Subjectless Presuppositions and the Semantics of Verbal Roots

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1. Introduction

It is widely assumed in the literature on argument structure that external arguments (EAs) are introduced outside the domain of the verb root (Marantz, 1984; Kratzer, 1996; Pylkkänen, 2008). Kratzer (1996), for example, suggests that EAs are introduced via secondary predication through a functional head VOICE, which composes with VP, containing the verb and its internal argument, through a rule of EVENT IDENTIFICATION. Nevertheless, Kratzer's (1996) proposal has been challenged over the years by various authors (see for example Wechsler 2005). In this vein, Bale (2007) shows that Kratzer's (1996) proposal, while being essentially correct for some verbs, fails to extend to all verb classes. In particular, using *subjectless presuppositions* arising from sub-lexical modification with *again*, Bale (2007) argues that only eventive transitive verbs compose with their EAs via secondary predication while stative transitive verbs and all intransitive verbs take their EAs as arguments directly.

In this paper, we argue against Bale's (2007) claim that intransitives take their EAs directly. Using subjectless presuppositions with *again*, we show that typically intransitive verbs permit subjectless presuppositions when they appear with an optional internal argument. These facts are not predicted by approaches like Kratzer's having EAs associate with intransitive verbs via EVENT IDENTIFICATION, nor are they predicted by those having the verb root directly introduce the EA, such as Bale's. Rather, we propose that the availability of subjectless presuppositions is not determined by the lexical semantics of the verbal root, but by the syntactic structure in which a root is embedded. In so doing, we propose that verbal roots take *thematic roles* as arguments, along with an individual and event argument. These thematic roles are introduced by functional heads within the verbal projection, such as little *v* and VOICE, and verbal roots take these thematic role denotations directly as arguments. This allows us to account for the apparent flexibility of these verbs in allowing for subjectless presuppositions with optional arguments, and further develops a novel theory of root denotations and argument structure.

The paper is organized as follows. In section 2, we briefly review Bale's (2007) generalization with subjectless presuppositions and how he proposes to account for it. In section 3, we present data conflicting with Bale's analysis of his generalization, showing that certain classes of typically intransitive verbs permit subjectless presuppositions when an optional internal argument is present. Section 4 presents a formal analysis, arguing that the facts can be accounted for once we assume that verb roots take thematic roles as arguments. Section 5 reviews other possible analyses, suggesting that they cannot capture the facts without predicting unattested readings. Section 6 concludes the paper.

2. Severing the External Argument and Subjectless Presuppositions

Marantz (1984) observes that while internal arguments of verbs can condition special interpretations of a verb, EAs almost never do. Thus, the truth-conditional meaning of the verb *kill*, for example, is dependent on the denotation of its internal argument; such conditioning of a verb's meaning, on the other hand, is almost never observed with EAs (see Harley & Stone 2013 for a recent review and arguments

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against counterexamples).

(1) a. kill a cockroach
b. kill a conversation
c. kill an evening watching tv
d. kill a bottle (i.e. empty it)
e. kill an audience (i.e. wow them)

Such special interpretations are not limited to completely frozen idiomatic chunks; as Kratzer (1996) shows, *kill* is still conditioned to have the special meaning of 'wasting time' even with the following variations in the structure of the internal argument.

(2) a. kill every evening (that way)
b. kill an evening (reading old Gazettes)
c. kill a lovely morning (paying overdue bills)

One way of accounting for these observations is to say that the different meanings of verbs like *kill* are homophonous words with different meanings. The meaning of 'waste time' for *kill*, for example, arises because it is a partial function defined only when the internal argument denotes a time interval, while other meanings are defined only when the internal arguments denote other special meanings. Kratzer (1996) argues, however, that if this is the correct approach to capturing special interpretations conditioned by internal arguments, there is little reason why EAs never do since one can equally conceive of partial functions for verb meanings where the EA conditions the interpretation of the verb. Since EAs never exhibit such restrictions on verb meaning, Kratzer (1996) argues that EAs must truly be external and not part of the verb's meaning at all. This way, it will be impossible to state restrictions on the interpretation of the verb imposed by EAs.[1] She thus proposes that EAs are introduced by a functional head VOICE, via a special semantic composition rule of EVENT IDENTIFICATION. Adopting a fairly standard notation for semantic types where *e* is the type of entities, *s* the type of events, and *t* the type of truth values, EVENT IDENTIFICATION takes a function of type $<e,<s,t>>$ and a function of type $<s,t>$ and returns a new function that, when supplied with an individual and event argument, returns the conjunction of the result of the two original functions. VOICE is a function of type $<e,<s,t>>$, introducing the AGENT role, and combines with the VP via EVENT IDENTIFICATION.

