A manner condition on causatives: Resultative compounds in Daakaka[1]

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Abstract. In event (de)composition, causative predicates are traditionally analyzed as complex predicates, that denote sets of causing events *e* leading to a result state *s* (e.g. open). The additional modification of the causing event by a manner predicate (e.g. push) derives a complex resultative predicate in which both sub-eventualities are specified by respective roots (e.g. *push X open* or *open X by pushing*; Beavers 2012, Rappaport Hovav & Levin 2001, Dowty 1979). In this paper, I address causative predicates in the underdocumented Oceanic language Daakaka (Vanuatu). Based on original fieldwork, I demonstrate that, whereas in most languages, manner modification is optional in the context of causative predicates (as e.g. in English or Romance), in Daakaka, it is obligatory. This paper provides a unified semantic analysis of three types of resultative compounds in Daakaka, and makes the argument that manner verbs modify the causing event denoted by causative verbs. To account for cross-linguistic variation, I propose that languages differ as to whether they license existential closure over covert event variables (e.g. English) or require their overt realization by lexical (or functional) material (e.g. