiction)
 c. # This poem translated well, but it wasn't able to be translated well. (contradiction)

This shows that what middles have that passives do not is a modal semantics of ability, not disposition ascription.

4.3 Modality: Ability

The contradictions in (113) strongly suggest that middles include an ability modal. If we look at middles that are not generic, we can see this quite clearly:

- (114) a. The butter spread easily after I microwaved it.
 b. The elliptical machine is assembling more easily than I anticipated.

While these sentences entail that the the butter was spread and that the elliptical machine is being assembled in the actual world, they also entail some kind of ability. In this they are like the modal verbs *manage* and *be able to* (e.g., [Hacquard 2006](#)). Appropriate paraphrases are, 'I was able to spread the butter easily after I microwaved it', and 'I am (currently) able to assemble the elliptical machine'.

This ability meaning is present in all generic middles, as well. Consider some examples:

- (115) a. Politicians bribe easily.
 b. This dress buttons in the back.

These have the meaning that, in general, agents have the ability to easily bribe politicians, and, in general, agents have the ability to button the dress in the back. This is particularly clear in the 'bribe' example. With the 'button' example, ability becomes very clear with negation, and this is true of other examples as well:

- (116) a. This dress won't button!
 b. This car doesn't handle well.

These have the meaning that agents are unable to button the dress or handle the car.

Our contradiction test also works in the other direction, denying the middle while asserting the passive with an overt modal:

- (117) a. # Judges don't bribe easily, but they can be bribed easily. (contradiction)
 b. # This car doesn't handle well, but it can be handled well.

Since these sentences are also contradictions, we can be reasonably secure in the conclusion that middles include the semantics of an ability modal.

[Newman \(2020\)](#) argues that middles do not have to involve any modality at all. She gives the following example (repeated from above), and claims that there is no detectable modality:

- (118) *Context: Two sheets were washed together. One became wrapped up inside the other so it came out less clean.*
 Sheet #1 washed better than sheet #2.
 (Newman 2020, Appendix B, (11a))

However, examples like this are consistent with modality. The meaning here is exactly like that in *I was able to wash sheet #1 better than sheet #2*, which is also perfectly felicitous in the given context. The sentence with *was able to* clearly has an actuality entailment, which means it makes an assertion about the real world, but it also involves modality in that it quantifies over possible worlds, namely those in which a washer has certain abilities.

Another example that Newman (2020) provides to argue against modality in middles is the following:

- (119) Wallace is such a nincompoop with that knife that the bread didn't even cut. (Newman 2020, Appendix B, (17))

This sentence is also compatible with modality; an appropriate paraphrase is that an agent (here, *Wallace*) was not able to cut the bread.

Newman (2020) argues that, rather than modality, there is instead an “implicit attempt” in a middle. However, what Newman is describing *is* modality. An attempt is something that may or may not succeed in the actual world; to talk about an attempt, we have to talk about possibilities. This is exactly what modality is. Newman's objections are therefore without force.

Given these considerations, I propose that a modal semantics of ability is a crucial component of all middle sentences, as was also proposed by Fagan (1992). In the past tense or the progressive aspect, this ability modal has an actuality entailment, exactly like the modal *be able to* (see Bhatt 1999; Hacquard 2006; 2020).

I propose that this modal semantics is part of the semantics of Voice_m . Voice_m does two things semantically: (i) it introduces an agent, as an index; and (ii) it introduces a modal semantics of ability, and says that the agent it has introduced has the ability to initiate events of the type denoted by the internal argument of Voice_m (the VP). This seems to adequately capture the semantics of the English middle.

4.4 Summary

This section has argued that English middles involve a modal semantics of ability. They are not necessarily generic or stative, and they also do not necessarily ascribe a disposition to the surface subject. I have proposed that Voice_m , in addition to introducing an agent, also has the semantics of an ability modal. In the past tense and the progressive aspect, it has an actuality entailment, like the overt modal *be able to*.