(3) EVENT IDENTIFICATION:
$f_{e,st} + g_{st} \rightarrow \lambda x.\lambda e.f(x)(e) \wedge g(e)$

(4) $[\![\text{VOICE}]\!]$: $\lambda x \lambda e.\text{AGENT}(e) = x$

Bale (2007), however, argues that not all EAs can be severed from the verb's meaning. The crucial empirical diagnostic he utilizes is *again*-modification. Formally speaking, the logic behind the diagnostic is that *again* is semantically a function of type $<<s,t>,<s,t>>$, being an identity function in the assertion and introducing a presupposition that an identical event had happened temporally prior to the asserted event (Dowty, 1979; von Stechow, 1996; Bale, 2007).

(5) $[\![again]\!]P(e)$ is defined iff $\exists e^1 \exists e^2 [e^1 \prec e^2 \prec e$ & $P(e^1)$ & $\neg P(e^2)]$.
When defined, $[\![again]\!]P(e) = P(e)$.

Under Kratzer's (1996) proposal, the VP prior to combining with VOICE is a function of type $<s,t>$, meaning that it is an available attachment site for *again*, which can take the VP as its argument. Attaching *again* to the VP prior to combining with VOICE would thus produce a presupposition of an earlier event of the type denoted by the VP but crucially excluding any specification of the EA. Bale (2007) shows that such *subjectless presuppositions* are indeed available with non-stative and non-resultative transitive

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[1] See, however, Wechsler (2005), who argues that even severing the EA from the meaning of the verb does not fully capture this observation, since restrictions imposed by the EA on the verb's meaning can in principle be stated at the level of the VP containing the verb and its internal argument.

activity verbs (e.g. *hug, break, kick, rake*). As shown in the context below, the presupposed prior event can contain a *different agent* from the asserted event, suggesting that Kratzer's proposal is essentially correct for these verbs (example (29a) in Bale 2007).

(6) CONTEXT: Seymour's dryer broke. He called **a repairwoman who simply hit the dryer until it started working**. The dryer broke down two days later. So...
     Seymour hit the dryer again.

However, Bale (2007) shows that not all verb classes permit subjectless presuppositions. For example, stative transitive verbs (e.g. *hate, love, own, doubt*) and intransitive verbs, whether unergative or unaccusative (e.g. *run, arrive*), do not permit subjectless presuppositions, as shown in the following contexts with *love*, *run*, and *arrive* (examples (47a), (54), and (55) in Bale 2007). Note that the passive is felicitous for stative transitive verbs, supporting the observation that subjectless presuppositions make reference to the absence of an overt EA.

(7) CONTEXT: Seymour's mother loved Frank, although she was the only one who did. After a while she no longer cared for him. However, Seymour became attached to the man, and developed strong feelings for him after his mother's love subsided. So...
     a. **# Seymour loved Frank again.**
     b. **Frank was loved again.**

(8) CONTEXT: Seymour's wife was the first person ever to arrive at the new airport. Then a week later...
     # Seymour arrived again.

(9) CONTEXT: Last week, Jon's wife ran all morning. Then after she got home, Jon was able to do some exercise. So...
     # Jon ran again.

Based on these data, Bale proposes the following generalization, which we term BALE'S GENERALIZATION.

(10) Bale's Generalization
      Presuppositions with *again* that exclude the EA are only possible with non-stative transitive verbs. They are not possible with stative transitive verbs or intransitive verbs.

Going by the same logic for the availability of subjectless presuppositions for non-stative and non-resultative transitive verbs, Bale (2007) concludes that the EA of stative transitive verbs and intransitive verbs must not be severed and introduced by VOICE, since such an analysis would predict that subjectless presuppositions are uniformly possible. Rather, their EAs should be introduced internally within the VP. That is, stative transitive verb roots must be functions taking two individuals and one event argument, and are thus of type $<e,<e,<s,t>>>$. In this case, *again* can only attach after both the internal argument and EA have been introduced. Likewise, intransitives are uniformly functions from individuals to predicates of events of type $<e,<s,t>>$, and therefore require their EAs to be introduced before producing a constituent of the right semantic type for modification by *again*. In this way, their EAs will always be included in *again*'s presupposition when it attaches to the VP.

3. Against Bale's Generalization: Optional Internal Arguments

We show using the same diagnostic as Bale (2007) that even distinguishing between non-stative transitives and intransitives in terms of how they associate with their EAs is too coarse-grained. The evidence here comes from classes of intransitive verbs that are optionally transitive and can take internal arguments of different syntactic categories. Here, we illustrate with two classes of optionally transitive verbs: verbs of performance and verbs of (human or animal) vocalization (Levin, 1993). These verbs exhibit transitivity alternations, taking what Levin (1993) calls an unspecified object which is syntactically a DP, or a PP expressing direction of the vocalization.

(11) Performance verbs: *dance, waltz, draw, recite, sing, write, whistle, chant*

- Unspecified object alternation:
    1. Sandy sang.
    2. Sandy sang a song/a ballad.
    3. Sandy danced
    4. Sandy danced a jig

(Levin, 1993: pp. 178)

(12) Vocalization verbs: *bark, growl, roar, hiss, shout, scream, snap, whisper*

- Directed-towards alternation:
    1. The dog barked.
    2. The dog barked at the cat.
    3. Susan whispered.
    4. Susan whispered at Rachel.

(Levin, 1993: pp. 205)

As shown in the contexts below, which satisfy a subjectless presupposition, the asserted sentence is infelicitous with *again*-modification when it is intransitive but felicitous when the verb takes an optional DP or PP complement.

(13) CONTEXT: At a ball in honor of the king, John danced the Irish jig. The king was so impressed that he had his court dancer James learn this dance, and...

   a. **# James danced again.**
   b. **James danced the Irish jig again.**

(14) CONTEXT: A cat named Milo walked down the street. Rover barked at him through the fence. Milo passes another yard, where Fido noticed him, and...

   a. **# Fido barked again.**
   b. **Fido barked at him again.**

These facts are unexpected if we assume with Bale (2007) that intransitive verbs take their EAs directly as arguments or if we assume with Kratzer (1996) that their EAs are introduced by VOICE. If we take the felicity of (13b) and (14b) to mean that these verbs can have their EAs introduced by VOICE, then it raises the question of why this *cannot* happen when the verb is intransitive. Assuming Bale's (2007) generalization to be right, it becomes a mystery why (13b) and (14b) are felicitous in these contexts, since these would require the EA to be outside the scope of *again* and thus outside the VP that *again* attaches to, suggesting that they should be introduced by VOICE. In other words, these facts present a dilemma as to where the EA should be introduced.

One straightforward solution is to assume two variants of these verbs: one where the EA is introduced internally to the verb and the other where the EA is introduced outside the VP. While this does solve the problem, this not only proliferates ambiguities in the lexicon, it also fails to capture an important generalization: saying that intransitive *dance*$_1$ introduces its EA directly while transitive *dance*$_2$ introduces its EA externally is really stating the generalization that the possibility of excluding the EA from the presupposition of *again* is dependent on the *presence of an internal argument*. Based on these facts, we can thus revise Bale's Generalization to the following generalization, which we call the INTERNAL ARGUMENT GENERALIZATION.

(15) Internal Argument Generalization (revising Bale's Generalization)
Presuppositions with *again* that exclude the EA are only possible when an internal argument is present.

This generalization is very similar to Bale's, in that it includes transitive expressions with agents and excludes statives and intransitives. It differs from Bale's original claim in that it does not tie the differential availability of EA-excluding presuppositions with *again* to particular lexical classes of verb, but rather specifies the presence of an internal argument as the relevant factor regulating the possibility of such presuppositions. In what follows, we develop an analysis that derives the INTERNAL ARGUMENT GENERALIZATION.

4. Proposal

We propose an analysis that combines a uniform syntactic analysis of the introduction of the EA separately from the verb with a novel semantic treatment of roots that derives the generalization that subjectless presuppositions are possible only when an internal argument is present. The general theoretical backdrop we assume is that of Distributed Morphology (Halle & Marantz, 1993), where the surface verb is composed of an acategorial root combined with a functional head that determines the root's syntactic category. To this, we add the assumption that functional heads are subject to *contextual allosemy*, such that their semantic interpretations can be determined at the semantic interface based on the structure they are embedded in (Wood & Marantz, 2017). The crucial assumption we adopt here is that categorizing little *v* heads are either interpreted as identity functions, or can introduce a thematic role akin to how VOICE can introduce an AGENT thematic role (Kratzer, 1996). The crucial determining context will be whether little *v* introduces an argument in its specifier; when there is a syntactic argument present, *v* will be of semantic type $<e,<s,t>>$ and interpreted as introducing a thematic role that determines how the argument is to be interpreted. In the absence of an argument, *v* can be interpreted simply as an identity function.

(16) a. $[\![v]\!] \rightarrow \lambda x.\lambda e.\text{THEME}(e) = x$ / [DP [_ $\sqrt{\text{ROOT}}$]]
      b. $[\![v]\!] \rightarrow \lambda F.F$ / [_ $\sqrt{\text{ROOT}}$]

We now turn to how the verb root combines with the categorizing little *v* head. Specifically, we propose that verb roots take two arguments, in addition to their event argument: an individual argument and a *thematic role* argument that relates that individual to the event, but leaves the particular role underspecified. This argument can be an EA receiving the AGENT role, or an internal argument bearing some other role, such as THEME, depending on the presence of a syntactic argument in the specifier of *v*. Formally, a verb root like $\sqrt{\text{DANCE}}$ or $\sqrt{\text{BARK}}$ is of type $<<e,<s,t>>,<e,<s,t>>>$, taking a thematic role function as its first argument, followed by an individual and an event argument. The first argument would be supplied either by a categorizing little *v* or VOICE.

(17) $[\![\sqrt{\text{DANCE}}]\!]$: $\lambda f_{e,st}.\lambda x.\lambda e.\text{DANCE}(e) \wedge f(x)(e)$

With these analytical tools in place, we can begin to see why the subjectless presuppositions with *again* depend on the presence of an internal argument. Consider the intransitive variant of $\sqrt{\text{DANCE}}$, which we analyze as in (18). Since little *v* does not introduce an argument in its specifier, it will be interpreted as an identity function as in (16b), serving to pass the denotation of its sister unchanged higher up the structure. Notice now that the root's first argument is supplied by VOICE and thus the root's thematic role argument is supplied by the AGENT role.
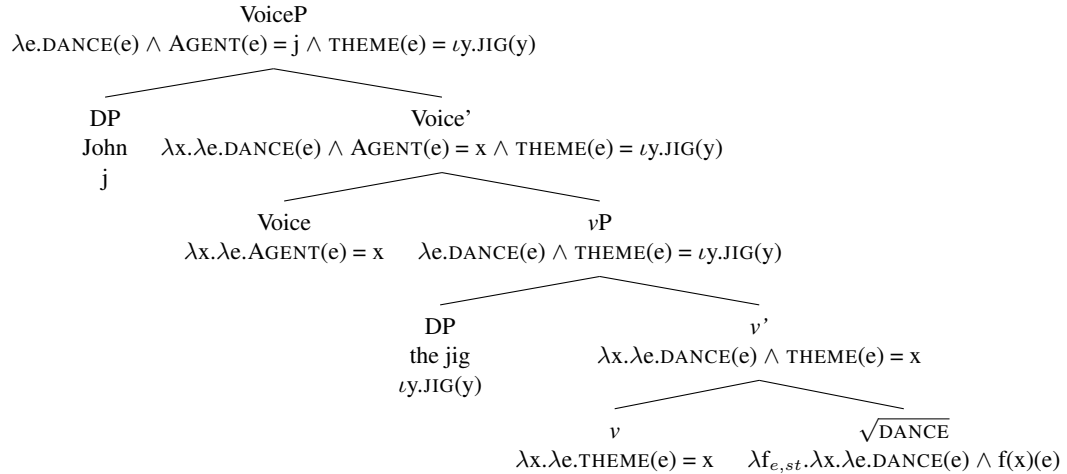
(18) Intransitive argument structure
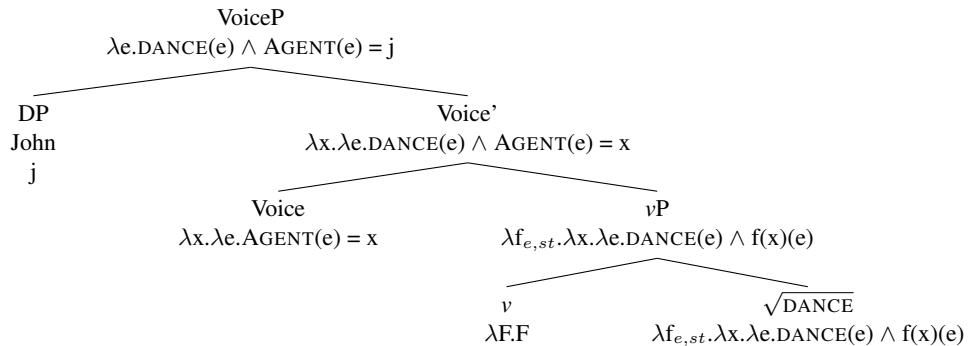
Recall now that *again* is of type $<<s,t>,<s,t>>$, requiring a function of type $<s,t>$ as its first argument. The only constituent of the correct type for *again* to attach is at the VoiceP level, which includes the agent. The vP, where *again* would need to attach in order to produce a subjectless presupposition, is of type $<<e,<s,t>>,<e,<s,t>>>$, the incorrect type to serve as *again*'s argument. We thus successfully predict that in the intransitive variant, a subjectless presupposition is not possible, in line with Bale's (2007) generalization.

In the presence of an internal argument, however, little v is conditioned to have the interpretation in (16a). It is therefore semantically contentful, and serves to introduce the THEME role. The root $\sqrt{\text{DANCE}}$ would take this little v as its argument, saturating the functional argument position of the root. The DP introduced in little v's specifier then saturates the root's individual argument. Because the root's thematic role argument has long since been saturated by the THEME role introduced by v, VOICE, which introduces the AGENT role, composes with vP via EVENT IDENTIFICATION.

(19)   Transitive argument structure

VoiceP
$\lambda e.\text{DANCE}(e) \wedge \text{AGENT}(e) = j \wedge \text{THEME}(e) = \iota y.\text{JIG}(y)$

DP
John
j

Voice'
$\lambda x.\lambda e.\text{DANCE}(e) \wedge \text{AGENT}(e) = x \wedge \text{THEME}(e) = \iota y.\text{JIG}(y)$

Voice
$\lambda x.\lambda e.\text{AGENT}(e) = x$

vP
$\lambda e.\text{DANCE}(e) \wedge \text{THEME}(e) = \iota y.\text{JIG}(y)$

DP
the jig
$\iota y.\text{JIG}(y)$

v'
$\lambda x.\lambda e.\text{DANCE}(e) \wedge \text{THEME}(e) = x$

v
$\lambda x.\lambda e.\text{THEME}(e) = x$

$\sqrt{\text{DANCE}}$
$\lambda f_{e,st}.\lambda x.\lambda e.\text{DANCE}(e) \wedge f(x)(e)$

Note now that in the transitive structure, there are two constituents of type $<s,t>$ which can serve as *again*'s first argument: at the little vP level and at the VoiceP level. Attaching at VoiceP produces a repetitive reading which includes the agent argument and crucially, attaching at vP now excludes the agent argument. We thus account for the fact that the transitive variant of the verb root $\sqrt{\text{DANCE}}$ modified with *again* permits a subjectless presupposition, since such a presupposition is produced when *again* attaches to vP, a position not available in the intransitive variant due to a semantic type clash because little v is interpreted as an identity function and does not introduce an argument in its specifier.

Verb roots that exhibit a difference in the availability of subjectless presuppositions when they take PP internal arguments can be analyzed the same way, modulo how exactly PPs are composed and interpreted semantically. One could assume that the adpositional head in a PP directly introduces the thematic role and also takes the verb root as an argument such that it can feed its thematic role directly to the verb root and condition its interpretation. The preposition *at*, when heading a PP taken as an internal argument, could thus have the interpretation as below. Here, it first takes an individual argument which it eventually feeds to the verb root, and then takes the verb root itself as an argument, feeding a thematic role function to the verb root directly. In this way, it would ultimately produce a constituent of type $<s,t>$ for *again*-modification.

(20) $\llbracket at \rrbracket = \lambda x.\lambda F.\lambda e.F(\lambda y.\lambda e.\text{GOAL}(e) = y)(x)(e)$

Alternatively, we can analyze the denotation of the preposition as an identity function over individuals and have the categorizing little v itself introduce the GOAL thematic role and c-selecting a PP headed by *at*. This is the approach taken by Merchant (2019). Without going into too much detail, Merchant (2019) observes that the form of a preposition for roots that take a PP as an internal argument can vary across its realizations as either a verb, noun, or adjective. A representative example with $\sqrt{\text{PRIDE}}$ is provided below.
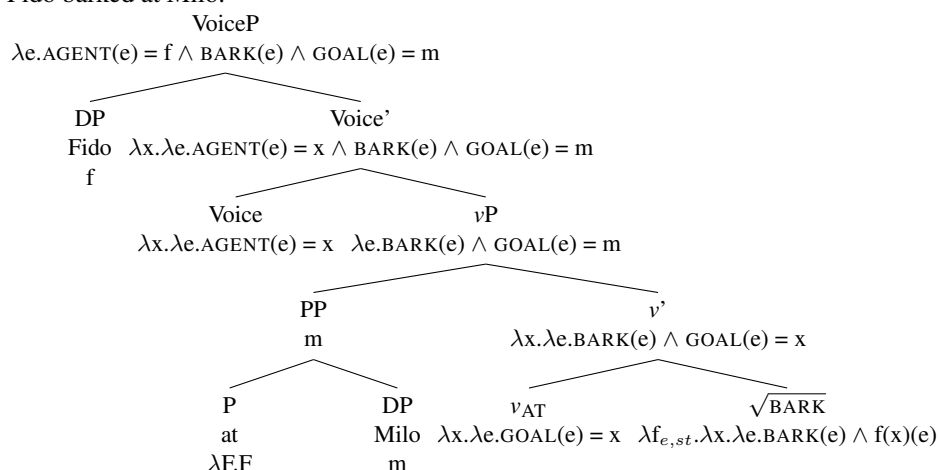
(21)   a. She prides herself on/*in/*of her thoroughness.
       b. Her pride in/*on/*of her thoroughness is understandable.
       c. She is proud of/*on/*in her thoroughness.

Merchant (2019) concludes that the selection of a PP is not encoded in the root but by the categorizing head. In addition, the categorizing head can specify the exact form of the preposition heading the PP it selects. Incorporating this insight, we can treat little *v* as directly encoding the P that it selects for, while also conditioning the thematic interpretation of the DP introduced within the PP. The interpretation of such a little *v* is given below; we assume along with Merchant (2019) that in addition to specifying the form of the preposition and the thematic role, it also encodes an idiosyncratic list of roots that it can combine with. Under this view, the P head itself is semantically inert, being licensed by a selectional feature of little *v*.

(22) $[\![v_{\text{AT}}]\!] \rightarrow \lambda x.\lambda e.\text{GOAL}(e) = x$ / [PP [__ $\sqrt{\text{BARK}}$/$\sqrt{\text{YELL}}$/ $\sqrt{\text{SCREAM}}$ ...]]

With these assumptions in place, cases where subjectless presuppositions are permitted with intransitive roots when they have a PP argument will receive the same analysis as those that optionally take a DP complement. For the root $\sqrt{\text{BARK}}$, for example, subjectless presuppositions are not permitted in the intransitive variant since little *v* is interpreted as an identity function and little *v*P is not of the correct semantic type for *again* to attach, parallel to (18). With a PP internal argument, little *v* introduces a PP in its specifier, with the P being semantically inert. The structure and interpretation are illustrated below.

(23)   Fido barked at Milo.

VoiceP
$\lambda e.\text{AGENT}(e) = f \wedge \text{BARK}(e) \wedge \text{GOAL}(e) = m$

DP
Fido
f

Voice'
$\lambda x.\lambda e.\text{AGENT}(e) = x \wedge \text{BARK}(e) \wedge \text{GOAL}(e) = m$

Voice
$\lambda x.\lambda e.\text{AGENT}(e) = x$

*v*P
$\lambda e.\text{BARK}(e) \wedge \text{GOAL}(e) = m$

PP
m

v'
$\lambda x.\lambda e.\text{BARK}(e) \wedge \text{GOAL}(e) = x$

P
at
$\lambda F.F$

DP
Milo
m

v_{AT}
$\lambda x.\lambda e.\text{GOAL}(e) = x$

$\sqrt{\text{BARK}}$
$\lambda f_{e,st}.\lambda x.\lambda e.\text{BARK}(e) \wedge f(x)(e)$

This achieves the same effect as in (19). Apart from VoiceP, *v*P will now also be a constituent of type <*s,t*>, making it available for *again* to attach. When attached here, *again* will not include the agent in its presupposed prior event, thus allowing for a subjectless presupposition as compared to the intransitive variant.

Note that in all of the above cases, we maintain a conservative syntactic analysis of the introduction of EAs: they are uniformly introduced in the specifier of VoiceP, as in Kratzer (1996), and are thus never taken as direct arguments by verbs, regardless of their transitivity, *contra* Bale (2007). However, unlike Kratzer's analysis, we posit that roots take an underspecified thematic role argument, which may be supplied by Voice or by a lower *v*. This combination of a conservative syntax and a novel semantics for verb roots allows us to successfully derive the Internal Argument Generalization.

