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Objects in motion verb phrases

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This article investigates the syntactic and semantic relationship between the unselected object and the unergative verb in examples like *Mary waltzed John around the room*. Current consensus holds that this sentence involves resultative secondary predication, so that it is structurally equivalent to resultatives like *Mary sang her throat hoarse*. Yet it is well known that the *waltz* vs. *sing* verb phrase structures do not have the same argument or event structural interpretations. Notably the object with *waltz* seems to be an agent, while the object with *sing* is a patient or theme. Previous studies propose lexical rules of composition associated with *waltz* to specify the “special” interpretation of its object. In this article I show that the *waltz* object is not formally agentive, but has (what I call) an in motion interpretation. I further show that the *waltz* and *sing* verb phrases have different syntactic structures: the *waltz* verb phrase is transitive, and is not resultative. I argue that the contrast in interpretation between the object of *waltz* and *sing* (and the other differences in these clauses) follows from this structural difference, and that a lexical approach overgenerates. I conclude that the interpretation of the *waltz* object accords with regular rules of syntax-semantics correspondence.

Keywords: Unergatives; transitivity; thematic roles; unselected objects; motion verbs; resultatives

1 Introduction

The subset of intransitives that canonically appear with a single agentive external argument, such as *sing* and *waltz*, are traditionally referred to as unergative. The event expressed by unmodified unergative verb phrases is typically a simple, atelic activity.

- (1) a. Mary sang.
- b. Mary waltzed.

A common view is that unergatives are stable in their intransitivity, an observation often attributed to the simple activity these verbs name (e.g. Levin & Rappaport Hovav 1995: 110). However, in English, unergatives can occur as transitive with “unselected objects”, as in (2). The usual generalization is that when unergatives occur with such objects, it is in a multi-predicate structure. (As a substantial literature has discussed, cognate and hyponymous objects have a different status to “transitivity alternation” objects of the kind in (2) (e.g. Hale & Keyser 1993), as do measuring path/route objects (Tenny 1995), and I do not address such objects here).

- (2) a. Mary sang her throat hoarse.
- b. Mary waltzed John around and around the room.

Current consensus says that there is a fundamental syntactic and semantic similarity between the structures in (2a) and (2b) (see, among many others, Goldberg & Jackendoff

2004; Levin & Rappaport Hovav 2005; Folli & Harley 2006; Ramchand 2008; Beavers 2012; Acedo-Matellán 2016). This work says that both verb phrases in (2) are resultatives, in which the direct object is a semantic and syntactic dependent of the resultative secondary predicate. On this view the “unselected object” is not syntactically introduced by the main verb, nor a direct semantic participant of the event it denotes. I refer to analyses in which a secondary predicate is responsible for licensing the object in both (2a) and (2b) as the One Structure Approach.

A challenge to the One Structure Approach is that the sentences in (2a) and (2b) have very different event and argument structure semantics. As has been much discussed, the event structure of sentences like (2b) can be atelic and not express a result state, in contrast to resultatives like (2a) (Beavers 2012: 926–7). A second widely observed point concerns object interpretation. With motion unergatives like *swim* in (3b) (and *waltz* in (2b)), there is a strong intuition that the internal argument is an agent. In (3b), the object seems to be a *swimmer*, and (3b) can be paraphrased as *The coach made the team swim*. Such agentive interpretations of unselected objects is limited to a subclass of unergatives: in (3a) with *laugh* the object *the audience* is not the *laugher*; (3a) cannot mean *The comedian made the audience laugh*. Indeed, the object *the audience* does not hold any participant role in relation to the event *laugh*. As such, (3a) and (3b) (and (2a) and (2b)) seem to have different argument structure properties.

- (3) a. *The comedian laughed the audience hoarse/ to hysteria.
 b. Coach swam the team to the deep end of the pool.

In this article I argue that the objects in (2a) and (2b) are not licensed in the same configurations. Instead, I argue that the object in (2b) is licensed in a transitive, non-resultative verb phrase syntax. Nonetheless, I assume the traditional position that the objects in these examples are “unselected”. What is meant formally by “unselected” depends on theory-specific assumptions, but a common idea – and what I have in mind here – is that the object is not a thematic participant of the event named by a (verbalized) root. I argue these objects are instead syntactic and semantic arguments of more complex verbal structures.

This new analysis has broader implications for the determination of the apparently exceptional interpretation of objects in sentences like (2b).

The current characterization of the object of (2b) as agentive is significant because, across frameworks, agent objects are not derivable by general syntax-semantics mapping rules, an important principle given that agent objects are otherwise unattested (e.g. Marantz 1984; Kratzer 1996; Levin & Rappaport Hovav 2005; Ramchand 2008). As illustration, Reinhart (2003) specifies, “An argument bearing the Agent role is realized in the external position (i.e., merges last)”. As the interpretation of the unselected object in (2b) does not align with its structural position, on a One Structure Approach, it appears that its interpretation must be specified lexically by the verb. For example, Folli & Harley (2006) argue for an implementation in which roots belong to formal classes, organized by a feature calculus: the $\sqrt{\text{SWIM}}/\sqrt{\text{WALTZ}}$ class bear formal features that specify the relevant agentive interpretation of the object; the $\sqrt{\text{LAUGH}}/\sqrt{\text{SING}}$ class do not have those features, and so the object of a *sing* verb is interpreted by regular mapping. A consequence of this move to special lexical rules is that a unique phrasal syntactic structure (the resultative structure that (2a) and (2b) purportedly have) can map to different argument structure interpretations, as determined by the specification of the root class; moreover, such an analysis allows that lexical compositional rules can generate interpretations of phrasal structure that violate general rules of syntax-semantics mapping.

In this article, I show first that the object of sentences like (2b) and (3b) is not formally an agent. I further show that the “special” interpretation of objects in these sentences arises only in particular structural contexts. I argue that the difference in interpretation between the objects in (2b) and (2a) follows from the fact that the two verb phrases have different structures. The effect of the analysis is that the interpretation of the internal argument (and the whole verb phrase) accords with familiar principles of syntax-semantics correspondence, without recourse to special rules (cp. Marantz 1996).

The paper is structured as follows. Section 2 introduces the theoretical framework I adopt. Section 3 shows that (2a) and (2b) have different verb phrase syntaxes. Section 4 presents a new structural analysis of the syntax and interpretation of objects of the kind in (2b). Section 5 suggests that the structural approach developed in the paper further offers a new path toward systematizing some patterns in the distribution of “unergatives” in resultatives more generally. Section 6 concludes.

2 Background: Building blocks of verb structure

This Section briefly introduces aspects of the theoretical framework adopted in this paper relevant to the analysis.

Most of this paper is concerned with strings of the same basic organization, illustrated again as in (4b). In traditional terminology, these involve an agentive subject; an unergative verb; an unselected object; and a secondary predicate XP.

- (4) Wechsler (2005: 270)
- a. We laughed.
 - b. We laughed the speaker off the stage.

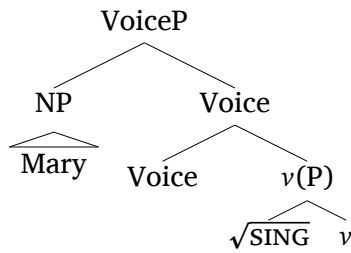
While the items *sing*, *waltz*, and *laugh* in each sentence in (2), (3), and (4) are traditionally called “unergative verbs”, the common view in contemporary study of argument structure is that “verbs” are not atomic units of analysis, but have complex internal structure (see Marantz (2013) for overview of this tradition). On this view it is necessary to determine the structural building blocks of any given verb.

In this article I adopt a syntactic approach to defining verbal structures, taking principles from the Minimalist Program (Chomsky 1995; 2000; 2001) and from Distributed Morphology (Halle & Marantz 1993) (see also Marantz 1997; Embick 2004; Marantz 2009b; a; 2013; Wood 2015). In this model syntax is responsible for constructing complex expressions. More specifically I concentrate on the particular program summarized in Marantz (2013) (and references there), particularly that the possible verbal syntactic structures are extremely limited, and where only a limited set of syntactic objects are involved: a root, a verbalizing morpheme, as well as other heads that could be realized as prefixes, light verbs, and so on.

The configuration in (5) illustrates this approach for a verb phrase that has a VoiceP with a filled specifier, and a categorizing functional head *v*. The root appears in the verbal (sub)structure with the head *v*. I assume that the categorizer *v* introduces an eventuality variable, and the root that merges with *v* is interpreted as a predicate of the eventuality. The *v* does not have a complement. This syntactic structure is referred to as “unergative”.¹

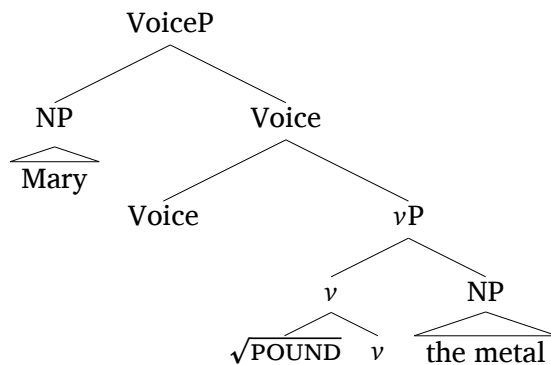
¹ The structure in (5) departs from an influential syntactic analysis in which unergatives involve a covert transitive structure with an incorporated object (Hale & Keyser 1993). One reason for this departure is that this article concentrates on activity verbs, while the covert transitive analysis is primarily intended to deal with denominal unergatives (see Hale & Keyser 2001: on this); see Rimell (2012) for arguments against the incorporated object approach in general for English; and see Preminger (2012) for arguments that covert transitivity incorrectly characterizes an exemplar case in Basque.