5 Cross-linguistic remarks

In this paper, I have proposed an analysis of the syntax of the English middle. Since much of the literature on middles has been concerned with cross-linguistic comparison, it is necessary to address some remarks toward that topic.

First, I have been concerned with the syntax and semantics of the English middle, which is defined and identified on the basis of its morphosyntactic properties. It is a morphosyntactic category. It is characterized by a surface subject that is a logical internal argument, a missing but entailed external argument, and the absence of passive morphosyntax. Much of the cross-linguistic work, however, has been concerned with identifying and defining a notion of “middle” as a semantic category. For instance, Lekakou (2005) and Fábregas & Putnam (2014) propose semantic definitions of the

middle, and then argue that their proposed semantics can be instantiated in different syntactic forms in different languages. This should hardly be surprising, since even within a single language it is often possible to use different syntactic means to achieve the same semantic ends.

Moreover, many of the languages described by [Lekakou \(2005\)](#) and [Fábregas & Putnam \(2014\)](#) just seem to have passives. As these authors show, in languages like Norwegian, Greek, and French, what is described as a “middle” has all of the morphosyntactic properties of a passive. From a morphosyntactic point of view, they *are* passives. The “middle semantics” that these works identify just seems to be a generic operator. What they are calling “middles” in these languages are generic passives (as these authors themselves admit). I cannot see anything to be gained by calling them “middles” and distinguishing them from passives.

Additionally, the semantic definition of “middle” that these authors propose (ascription of a disposition to a logical internal argument) does not pick out all and only the middle construction in English. There are English middles that are not disposition ascriptions (shown above), and there are also disposition ascriptions involving internal arguments that are not middles (e.g., generic passives, generic unaccusatives). If the goal is to understand the morphosyntax of a given construction in a given language, then semantic definitions like this one are not helpful at all.

There are languages that do seem to have a construction akin to the English middle, insofar as they involve a logical internal argument in subject position and an entailed external argument, but are morphosyntactically distinct from passives. Dutch and German are two such languages. Dutch seems to be very similar to English, except that it allows impersonal middles, which English does not (see [Ackema & Schoorlemmer 1994; 1995](#); [Lekakou & Pitteroff 2018](#)). It is possible that the analysis proposed here can be extended to Dutch, with a minor point of variation to account for the difference in allowing or not allowing impersonal middles. I will have to leave this to future research, however. German, in contrast, uses a reflexive in its middle (e.g., [Steinbach 2002](#)). This construction appears to be very different from English. Aside from the obvious difference in the presence of the reflexive, [Pitteroff & Schäfer \(2014\)](#) argue that German middles involve movement from object to subject position. If they are correct, the syntax of the German middle is very different from that of the English middle. I will have to leave to future research the question of whether they involve any of the same mechanisms (possibly the modal semantics of ability and the non-projection of the logical external argument).

To sum up this section, the middle is a morphosyntactic category, typically identified in opposition to a distinct passive. It has to be analyzed in detail in each language in which it makes sense to identify a middle construction. It is not helpful to define a middle semantics, and then look cross-linguistically to see how languages encode that semantics morphosyntactically.

6 Conclusion

In this paper, I have argued that English middles involve three crucial components: (1) the surface subject, which is the logical internal argument, is base-generated in a high position and never occupies the object position; (2) the missing but entailed logical external argument is not projected syntactically but is only present in the semantics; (3) a modal semantics of ability. I have provided new evidence for all three of these components. I have also proposed that two mechanisms independently proposed for other phenomena work together to bring about the interpretation of the surface subject as the logical internal argument. The analysis is purely syntactic and does not rely on pre-syntactic or post-syntactic mechanisms. The analysis is therefore both conceptually simpler (it does not need pre-syntactic or post-syntactic mechanisms) and empirically more adequate than any of its predecessors. Along the way, I have also shown that apparent binding in short passives is not syntactic binding, and I have shown how we can account for the facts of depictive secondary predicates, control, and binding in passives as well as middles.

Ethics and consent

The research reported here was reviewed and approved by the IRB of the *anonymized*.

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Competing interests

The author has no competing interests to declare.

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