5. Against An Alternative Analysis

An anonymous reviewer suggests an alternative analysis of cases when unergative verbs like *dance* take an optional DP complement, according to which the DP is interpreted as a created object and thus akin to an incremental theme which measures out the dancing event. Informally, *dance the Irish jig*

would be interpreted as *there was a dancing event e and e was an event causing there to be an Irish jig*. Syntactically, we could assume that there is some kind of small clause which denotes a stative property of existence, or, alternatively, assume some kind of interpretive rule that interprets the DP as a stative predicate semantically (see Marantz 2005, 2007 and Wood & Marantz 2017 for such an analysis of creation and change-of-state verbs). For concreteness, we illustrate a possible structure for a small clause analysis, utilizing a silent event predicate EXISTS to denote the state of existence. This small clause constituent would be of type $<s,t>$, serving as the argument of a causative little v interpreted as introducing the CAUSE relation between an event and a state and thus is of type $<<s,t>,<s,t>>$ (Kratzer, 2005). Under this analysis, the fact that a subjectless presupposition is allowed when there is an optional object can be attributed to the fact that it has a different structure that contains a stative constituent that requires a causative v, and that the vP is the correct type for *again* to take as an argument. This position excludes the EA introduced by VOICE and generates a *restitutive* reading presupposing that the Irish jig existed before. On this approach, then, the apparent subjectless presupposition is illusory, having a different source from the sorts of presuppositions with which Bale (2007) was concerned.

(24)   [AGENT VOICE [CAUSE [$_{SmallClause}$ EXISTS DP]]]

We wish to point out three issues for such an analysis. First, note that it says nothing about the intransitive uses of verb roots like $\sqrt{\text{DANCE}}$ or $\sqrt{\text{BARK}}$ and how they disallow subjectless presuppositions, as originally observed by Bale (2007). One could say that in the intransitive variant where these roots are interpreted as activity verbs, there is simply a different 'flavor' of little v, something like the v_{DO} of Folli & Harley (2005) denoting a doing event. Even so, assuming then that the EA is still introduced by VOICE, one would still predict the intransitive variant to permit a subjectless presupposition contrary to fact.

Second, while optional DP internal arguments of verb roots like $\sqrt{\text{DANCE}}$ can plausibly be interpreted as a created object, it is not clear that intransitive verb roots like $\sqrt{\text{BARK}}$, which optionally take a directional PP argument, can be similarly analyzed. One might think they are interpreted on par with motion constructions such that there is a small clause constituent that denotes some kind of state. However, the interpretation of *bark at Fido*, for example, is not *there is a barking event and it is an event causing a bark to be at Fido*, as one would expect if these are semantically on a par with motion verbs like *throw* where *John threw Mary a ball* means *there is a throwing event and it was an event causing the ball to be with Mary*. Likewise, such analyses would also say nothing about the intransitive use of *bark* disallowing a subjectless presupposition, since the EA would presumably still be introduced by VOICE.

Finally, even if we set aside the first two concerns, we see that a creation verb analysis along the lines of (24) makes incorrect predictions about the range of available readings when transitive uses of *dance* are modified by *again*. Specifically, such an analysis predicts the existence of a purely restitutive reading with *again* when it attaches to the small clause result constituent (von Stechow, 1996). We see plainly that such a reading with *again* is impossible. It is difficult to construct an example with *dance*, since some form of dance existing is intrinsically caused by some event of dancing, so we elect instead to use the verb *sing*, another verb of performance that permits an optional DP argument in the same way *dance* does. In the context below, because the song *Amazing Grace* was previously performed via humming, a manner different from the asserted event of singing, the repetitive reading of *again* is ruled out. The context thus forces a restitutive reading, in which *again* would target a result state constituent, presumably of the song existing. Crucially, we see that in this context, such a sentence is infelicitous. This indicates that there is in fact no such result state constituent that *again* can target, and the only possible reading is a subjectless repetitive reading where the manner of performance of both the asserted and presupposed events is identical.

(25)   CONTEXT: Kristina previously hummed the song Amazing Grace. Lucy really loved the song and wanted to hear it one more time so...
   a.   **# Ryan sang Amazing Grace again.**
   b.   **✓ Ryan hummed Amazing Grace again.**

In contrast, our own analysis makes no recourse to the presence of a small clause constituent in the transitive variant, and therefore does not make the incorrect prediction that the creation verb analysis

makes. The difference between the transitive and intransitive use of such verbs is due to the presence of an optional argument conditioning the interpretation of a verbalizing little *v*. In addition, regardless of whether *again* attaches to VoiceP or *v*P, the verbal root is always included in *again*'s presupposition, and thus correctly predicts that (25a) is infelicitous in the context given in (25), while (25b) is felicitous. In light of these concerns, we contend that cases where verb roots that can optionally appear in a transitive structure do not involve a small clause result state constituent that can be targeted by *again*-modification.