(5) An unergative structure: *Mary sang* (Tense projections not shown)



I similarly use the term “transitive” informally to refer to syntactic configurations in which the argument NPs are in a specific configuration, as in (6).² Here *v* has a complement, and spec-Voice is filled.

(6) A transitive structure: *Mary pounded the metal* (Tense not shown)



A foundational assumption in this system is that roots do not “project” the structures in which they occur, and do not bear formal synsem features relevant to syntactic mechanisms of combination (they do, however, contribute lexical and conceptual meaning; see below). An important consequence of the lack of synsem features is that, even if certain manner roots that are agentive seem to regularly appear in a particular configuration (like $\sqrt{\text{SING}}$ and $\sqrt{\text{WALTZ}}$ in an unergative syntax), a single root can occur in a variety of syntactic contexts. (7) is an example of root distribution flexibility across “alternations” (different syntactic structures).

- (7) a. Mary sang a sonata.
- b. Mary sang at the passersby.
- c. Mary sang her way to the top of the pops.
- d. Mary sang her throat hoarse.

In sum, “verbs” are not the minimal unit of analysis in syntax on this view, and so “unergative” and “transitive” do not describe “verbs”. Rather, “verbs” are verbalized roots, substructures within the verb phrase; and “unergative” and “transitive” describe extended verbal phrasal structures with NP arguments in the relevant constellations.

Turning to mechanisms of semantic interpretation, in this framework there is a basic division between the semantic contribution of lexical roots from the interpretation of syntactic structure.

With respect to structure, once the minimal units of computation are combined in syntax, the structure is transferred to the interfaces. The semantic output is then read off this

² A formal definition of “transitive” would further address e.g. Accusative, etc.; case is not relevant in the data investigated in this paper, however, and I set it aside.

hierarchically organized complex structure. At LF, the core assumption I make is that the set of compositional rules that map the output of syntax to a semantic representation are highly limited, and apply in an entirely regular manner. Regarding argument interpretation, I assume the rule inventory and implementation in Wood (2015).

The core lexical/conceptual meaning of the root is necessarily a component of the interpreted verbal structure. As such the semantic representation created by compositional rules may be further modified once the encyclopedic semantics of roots are determined. Root semantics are also assumed to play a role in root distribution, determining whether roots can, or cannot, felicitously appear in different structures (remaining neutral on whether felicity refers to grammaticality or acceptability; for detailed considerations of the issues involved, see Borer 2005). The mechanics underlying root distribution are an active topic in current research (Alexiadou et al. 2014). If it is the case that root content does not include formal syntactic or semantic features, then the restrictions on certain roots with particular structures may be taken to be an effect of the interaction between a root's inherent meaning (i.e. lexical/conceptual content) and its immediate grammatical context (Embick & Marantz 2008) (and see also again Borer 2005).

Within this theory, the apparently agentive – or “special” – interpretation of an internal argument with a particular root class as in (2b) is a potential case where root meaning not only interacts with or contributes to the interpretation of the verbal structure, but in which classes of root may specify a special mapping or composition of the phrase, in place of the general mechanisms that interpret functional structure. Section 4 returns to this point.

3 The structure of transitive motion

3.1 Proposal: Two structures

This Section argues that structures like (2a) and (2b), given again as (8a) and (8b) for convenience, have different syntactic structures.

- (8) Folli & Harley (2006: 125)
- a. Mary sang her throat hoarse.
 - b. Mary waltzed John around and around the room for hours.

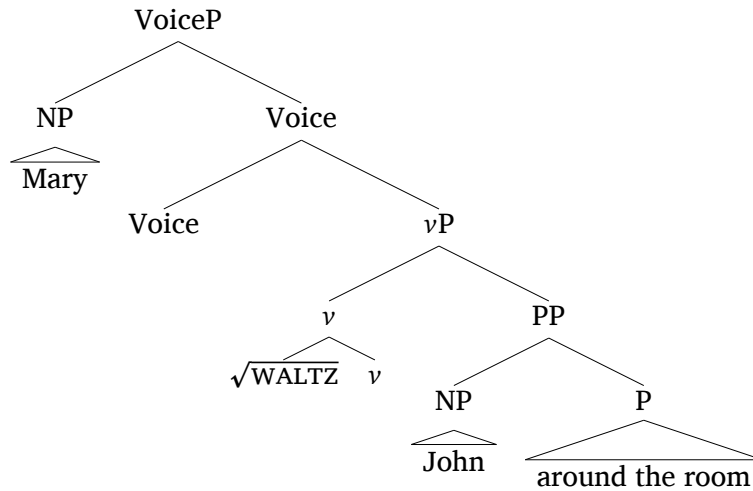
In contrast, previous work on (8b) argue that it has the same structure as (8a), as outlined in the Introduction. There are two key arguments in favor of a One Structure Approach to (8a) and (8b). The first concerns a particular analysis of the “unselected object”. The One Structure Approach observes that the main verbs in both (8a) and (8b) are “unergative verbs” (in a traditional sense), and that unergatives do not license NP direct objects (9). It is then emphasized that both *sing* and *waltz* can appear with a direct object only when the verb phrase includes a second XP (on (8b) see especially Hoekstra & Mulder 1990; Levin & Rappaport Hovav 1995; Folli & Harley 2006; Ramchand 2008). The consequent view is that the unselected object is syntactically and semantically dependent on the secondary XP, and not the main unergative verb; and that this is the case in both (8a) and (8b). A second idea emphasized in the One Structure tradition is that (8a) and (8b) are semantically related, as both have causal meanings.

- (9) a. Mary sang (*her throat)
 b. Mary waltzed (*John).

While the details of its analysis remains an active topic of research, (8a) is uncontroversially characterized as a resultative, specifically a resultative built on an unergative

primary predicate, known as an Unselected Object or Exceptional Case Marking (ECM) resultative (Levin & Rappaport Hovav 1995; Wechsler 2005). Folli & Harley (2006: 137) develop in particular detail a syntactic, unified analysis of the structures underlying (8b) and (8a) that illustrates the One Structure view (10) (for another influential treatment, see Ramchand 2008).

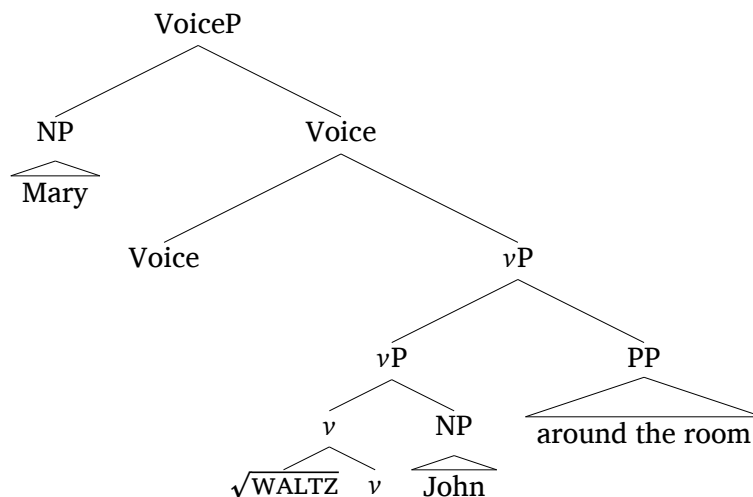
(10) Resultative analysis (Based on Folli & Harley 2006) (To be rejected)



On this Small Clause analysis, a secondary predicate is a complement of vP. The secondary XP supplies a specifier in which the unselected object can be syntactically and semantically licensed. The object has no syntactic or semantic relation to the verb. The key point from (10) is that the object *John* is licensed in relation to the secondary XP (which would also be the case if e.g. a complex predication analysis of resultatives were adopted).

In the remainder of this section I argue that, while a resultative syntax as in (10) (or a complex predicate alternative) is correct for (8a), the structure of (8b) is as in (11). Specifically, I argue that the “unselected object” in (8b) is not a dependent of the secondary XP, in contrast to (8a). As such, the manner of motion verb phrase in (11) has a direct object NP complement, i.e. a transitive vP syntax (where “transitive” is to be understood as in Section 2). The PP is a vP adjunct. The object does not bear a syntactic or semantic dependency to the PP.

(11) Adjunction analysis (Structure to be partly revised in Section 4)



Given this analysis, I will refer to verb phrases like (8b) as Manner of Motion Transitives (MMT).³

3.2 Evidence from syntax

Syntactic evidence that (8b) has the structure in (11), and does not involve resultative secondary predication, comes from constituency.

In resultatives, the resultative secondary predicate is not a constituent independent of the main verb and object (Simpson 1983; Roberts 1988; Levin & Rappaport Hovav 1995). Tests for verb phrase constituency are given in (12): VP pro-form *do so* (12a), *though*-movement (12b), V-fronting (12c), and an adverb intervening between O and PP (12d) (see Williams 2005). In (12) these tests produce ungrammatical strings when applied to resultatives like (8a), confirming that in resultative secondary predicate syntax the verb and object do not form a constituent to the exclusion of the secondary XP.

- (12) a. *Mary sang her throat hoarse, and John did so scratchy.
 b. *Sang her throat though Mary did hoarse, ...
 c. *(Mary thought she would sing her throat hoarse – and) sing her throat she did hoarse.
 d. Mary sang her throat (*last night) hoarse.

In contrast, applying these tests to MMT verb phrases like (8b) produces grammatical sentences (13).

- (13) a. Mary waltzed John around the ballroom, and Sarah did so around the garden.
 b. Waltz John though Mary did around the ballroom, ...
 c. (Mary thought she would waltz John around the ballroom – and) waltz him she did around the ballroom.
 d. Mary waltzed John daintily/for hours around the room.⁴

As such, the PP in (8b) is an adjunct, as in the structure in (11). The object argument NP in (8b) is not syntactically introduced with, or syntactically dependent on, the PP.

3.3 Evidence from event structure interpretation

This syntactic difference between (8a) and (8b) correlates with the long-standing observation that these two sentences have very different event structural interpretations (among other properties) (see Beavers 2012: 926–927 for discussion).

A typical characterization of resultative semantics is that the secondary XP denotes some state, a state that is a consequence of the event described by the main manner verb (e.g. Beavers 2012). As the state is held by one of the participants, resultatives can be sensibly modified by a temporally-delimiting telic adverb (14a). In contrast MMT clauses can be atelic (14b) (dependent on the semantics of the PP), and are consequently regularly identified as the exception to this generalization (Goldberg & Jackendoff 2004; Folli & Harley 2006).⁵ The object of (14b) is also not a holder of a result state (Folli & Harley 2006; Ramchand 2008; Beavers 2012).

³ Some previous work has similarly suggested or presented analyses with the effect that (2a)–(2b) do not have the same structures. I address this in Section 3.4.

⁴ Some speakers prefer a contrastive interpretation for the adverb with *waltz*. Contrast does not improve the adverb in (12d): **Mary sang her throat quickly hoarse, not slowly hoarse*.

⁵ The other exception is the comparative, e.g. *Mary pounded the metal ever flatter* (see e.g. Goldberg & Jackendoff 2004).

- (14) a. John sang his throat hoarse in ten minutes/??for hours.
 b. Mary waltzed John about the room for an hour/??in an hour.

There are further differences in composition. Resultative formation is said to “covertly” derive an eventuality that is independent of those denoted by its primary and secondary predicates (Dowty 1979). One diagnostic is the *by-Manner/Means* adjunct (*by-MM*), a type of modifier that describes the Manner/Means by which an event unfolds (Dowty 1979). As shown particularly clearly for ECM resultatives with (15) from Williams (2009: 694), a *by-MM* adjunct can be introduced in a resultative clause that does not sensibly refer to either of the events described by the overt predicates making up the verb phrase: (15) neither entails that *Ozzy sang by not resting between songs*, nor that *Ozzy is hoarse by not resting between songs*. Instead *by-MM* describes the derived complex eventuality (“sing-hoarse”).

- (15) Ozzy sang his throat hoarse by not resting between songs.

As far as I know, it has never been shown that the derived eventuality is composed with sentences of the kind in (8b). To the extent that *by-MM* can modify an MMT,⁶ the adjunct describes the event described by the manner of motion verb. In (16), for example, *taping it around her feet* describes the means by which the dancing takes place, not *dance-around-the-room*.

- (16) Mary danced the mannequin round the room by taping it to her feet.

In order to accommodate contrasts of these types, previous work proposes revisions to standard analyses of resultatives, severely weakening generalizations about resultative semantics in the process (Beavers 2012). If the analysis here is correct, these revisions are unnecessary. Instead, (8b) does not have resultative semantics because it is not syntactically resultative.⁷ The appearance that (8a) and (8b) have the same underlying structure follows from the fact that *vP*-related prepositional phrases appear in clause-final position in English when the string is pronounced.

3.4 Against alternative analyses

This subsection clarifies that the key dimension by which (8a) and (8b) differ is syntactic.

First, and most importantly, (8a) and (8b) should not be distinguished by the lexical semantics of the unergative predicates involved. Manner of motion unergative verbs occur in “unselected object” resultatives (17) (examples based on Rappaport Hovav & Levin 2001). It is therefore only the *waltz(-type)* clauses of the kind in (8b) that are not resultative. I develop this point in detail through the remainder of the paper.

- (17) a. Mary waltzed her ballet slippers to shreds.
 b. The joggers ran the pavements thin.
 c. Coach swam himself sober.
 d. I tried to wiggle myself comfortable in the passenger seat.

⁶ It is difficult to get a good example here because *by-MM* is most natural modifying main verbs that do not specify the manner in which the event unfolds (Dowty 1979).

⁷ The main focus of this paper concerns the structural relationship between the verb and the object, rather than the relationship between the verb and PP. However, for completeness, I assume that the composition of the PP is established via Predicate Modification (Heim & Kratzer 1998), aligning with its adjunction status. The PP in the *waltz* type clause is then a predicate of an event, describing the trajectory or route of the event named by the *vP*. The semantics of resultatives vs. MMT clauses thus differ because their different syntactic assemblies trigger different interpretations at the semantic interface.

Evidence that the examples in (17) are structurally resultative come from the same constituency tests. The relevant contrasts between (8a) and (8b) are therefore in the structure of (2b), rather than root semantics.

- (18) a. *Mary waltzed her ballet slippers thin, and John did so thin too.
 b. *Waltz her ballet slippers though Mary did thin, ...
 c. *Mary waltzed her ballet slippers last year thin.
- (19) a. *Mary did not waltz her ballet slippers.
 b. *Mary waltzes her ballet slippers regularly.
 c. *Mary waltzed her ballet slippers more than John waltzes his.

Another perspective might be that resultative secondary predication exclusively involves APs, and not PPs, as suggested in Rothstein (2004); Kratzer (2005) and Mateu (2005). However, PPs can form resultative syntactic structures according to the constituency tests from the last Section, as shown in (20) and (21). The category of the secondary XP in (8a) and (8b) is therefore irrelevant.

- (20) *Mary ran the new Nike sneakers to pieces.*
 a. *Mary ran the new Nike sneakers to pieces in a matter of days, and John did so to pieces too.
 b. *Run the new Nike sneakers though Mary did to pieces, ...
 c. *(John thought Mary would run the new Nike sneakers to pieces – and) run the new Nike sneakers Mary did to pieces.
 d. Mary ran the new Nike sneakers *this morning to pieces.
- (21) *The critic laughed the actors off the stage.*
 a. *The critic laughed the actors off the stage, and the producer did so off the stage too.
 b. *Laugh the actors though the critic did off the stage, (the director got a good review the next day).
 c. *(John thought the critic would laugh the actors off the stage – and) laugh the actors she did off the stage.
 d. The critics laughed the actors *last night/*harshly off the stage.

Third, the difference between (8a) and (8b) does not concern (a)telicity, and whether the secondary XP is bounded or unbounded. The examples like (8b) discussed so far have an unbounded Path PP. Constituency tests with the bounded Goal PP in (22) show the bounded Goal is also an adjunct, again in contrast to the Result XP in resultatives.

- (22) a. Colonel Smith marched his regiment to Camp Bluewater, while Colonel Jones did so (his) to Camp Greenhill.
 b. March the regiment though Colonel Smith did to the camp, ...
 c. (Colonel Smith decided he would march the regiment to the camp – and) march them he did to the camp.
 d. Colonel Smith marched the regiment as quickly as possible back to camp.

Finally, Ettliger (2008) and Matushansky et al. (2012) suggest another potentially relevant lexical semantic approach to resultative formation, whereby only property-denoting phrases can be complements and produce resultatives, while any Path or Directional phrases merge as adjuncts and so are not resultatives. It is not clear that this generalization is correct. The examples in (23) involve syntactic complementation with Path PPs.

- (23) a. Mary blew the candle out.
 b. Mary laughed the speaker off the stage.
 c. Mary waltzed her way around the room.

Moreover, property-denoting PPs, like *to a stunning shade of black* in (24), can be adjuncts (example from Embick 2004: 382 (62)), as shown in (25) with *do so* (Embick 2004: 382 (63)), *though*-movement, V-fronting, and post-object adverbs tests.⁸

- (24) John darkened his hair to a stunning shade of black.
- (25) a. John darkened his hair to black, and Bill did so to chestnut brown.
 b. Darken his hair though John did to a stunning shade of black, ...
 c. John thought that he would darken his hair to a stunning shade of black – and dye his hair he did (to a stunning shade of black).
 d. John darkened his hair yesterday/ patiently to a stunning shade of black.