6. Conclusion

In this paper, we argued against Bale (2007), who claims that while non-stative transitive verbs have their EAs introduced by VOICE, intransitive verb roots do not and take their EAs as arguments directly. The empirical evidence comes from *again*-modification and the availability of subjectless presuppositions with verbs that can be either intransitive or transitive. Specifically, we observed that typically intransitive verbs *do* permit subjectless presuppositions in the presence of an optional internal argument, but do not when this argument is absent. This fact presents a problem for both Kratzer (1996) and Bale (2007): the former overgenerates subjectless presuppositions, while the latter undergenerates them. This leads to a refinement of Bale's Generalization, what we termed the INTERNAL ARGUMENT GENERALIZATION. To account for this, we proposed a novel semantics for verb roots, according to which they take thematic roles as arguments, and, depending on the structural context and the presence of an internal argument, verbalizing little *v* heads can either be interpreted as introducing a thematic role or as semantically inert. This allows the sole argument position of an intransitive verb root to be saturated by THEME, GOAL, or AGENT, correspondingly producing different positions for *again* to attach and predicting when a subjectless presupposition is possible. Furthermore, we argued against analyses that postulate a stative small clause constituent when intransitive verb roots appear with an optional internal argument, showing that apart from not being able to account for why subjectless presuppositions are not permitted in the intransitive variant, they also predict unattested pure restitutive readings that are not predicted by the analysis we have developed here.

We foresee the same analysis extending to other verb classes, though space considerations preclude a full discussion. For example, even within the class of non-stative transitive verb roots, which Bale (2007) suggests always allow subjectless presuppositions, we can distinguish sub-classes that actually do not allow subjectless presuppositions. For example, verbs like *win*, *lose*, and *ace (the test)* do not permit subjectless presuppositions.[2] This would be surprising and not predicted given Bale's (2007) generalization.

(26)   John won the Boston Marathon. The following year...
       John / # Mary won it again.

Intuitively, one possible explanation is that the subjects of these verbs are not agents, but *experiencers* or *themes*. We can reconcile the fact that subjectless presuppositions are not allowed with these verbs if non-agent arguments are specified by the verb root and introduced by another variant of little *v*, such that the only constituent for *again*-modification must include the non-agentive EA.

On a broader theoretical level, there are two other issues that we wish to address. First, one might wonder how we can constrain which kinds of thematic roles particular roots can occur with. Framed another way, another anonymous reviewer questions if we have simply shifted the explanatory burden elsewhere; instead of having two different roots, we have simply proposed that there are multiple verbalizing *v* heads. In the system we proposed here, whether a given root combines with a particular *v* and its associated thematic interpretation and form of adposition (if any) is conditioned by selectional features of the *v* head. As Merchant (2019) notes, this is independently needed in any case, as some overtly spelled out categorizers can only occur with some roots and not others (e.g. distinguishing *dependence* and *dependency* from *independence* and **independency*). Thus, we contend that constraining the thematic roles a verb root occurs with by specifying the roots that a *v* can occur with is not ad hoc and stipulative, as it is independently needed in other domains. Future work may thus aim to develop a restrictive theory of possible *v* heads, which may then be wed to the analysis of the semantics of roots we have developed here.

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[2]   We thank Noam Chomsky (personal communication) for bringing these cases to our attention.

Second, and finally, we note that the system we propose here is novel in that while roots have functional role arguments, their thematic interpretation and actual syntactic argument is severed from the verb root and introduced by a categorizing *v* head. Much has been said in the literature about whether internal arguments are truly arguments of roots. There have been empirical arguments for both positions, with Harley (2014) for example arguing that they are while others like Schein (1993) and Ahn (2020) arguing that internal arguments are truly severed both syntactically and semantically. Our proposal here constitutes a middle ground between these two views: roots do take an individual argument, but the particular role that relates this individual to the event is underspecified, and depends on which thematic role the root takes as an argument before saturating its individual argument. We have argued that such an analysis is necessary to capture the range of facts here. Future work can focus on testing the predictions the proposed view here makes in a broader range of domains, and contribute further to the debate about the status of internal arguments within theories of argument structure.

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