Incidentally, if this characterization of (e.g.) (20) and (24) is correct, then the interpretation of the directional P in relation to the verb (phrase) it combines with is sensitive to the syntactic position of the preposition. This suggestion is consistent with what is known about locative adverbials, whose composition has long been recognized to correlate with clause position (see especially Maienborn 2001). In particular, when locatives attaches low, the PP specifies a location relating to the object (26). In contrast, when the locative attaches high(er) it specifies the region in which the event takes place. The locative *in Argentina* in (27a), for example, specifies the region in which the whole event takes place; it does not locate *the contract* (Maienborn 2001). Similarly, *along his arm* in (27b) describes the region occupied by the *tickling-of-John*, and not a trajectory of *John*.

- (26) Maienborn (2001)
 Eva signed the contract *on the last page*.

- (27) Maienborn (2001)
 a. Eva signed the contract *in Argentina*.
 b. Mary tickled John *along his arm*.

The sentences in (28) provide initial reason to think structure has a similar effect with directional Ps: in (28a), *to* heads a property-denoting XP, that (I have argued (25)) has an adjunction relationship to *vP*; in (28b), *to* heads a property-denoting XP that is a resultative complement; and in (28c) *to* can head a Path XP that looks like a (resultative) complement. I leave full investigation of these effects to future work.

- (28) a. Mary lightened her hair to a brilliant shade of chestnut brown.
 b. Mary waltzed her ballet slippers to pieces.
 c. Mary waltzed her way to the center of the room.

Returning to the main point, there may be a range of superficial differences between the sentences in (8a) and (8b), but the key to explaining their differences is the syntax of their verbal structures.

⁸ The XP in (24) seems to describe an extent of the change described by the resultative *vP darkened the hair*, rather than a result.

4 The syntax of objects in motion

4.1 Background: Previous work

This section turns to the question of object interpretation in sentences like (2b), as well as (29) and (30). Since the earliest work on the topic, it has been observed that these particular unselected objects have the remarkable property of being interpreted as an “agent”, or “the participant (at least in part) responsible for the unfolding of the (manner of motion) event”.

- (29) Brousseau & Ritter (1991)
- a. The lions jumped through the hoop.
 - b. The trainer jumped the lions through the hoop.
- (30) Brousseau & Ritter (1991)
- a. The rats ran through the maze.
 - b. The psychologists ran the rats through the maze.

The apparent agentivity of the object has been central to study of these unergative “transitive alternations”, in work that has made significant contributions to questions as diverse as selection, causation, and the determinants of argument interpretation, among other topics (Cruse 1973; Jackendoff 1990; Hale & Keyser 1993; Ritter & Rosen 1998; Levin & Rappaport Hovav 1999; Folli & Harley 2006; Ramchand 2008). This literature has centered on the observation that as agents, the object in (e.g.) (29b) is a “causee”, in contrast with objects in inchoative-causatives or instrumental-causatives (31), which are not. The agent object is thus taken to derive an intuition that the unergative transitive alternants like (29b) involve “indirect causation”, as opposed to the “direct causation” interpretation in transitive inchoatives (Brousseau & Ritter 1991). Levin & Rappaport Hovav (1995: 110) refer to transitives like (29b) as the “causative pair”, while the regular transitive alternant in (31a) is “causative”.

- (31) Brousseau & Ritter (1991)
- a. Mary/arsenic killed John.
 - b. Mary/a Swiss army knife cut the cord.

Despite wide-ranging interest in transitive unergatives, few formal implementations of the object’s syntax and semantics have been developed. Previous studies concentrate on lexical accounts of the interpretation of the unselected object. This is because the objects of other unergatives in (apparently) the same frame are not interpreted as responsible for events named by the verb (32a) (at least, not without massive coercion); similarly, in resultatives like (32b), Mary is the singer; John cannot be a singer. In consequence it is assumed the interpretation of the object in (29b) is specified in relation to the root or verb, and cannot be determined structurally.

- (32) a. *Mary sang/ slept/ sneezed/ laughed John around the room.
b. Mary sang John to sleep.

In an early (non-resultative) lexical implementation, Brousseau & Ritter (1991) propose that a lexical representation of the transitive variant derives from that of the intransitive by the addition of a CAUSE predicate to its Lexical Conceptual Structure (33). The two representations have the same pronunciation. In this approach, the predicate DO is included in the semantic representation of verbs which select an argument that is directly

assigned to the object? As noted in the introduction, an agent internal argument would violate standard mapping principles (thematic theories hold that internal arguments are formally patients or themes, never agents; (e.g. Marantz 1984; Levin & Rappaport Hovav 1995; Reinhart 2003)). The presence of apparently “two agents” in examples like (2b) (one held by the subject, one by the object) also violates Thematic Uniqueness (Bresnan 1982; Carlson 1984). Previous analyses have not addressed what it means to say that the objects in these verb phrases are “unselected”, if the interpretation is determined by the main verb. This question is particularly puzzling in resultative analyses, where an “unselected object” is usually thought to only have a syntactic and semantic dependency with the secondary predicate. Finally, and particularly interesting, a lexical analysis commits to the possibility that a unique phrasal syntactic structure can systematically produce multiple argument structure mappings in accordance with a root class specified rules of interpretation; and that a meaning generated by a root rule can generate an interpretation that violates standard, formal principles of syntax-semantics correspondence (i.e., an agent object).

The argumentation of this section starts from the conclusion of Section 3, that *waltz John around the room* and *sing her throat hoarse* do not have the same structure. This means that the interpretation of the object is not to be explained within the confines of a resultative syntax. With this premise in hand, this section reviews the status of MMT objects, addressing the following three questions:

1. Where is the “unselected object” introduced in the verb phrase?
2. What is the interpretation of the “unselected object”? Is it an Agent?
3. How is the interpretation of the “unselected object” determined? With respect to what linguistic object is it interpreted?

I propose a new syntactic analysis of manner of motion verbal structures that makes use of the framework set out in Section 2. I argue that the internal argument of transitive motion verb structures is a (particular type of) patient/theme, and is not an agent. The object is interpreted in accordance with regular rules of syntax-semantics mapping. Its interpretation is not specified by the root.

4.2 The syntactic position of the object

This subsection presents evidence that the internal argument of MMTs is syntactically introduced within the verb phrase, further confirming the conclusion in Section 3, that the PP adjunct does not syntactically or semantically license the direct object in MMTs.

4.2.1 Unselected objects occur in non-predicative contexts

The main reason that previous work argues that the object of MMTs is syntactically and semantically dependent on the secondary XP is that the object NP seems ungrammatical without the PP (35). The few examples that are uncontroversially possible without a PP (such as *Mary walked John home/walked the dog/jumped the horse*) are said to involve idiomatization (Folli & Harley 2006: 124, fn.3) or conventionalization (Ramchand 2008).

- (35) Folli & Harley (2006: 124); Judgements from literature
- a. John waltzed (*Matilda).
 - b. John walked (*Matilda).
 - c. John ran (*the dog).
 - d. John jumped (*the horse).

This section shows that the VO combination is generated as a grammatical sequence in English without a PP or secondary predicate.

First, the unselected objects of MMT verbal structures are possible without a PP, so long as some other modifier is present. Examples of non-predicative modifiers that result in acceptability include negation, manner adverbs, modals, and temporal or frequency modifiers.

(36) *Negation*

- a. Coach decided not to row the novices until next week.
- b. The teacher hasn't somersaulted the second team yet.
- c. The swim teacher did not swim Mary because she hasn't passed her lifeguard exam yet.

(37) *Manner adverbs*

- a. The assistant director danced the ballerinas beautifully today.
- b. Mary very gingerly waltzed John, trying to avoid his toes.
- c. The choreographer diligently pirouetted the ballerinas.

(38) *Modals*

- a. Mary has to waltz John if she wants the lead next week.
- b. Mary best/better somersault John.
- c. Mary can cartwheel John.

(39) *Temporal/ frequency modifiers*

- a. Coach swims the first team more often than the second team.
- b. The coach vaulted and cartwheeled the gymnasts for hours.
- c. Coach swam the team intensely over the weekend.

These are uniformly better than the outright ungrammatical resultatives with these same types of modifier, as illustrated in (40) and (41).

(40) *John sang his throat hoarse.*

- a. *John did not sing his throat.
- b. *John sings his throat regularly.
- c. *John sang his throat more than Mary sang hers.

(41) *The critics laughed the actors off the stage.*

- a. *The critics have to laugh the actors.
- b. *The critics did not laugh the actors.
- c. *The critics laughed the actors intensely.

Second, nominalized MMTs are possible (42). This should not be the case if the unselected object is introduced or licensed by the PP. In contrast, resultatives are nonsensical in nominalizations (43).

- (42) a. The waltzing of the ballerinas by the assistant director.
b. The marching of the soldiers by the colonel.

- (43) a. *The singing of his throat hoarse by John meant he couldn't teach class on Tuesday.
b. *The running of the/ his new Nikes ragged/ to shreds by John meant he couldn't run in the race.

Third, object weight improves acceptability of MMTs, for example, objects modified by relative clauses (44). Again, this is not the case with the unselected objects of resultatives (45).

- (44) a. Coach swam the team that had not performed well at the meet.
b. The teacher vaulted the gymnasts who had warmed up.
- (45) a. *John sang his throat that had only just healed.
b. *John ran the brand new pair of Nikes that Mary had given him.

The sentences in (35) may be unacceptable in out-of-the-blue contexts, but it does not seem to be that a PP (or other predicative item) is necessary to license MMT objects. Rather, MMT objects are acceptable in contexts involving modification. I do not have an explanation for this effect, but note that it is reminiscent of the effect in English middle coercion, *Bureaucrats bribe *(easily)* (although unlikely to have the same explanation).

The crucial point is that it must be the case that the object is introduced, or licensed, within the structure of the main verb phrase, given this diversity of grammatical contexts in which an object is possible.

4.2.2 The Unselected Object is an internal argument

An alternative conclusion – to be rejected – is that, even if the object of *waltz* is not licensed by a secondary XP, there could be additional null structure within the verb phrase that embeds the object, besides the verb. PP and dative causees are common cross-linguistically. In English, the alternative possible analysis of the *waltz* clause seems most likely to be that it includes a null comitative, as in (46).

- (46) a. Mary waltzed (with) John around the room.
b. The general marched (with) the soldiers to their tents.

There are semantic reasons to reject a null comitative, namely that the comitative PP variants do not have the same “causal” interpretation as the transitive variants.

Passivization indicates this analysis is also syntactically incorrect. The logical object of the motion expression can be passivized (47). The (pseudo-) passive of a comitative is ungrammatical (48).

- (47) a. John was waltzed around the room by Mary.
b. The soldiers were marched to their tents by the general.
- (48) a. *John was waltzed with around the room by Mary.
b. *The soldiers were marched with to their tents by the general.

There is no evidence for a null PP, or some other phrasal structure embedding the object argument, in the *waltz* clause. I conclude that the object of *waltz* is an object of the verb.

4.3 The interpretation of the object

4.3.1 The object is not an agent

As outlined in Section 4.1, the internal argument of *waltz* is widely described as an agent, in the sense that it has “Proto-Agent” properties as defined by Dowty (1991). For example, the object is understood to be an intentional and volitional participant who “brings about”

the event denoted by the verb (Brousseau & Ritter 1991; Levin & Rappaport Hovav 1995; Folli & Harley 2006).

There is good reason to reject this as a formal characterization of the object: the internal argument does not have formal properties consistent with having an Agent Thematic role.

First, the “agentivity” of the object is sensitive to the properties of the NP itself; only animate arguments are understood to bring about the event, inanimates are not (49) (Levin & Rappaport Hovav 1995; Ritter & Rosen 1998). An inanimate might, alternatively, be expected to have a causer interpretation; again, it does not (49).

- (49) Mary walked the shelves carefully along the narrow corridor. vs. Mary danced the puppet around the set.

Second, the “agent object” fails traditional diagnostics of formal Agent roles, such as the ability to wield an instrument, or be modified by a manner adverb (50).

- (50) a. Mary waltzed John around the room with careful instructions.
 Mary wields the instructions, not John
 b. Mary danced the kindergartners around the set patiently.
 Mary is patient, not the kindergartners

The object is not in any formal sense an Agent. This is a welcome finding given Agent direct internal arguments are otherwise (cross-linguistically) unattested (for discussion see Marantz 1984; Ramchand 2008).

4.3.2 Objects in motion

I propose that the relevant interpretation of the object is that it is “in motion”, in a sense to be defined. I begin by noting that “in motion” informally describes the interpretation of objects both in clauses traditionally referred to as “causatives of directed manner of motion” (51) and “accompanied manner of motion” (52).

- (51) a. The general marched the soldiers back to the tents.
 b. Coach jogged the students around the track.
 c. Mary flew the trained hawk around the field.
- (52) a. Mary waltzed John around the room.
 b. Mary walked the bicycle as far as the post office.
 c. The pilot flew the passengers smoothly through the inclement weather.

I also note that certain vehicular objects (53) are similarly most naturally interpreted as moving in tandem with the subject. It will be useful to discuss these objects together with those in (51) and (52).

- (53) a. Mary paddled the canoe.
 b. Mary rowed the boat.
 c. Mary flew the pegasus.

All the objects in the grammatical examples in Section 4.2.1 that lack a secondary predicate have the “in motion” interpretation, exemplified by (54a). “In motion” does not

describe the interpretation of objects in sentences like *Mary sang her throat hoarse* or *Mary pounded the metal flat*; and the objects of ungrammatical examples of transitive unergatives generally – which do not include manner of motion verbs – are not interpreted as in motion (54b).

- (54) a. The choreographer waltzed the ballerinas (late into the night).
 b. *The comedian laughed the audience (last night at the club).

For ease of exposition, I will refer to this “in motion role” as a θ_{motion} role, basically a type of theme or patient role. I leave to future study whether a novel role is formally necessary.

The θ_{motion} role bears a clear relationship with “Figure” roles. Figures are those objects that are movable or in motion whose Path or site is at issue (Talmy 1985: 61), i.e. whose movement is defined relative to some Path or point. A crucial difference is that the θ_{motion} role refers to objects whose motion is not defined relative to a Path (although its Path may be specified in the clause via e.g. a Path PP adjoined to νP). The difference in interpretation is intuitive across a variety of structures, including with intransitive subjects:

- (55) a. Mary went/ Mary moved. *Motion Role*
 b. Mary went to the shop/ Mary moved to the sofa. *Figure Role*

Motion and Figure roles differ aspectually. The (trajectory of the) Figure role is “measured” relative to the path it follows, and so is a participant in (different types of) events of change. The argument that holds the θ_{motion} role is a participant in an activity, and so does not involve measuring, in the sense that the object is not interpreted as attaining change in relation to the main verb. For example, in *Mary waltzed John*, John is not himself a measure of the waltzing, nor does he necessarily undergo any change. Similarly, in *Mary paddled the canoe*, the canoe does not strictly undergo or measure a change of paddling. MMT objects are therefore licensed in atelic structures (56) (unless a telic modifier is included).

- (56) a. The assistant director danced the ballerinas beautifully for hours/*in two hours.
 b. Mary can waltz John for hours/*in two hours.
 c. The coach vaulted and cartwheeled the gymnasts for hours/*in two hours.
 d. Coach swam the team intensely for hours/*in two hours.

The θ_{motion} role contrasts with previous characterizations of the internal argument in a number of ways. First, θ_{motion} does not violate principles of syntax-semantics correspondence, in contrast to an agent role for the object. Second, θ_{motion} characterizes both inanimate and animate objects, as (52) and (53) illustrate. Third, θ_{motion} roles may be usefully extended to the objects in (53).

Again, the θ_{motion} sub-label does not commit to a particular implementation of Thematic role theory, etc..¹⁰ Rather the notation is intended to emphasize that the objects of verbs

¹⁰ Alternative formalizations of the status of the argument are possible. Notably, the properties I have identified are familiar from aspectual analyses developed since Tenny (1989). As Tenny (1995) sets out, however,

like *waltz* have a unified and systematic set of formal properties that connect systematically with interpretation.

4.3.3 Comments on an Indirect Causee role

Previous work analyses the *waltz* clauses as causative, resultative structures. Folli & Harley (2006), for example, propose the manner verb modifies a causative subevent, and that the PP Small Clause *around the room* is the caused event, as in (57). (Levin & Rappaport Hovav 1995: 110–12) give a *Cause V-intransitive* semantics.

- (57) Informal causative paraphrase of *Mary waltzed John around the room*: Mary caused John to [move/ waltz/ be] around the room by means of waltzing.

On such analyses, the arguments of *waltz* type structures are arguments of complex causatives. I have argued that the structure is not a resultative. Given the framework I assume, the arguments of the *waltz* clause are also not arguments of complex causatives (of this type).

This can be regarded as consistent with observations in previous work, that *waltz* clauses do not have familiar properties of causative structures (Cruse 1973; Levin & Rappaport Hovav 1995). For example, the external argument of the *waltz* clause does not have grammatical properties of typical Causers. The subject cannot be an instrument or a natural force, for example (58) (Levin & Rappaport Hovav 1995: 112, and references there). This contrasts with causative change-of-states, which precisely license Causer subjects (59) (Levin & Rappaport Hovav 1995; Folli & Harley 2004).

- (58) a. *The downpour/tear gas marched the soldiers to the tents.
b. *The lightning/firecracker/whip jumped the horse over the fence.
- (59) a. The sun melted the ice.
b. The sea ate away the beach.

The “causative” interpretation of the external argument of *waltz* and *march* type verb phrases instead seems to be contextually induced, a reflex of what is known about events in the world. Perhaps most notably, whether or not an MMT subject is a “causer” can be conditioned by properties of the NP argument. A causer interpretation is salient, for example, where there is world knowledge of the authority of the subject; and is not salient where the participant named by the NP is non-authoritative, or not judged able to be physically in control.

- (60) Mary jogged the soldiers around the track.
a. OK if Mary is a colonel.
b. Odd if Mary is a toddler.

The Indirect Causation interpretation associated with MMTs is presumably connected to the transitivity of its structure, and the particular interpretation of the object, but future

objects that do not measure in expressions of motion (she discusses (53)) present various interesting challenges that require development to aspectual representations.

work must determine its formal nature.¹¹ For now I conclude there does not seem to be empirical reason to make use of the notion of causation directly in determining the interpretation or syntax of the object argument.

4.4 The structure of objects in motion verb phrases

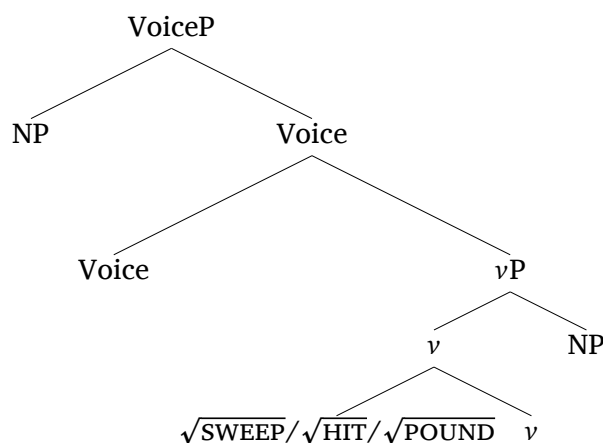
The remaining question is how the in motion objects receive their interpretation. Making use of the framework set out in Section 2, I propose a structural analysis of these verb phrases, and argue that the in motion object is interpreted in relation to this verbal structure.

4.4.1 A structural analysis

I have already shown that the object of *waltz* in *Mary waltzed John around the room* is syntactically an object of the verb. The structure of this verb phrase is consequently transitive (at least informally), where “transitive” just refers to the syntactic organization of the arguments (still glossing over considerations such as case) in which the verb has a nominal complement, and the specifier of Voice is filled (see Section 2).

One possibility is that in the *waltz* clause, a root $\sqrt{\text{WALTZ}}$ occurs in the same simple transitive structure as that typically assumed for manner transitives like *hit*, *sweep*, or *pound*.

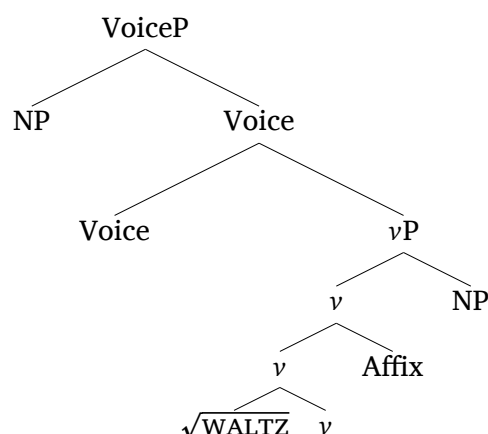
(61) *Simple verbal structure in transitive syntax (To be rejected)*



A particular facet of the framework adopted in this paper is that more than one verbal substructure can occur in a transitive syntax, however. This means that the verbal substructure of a transitive could be syntactically different to that of the simple structure of *hit* or *sweep*, either in the syntactic organization of the verb, or in the sets of syntactic features involved. As such, the root $\sqrt{\text{WALTZ}}$ could, in principle, modify either the simple structure in (61), or a different, more complex verbal structure.

There are a number of ways in which a verbal structure might be complex, relative to (61). I propose the *waltz* verbal substructure might differ from (61) in that its verbal structure might include an affix. This possibility is illustrated in (62). The verbalized root combines with an affix, forming a complex head. I assume the affix is a prefix, but the affix is not pronounced in English. I discuss the structure in (62) in more detail in Section 4.4.4.

¹¹ See fn. 14 for further comments.

(62) *Affixed verbal structure in transitive syntax (Final structure)*

In both (61) and (62) the verb (e.g. *waltz*) pronounces a complex syntactic structure in which a root combines with *v*; but the latter also has the affix. In addition, in both structures the verbal complex names an activity. The choice between the two verbal substructures (the simple or complex structure) that could underlie *waltz* is subtle. Analysis is further challenging because the *waltz* type structures do not appear to be attested outside of English (see Section 5.2),¹² and there is therefore no clear comparative cross-linguistic evidence to draw on.

However, the two syntactic configurations in (61) and (62) make different predictions with respect to the properties of their internal arguments. If $\sqrt{\text{WALTZ}}$ occurs in (61), *waltz* might be expected to relate to its object in the same manner as *pound* and its object; if it occurs in a structure like (62), the object of *waltz* should have different properties to objects of verbs like *pound*. Once the direct object is considered, I argue that there are a number of reasons to favor the complex structure for MMTs.

4.4.2 In motion objects vs. patient objects

An initial challenge to a “pound analysis” of transitive *waltz*, is that the participant role of the object of *waltz* is very different to the typical patient Role of activities like *sweep*, *pound*, or *hit*.

A typical transitive activity verb phrase says that an action is carried out in a particular manner on an object. The key aspect of the typical patient Role of activity predicates for present discussion is that the object is interpreted as acted on (even if the object is not changed by being acted on). In (63), the object *the floor* is acted on in the manner of sweeping, and the object *the wall* is acted on in the manner of hitting (even if neither object need be changed by the action).

- (63) a. John swept the floor.
b. Mary hit the wall.

Objects that hold the θ_{motion} Role are not patients in this sense, because they are not interpreted as being acted upon by the process described by the main manner verb. In (64a), the soldiers are not acted on in the manner of *marching*; *march* describes the manner in

¹² Haspelmath (2017: 52), for example, concludes that English is “exceptional” in having unergative verbs in the object alternation. While the scope of this observation seems to be limited to morphologically unmarked unergatives, and to not include the distribution of unergatives in resultatives, it is clear that “transitive unergatives” of English’s MMT type are cross-linguistically rare, to the point of being potentially otherwise unattested.

which *the soldiers* move.¹³ In (64b), John is not acted on in the manner of waltzing; *waltz* describes the manner in which *John* moves. In (64c), when I paddle a canoe, I am not acting on the canoe in the manner of paddling; the canoe is not a paddled object, in the way that *the floor* can be a swept object. Rather, the canoe is the vessel that travels with me as I paddle.¹⁴

- (64) a. The general marched the soldiers (back to their tents).
 b. Mary waltzed John (to the end of the ballroom).
 c. I paddled the canoe (to the boathouse).

In short, the θ_{motion} object does not relate to *waltz* in the same way as objects relate to *hit* and *sweep*. This is unexpected if *waltz* has the simple verbal structure of canonical transitive verbs.

4.4.3 The θ_{motion} role is a structural role

If *waltz* had the simple transitive structure in (61), one possibility is that the θ_{motion} role is determined directly in relation to the manner of motion root. If so the interpretation of the object should be available across different structures, wherever the root occurs with an object.

The θ_{motion} Role only seems to be possible in the particular structural context of the MMT, however. The resultatives in (65), for example, include the relevant roots, but the object is not interpreted as “in motion”. Instead, in (65a) the object *her ballet slippers* is interpreted as impacted by a manner of motion activity, and may be understood to have moved with the possessor, but the phrase does not say that the slippers are in motion. The resultative only asserts that *her ballet slippers* are the holders of a state that is the end or delimitation of an event of change.

- (65) a. Mary waltzed her ballet slippers *(thin).
 b. Joggers ran the pavements *(thin).

The absence of a relationship between *waltz* and its object in (65a) contrasts with the relationship between objects and verbs like *pound* in resultatives more generally. The usual generalization for English is that the objects of transitive verbs always have the same semantic participant role to the main verb in resultative contexts as in transitive contexts (Levin & Rappaport Hovav 1995; Wechsler 2005; Williams 2005): if *Mary pounded the metal flat*, the reasonable interpretation is that Mary pounded the metal, with the metal

¹³ Objects of other motion-type verbs may be interpreted as in motion, but these objects are also interpreted as being acted on. For example, the objects of transitive maneuvering or impelled motion verbs like *push*, *pull*, and the single argument that appears with motion unaccusatives like *roll*, have sometimes been treated together with the objects of unergatives in previous work. However these objects are interpreted as affected patients of change, just like the patient of *sweep*: If I push the cart, the cart undergoes a pushing. In contrast, if I paddle a canoe, the canoe does not itself undergo a paddling (an implied argument, like the water, is paddled). Given this semantic difference, I have not addressed such verbs in this article; in addition, these objects are usually regarded as “selected”.

¹⁴ It could be that the notion of “autonomous action” here (i.e. the intuition that the object is not acted on) connects to the interpretation of the object as an indirect causee. In particular, if an animate, sentient internal argument is interpreted as autonomous, then speakers might additionally attribute it “responsibility” for the bringing about of the event denoted by the main verb, as a reflex of their world knowledge of the participant involved. Previous work points out that inanimate objects do not have a responsibility reading in these structures (Ritter & Rosen 1998). On the present account, this would be because inanimates are not sentient (or teleologically capable, in the sense of Folli & Harley 2008).

holding its usual patient relation to pound.¹⁵ In short, *pound* has the same participant relation to the object in both transitive and resultative contexts, *waltz* does not (65a).

The examples in (66) extends the point from (65). *Waltz*, like other manner predicates, occurs in a wide variety of structural contexts, many of which include an object, for example, incremental theme verb phrases where the object is cognate; expressing a Path along which the MM extends with locative objects, *pronoun-way* objects, and dummy objects (66) (Levin 1993: 43–44). These theme/path etc. interpretations are the only natural readings of these sentences. An in motion interpretation is not possible.

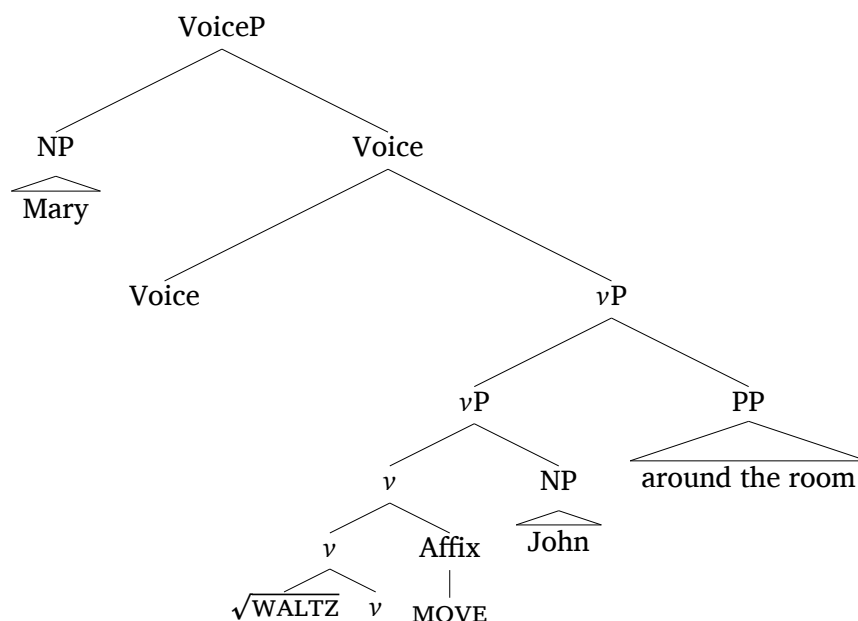
- (66) *Non-motion object interpretations across structures*
- | | |
|-------------------------------------|------------------------------|
| a. Mary danced a dance/waltz. | <i>Incremental theme</i> |
| b. Mary jogged the Skyline Drive. | <i>Location/Path measure</i> |
| c. Mary waltzed her way to stardom. | <i>Path</i> |
| d. Mary jogged it home. | <i>(Dummy) Path</i> |
| e. Mary ran her Nikes threadbare. | <i>(Result) state</i> |

I conclude the θ_{motion} role is not determined by roots like \sqrt{WALTZ} directly. Instead, the role is specific to the transitive structural context.

4.4.4 The complex verbal structure

In light of these considerations, I propose the θ_{motion} Role is interpreted in relation to a complex verbal structure, as in (67).

- (67) Final structure: *Mary waltzed John around the room.*



The syntax of (67) is transitive in the sense that the specifier of Voice is filled with an argument; and there is a second argument, *John*, that is the complement of the verb. Also shown in (67) is an (optional) PP, which adjoins to vP.

The verbal substructure is complex. I suggest it includes an affix that denotes Move, or Motion. The affix does not seem to have an aspectual effect on the event named by the verb, in the sense that (67) is interpreted as an activity. I propose that the object is interpreted

¹⁵ This may not be true in Dutch or German (Hoekstra 1988; Kratzer 2005), and is not the case in Mandarin and Igbo (Williams 2005).

in relation to the complex motion event given by the affixed verb, in accordance with its verb internal structural position. The θ_{motion} role of the object is established via the interpretation of the complex functional structure.

If the interpretation of the object is determined in relation to the complex structure, the interpretation of the object is limited to this syntactic context. The proposed verbal substructure may underlie other expressions, besides the *waltz John around the room* and *jump the lions through the hoop* type. Verb phrases like *paddle the canoe* are one example. Others are possible.

The overall effect of the framework, as illustrated by this case study, is a fine-grained approach to notions of transitivity, argument interpretation, selection, and argument-hood. According to (62), the θ_{motion} object holds a participant relation to “the verb”, where the verb is defined as the affixed categorized root $[[\sqrt{WALTZ} \nu] \nu]$. The internal argument holds a participant relation to the complex verbal structure, but is “unselected” in the sense that it does not hold a participant relation to the categorized root $[\sqrt{WALTZ} \nu]$.

A point raised by a reviewer is root coercion, observing that (68) cannot mean that the internal argument *the passengers* are independently in motion in relation to an activity event *sleep*, even with world knowledge that it is commonly the case that people fall asleep on planes or trains.

(68) *The pilot slept the passengers smoothly.

Such examples seem to indicate that the structure I have proposed is only felicitous if the lexical/conceptual semantics of the root can describe manner of motion; as \sqrt{SLEEP} , as well as \sqrt{CRY} , \sqrt{SING} , and \sqrt{LAUGH} , express only manner, they are not possible (69).

- (69) a. *Mary cried/ sang/ laughed John (for hours).
 b. *The comedian laughed the audience hoarse/ to hysteria.
 c. *The comedian laughed the audience around the room.

The formal means by which root distribution is to be implemented is a matter of current debate, not specific to the data examine here; see Embick & Marantz (2008) and comments in Section 2 for relevant discussion.

Overt evidence for a complex structure would be ideal. However, as already noted, the *waltz*-type “transitivized manner of motion unergative” has been reported to be unattested outside of English, and so comparative study may not be possible. Somewhat indirect motivation for a complex structure is that, from a comparative perspective, motion verbs (and transitives of unergatives) commonly involve a morphosyntactically complex verbal structure, not simple structures (i.a. Talmy 1985), including prefixes (e.g. Slavic), verbal “classifiers” (including in voiced causatives) (a well known feature of Athapaskan languages),¹⁶ and light verbs (for example, Mandarin and Korean make use of deictic light verbs). I leave to future study whether cross-linguistic comparisons that relate specifically to transitivity can be identified. I hope to have laid out how such investigations might proceed.

¹⁶ Whether the morphosyntax in motion verbs interacts with transitivity in other languages is the question that requires particular attention. Suggestively, Hale and Keyser (1987: 25) (as quoted in Levin & Rappaport Hovav 1995: 115), write, “In Athapaskan languages [...] the ergative alternation [AB: *the (anti)causative alternation*] is marked in the simplest manner, by choice of the so-called ‘classifier’ (an element appearing in immediate preset position correlating very roughly with transitivity), while the transitivization of ‘unergative’ verbs like *walk* and *run* involves not only this classifier element but special causative prefix morphology as well”.

4.5 Interim summary

This section has shown that MMTs are transitive, with the “unselected” object of *waltz* a syntactic direct object. This object is semantically interpreted with a type of theme/patient role, which I have called a motion role. I implemented a syntactic analysis of MMTs that derives this relationship. Making use of a framework in which descriptive notions such as “unergative”, “transitive”, and “verb” are teased apart into their component syntactic pieces, I argued that when manner of motion roots like $\sqrt{\text{WALTZ}}$ appear in transitive argument structure syntax, the root modifies a complex verbal structure; and it is in relation to this complex structure that the object is interpreted.

Close study of MMTs thus shows they do not provide evidence that there are special compositional rules, specific to certain verb classes, that can determine argument interpretation that violate general rules of argument interpretation. Instead, the interpretation of MMT objects seems to be specific to certain syntactic contexts, and can be analyzed as a structural effect.

5 Discussion: Motion verbs and resultatives

This Section outlines some extensions to the findings set out so far. I propose that the structural analysis of MMTs may provide a new way of systematizing patterns in the distribution and interaction of motion verbs: first, in resultatives in English (Section 5.1), and cross-linguistically (Section 5.2). These patterns – that are unexplained in current analyses – seem to have been obscured by the idea that all “unergative verbs” (in the traditional sense) have the same simple structure.

5.1 Objects in motion and resultative formation

The pair in (70) involve an adjectival resultative secondary predicate and a manner of motion main verb *waltz*. The string is grammatical with a “fake reflexive” object (70a), but not the full nominal object (70b).

- (70) a. Mary waltzed herself thin.
b. *Mary waltzed John thin.

The fake reflexive has been much discussed in previous literature on resultative formation, and further examples are given in (71), drawn from Levin & Rappaport Hovav (1995); Wechsler (1997); Rappaport Hovav & Levin (2001).

- (71) a. The coach swam [himself sober].
b. Mary danced [herself tired].
c. The joggers ran [themselves exhausted].
d. I tried to wiggle [myself comfortable in the passenger seat].

The examples in (72) replicates the contrast from (70), showing that the fake reflexive cannot be replaced with a nominal argument.

- (72) a. *The coach swam [the team sober].
b. *Mary danced [John tired].¹⁷
c. *The joggers ran [their competitors exhausted].
d. *I tried to wiggle [the baby comfortable in her car seat].

¹⁷ Example (72b) has been reported both as grammatical and ungrammatical in previous work. I have not found a native speaker who accepts this sentence on a reading where the object is holding the property denoted by the adjective as a delimiting result state. For all of the examples in (72), some speakers can get a depictive reading for the secondary AP.

The contrast in (70a) and (70b) is a problem if both are resultatives, and nothing more is said. The analysis developed here raises the possibility that the difference follows from a structural difference between the pairs. I assume that the fake reflexive is possible in resultative structure as a dummy marker that is the holder of the result state in a resultative.

In support of structural correlations, a reflexive is not licensed in the absence of a secondary predicate, as shown by the application of traditional constituency tests (73), and ungrammaticality with those modifiers identified in Section 4 (74).

- (73) a. *Coach swam himself sober, and the team did so sober too.
 b. *Swam himself though coach did sober, ...
 c. *Coach swam himself early this morning sober.
- (74) a. *Coach did not swim himself.
 b. *Coach swam himself regularly.
 c. *Coach swam himself more than John swam himself.

These judgements are replicated if the AP is substituted by a Path PP, as in (75) and (76).

- (75) a. *Robin danced herself out of the room, and Mary did so out of the room too.
 b. *Dance herself though Robin did out of the room, ...
 c. *Robin danced herself early this morning out of the room.
- (76) a. *Robin did not dance herself.
 b. *Robin danced herself regularly.
 c. *Robin danced herself more than John danced himself.

Interestingly fake reflexives have regularly been reported as odd with Path and Directional PPs in the previous literature (77) (from Rappaport Hovav & Levin 2001: 782). The analysis developed here suggests a novel account of this, as an effect of the fact that the fake reflexive is introduced in resultative contexts; while (77) (on the account here) would require a motion verb structure to get the in motion object interpretation.

- (77) ???Robin danced herself out of the room.

Of course, if the fake reflexive is a reflex of resultative structure, we do not expect it to occur in transitive motion syntax. Exactly as expected on this reasoning, it is difficult to coerce an interpretation where a reflexive is in motion. To the extent that an argument is interpreted as in motion in (70a) and (71), it is the subject of the manner verb that is in motion. This recalls a point in the text around (65a), where it was observed that resultative formation seems to be generally available on manner of motion verbs where the object does not hold a θ_{motion} Role. Similarly, the objects in (78) cannot be interpreted as in-motion, but are interpreted as result-state holders.

- (78) a. The commuters walked the pavements *(thin).
 b. Mary ran her Nikes *(threadbare).
 c. Mary ran the soles *(off her shoes).

In sum, the availability of the result-holder interpretation of the object in (70a) and (71), but not an in-motion object interpretation, correlates with the syntax of these sentences. The ungrammaticality of the objects in-motion in (70b) and (72) similarly show that

objects with the in-motion interpretation are not possible in resultative syntax/semantics. The generalization across both contexts may be that the resultative cannot be built on the complex verbal structure I have proposed. There are a number of ways analysis might be cached out, which I leave to future study.

5.2 Motion and resultative formation, cross-linguistically

A pattern that is currently unexplained concerns the distribution of manner of motion verbs in resultatives cross-linguistically. Resultatives can be built on “unergative” or “non-specified object” verbs in languages like German and Dutch (79)–(80).

(79) *German* (Kratzer 2005)

- a. Sie haben die Teekanne leer trinken.
they have the teapot empty drink
'They drank the teapot empty.'
- b. Er hat seine Familie magenkrank gekocht.
he has his family stomach sick cooked
'He cooked his family stomach sick.'
- c. Sie hat uns tot gequasselt.
she has us dead babbled
'She babbled us dead.'

(80) *Dutch* (Hoekstra 1988: 115–6, (34))

- a. Hij liep zijn schoenen scheef.
he walked his shoes askew
'He walked his shoes worn on one side.'
- b. Hij schaatste het ijs kapot.
he skated the ice cracked
'He skated the ice cracked.'
- c. Hij schreeuwde zijn keel rauw.
he screamed his throat sore
'He screamed his throat sore.'

As these examples illustrate, German and Dutch exhibit a greater flexibility than English in the lexical semantics of the verbs that can be the primary predicate of resultative secondary predication (for summary of patterns in English, see Wechsler 2005; Beavers 2012). Yet translations of the “causatives of unergatives” of the *waltz John* type discussed in this paper are not possible in these languages. While some native speakers seem to accept (81) and (82), many outright reject the data (particularly with the inanimate object) in a manner that is not observed for resultatives of the kind in (79) and (80). The judgements seem to vary particularly across different Dutch speakers, indicated by % in (82); Dutch speakers accepted (82b). (Many thanks to Boris Haselbach and Ava Creemers for help with the examples and discussion).

(81) *German* (Boris Haselbach, p.c.)

- a. *Der Jockey galoppierte das Pferd an der Scheune vorbei.
the jockey galloped the horse at the barn past
'The jockey galloped the horse past the barn.'
- b. *John tanzte Mathilda im Zimmer umher.
John danced Mathilda in.the room around
'John danced Mathilda around the room.'

- c. *Mary lief das Fahrrad zum Laden.
 Mary walked the bicycle to.the shop
 ‘Mary walked the bicycle to the shop.’
- (82) *Dutch* (Ava Creemers, p.c.)
- a. %De ruiter galoppeerde het paard voorbij de schuur.
 the horseman galloped the horse past the barn
 ‘The jockey galloped the horse past the barn.’
- b. Marie danste Jan de kamer rond.
 Marie danced Jan the room around
 ‘Mary danced John around the room.’
- c. %Marie liep haar fiets naar de winkel.
 Mary walked her bike to the shop
 ‘Mary walked her bike to the shop.’
- d. %De generaal marcheerde de soldaten naar hun tenten.
 The general marched the soldiers to their tents
 ‘The general marched the soldiers to their tents.’

The cross-linguistic data suggest that the restricted distribution of particular “unergatives” in resultative syntax observed for English and cross-linguistically requires further investigation, on the approach here, both of the set of complex verbal structures generated, and the interaction of roots with those structures in different languages.

6 Conclusion

This article developed a structural analysis of the syntactic and semantic relationship between the manner of motion unergative and its “unselected object” in sentences like (2b), *Mary waltzed John around the room*.

This structural analysis was based on reassessment of a number of previous empirical claims. The first part of this paper showed that *Mary waltzed John around the room* involves XP adjunction, and that these sentences do not have the same syntactic structure as resultatives like *Mary sang her throat her hoarse*. The second part of the paper argued that the object and verb in structures like (2b) have a syntactic and semantic relationship. In particular I showed that (2b) has a transitive syntax; that the object has an in motion interpretation, and is not an agent; and that the interpretation of the object in sentences like (2b) is specific to a certain transitive (I argued complex) verbal substructure, pronounced as a simple verb (e.g. *waltz*). I contrasted this particularly with the status of objects in resultatives built on unergative verb structures, where the object does not bear a syntactic or participant relation directly to the main verb, and instead receives interpretation in relation to the resultative secondary predicate.

The more general conclusion drawn is that the interpretation of the internal argument of MMTs is generated structurally, in accordance with unremarkable syntax-semantics mapping rules. The expressions do not require that different root (class) specific special interpretive rules to produce different interpretations of the same syntactic structures.

A number of points were raised in the course of discussion that would benefit from more detailed study. First, I have suggested that if sentences of the type *Mary waltzed John around the room* are neither syntactically nor semantically resultative, then this class of expression can be excluded from the study of resultative formation. Second, I explored the theoretical position that “unergative” and “transitive” are descriptions of particular types of argument structure, departing from the view that there is an unergative verb class, or root class; and explored how variation in verbal structure itself could be used to account

for apparent problems in syntax-semantics mapping. Finally, I set out some patterns in resultative expressions obscured by treating unergativity as a description of verbs or verb classes; still to be investigated are the full set of verbal substructures that occur unergative argument structure syntax, and the possible distributions of roots in those structures, in English and cross-linguistically.

Acknowledgements

Many thanks to Ane Berro and Léa Nash for editorial assistance. I am also very grateful to Ane, Léa, and the rest of the organizing committee for putting together the workshop *Unergative predicates: Architecture and Variation* in January 2018 where this work was first presented, and to the other participants for helpful feedback. This project further particularly benefited from discussion with Dave Embick; the participants in my Spring 2017 graduate seminar at Penn; Heidi Harley and the audience at LAGB 2018; Ava Creemers; Boris Haselbach; and from comments from three anonymous reviewers. All errors are mine.

Competing Interests

The author has no competing interests to declare.

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How to cite this article: Biggs, Alison. 2019. Objects in motion verb phrases. *Glossa: a journal of general linguistics* 4(1): 98.1–31. DOI: <https://doi.org/10.5334/gjgl.820>

Submitted: 24 September 2018 **Accepted:** 12 June 2019 **Published:** 22 August 2019

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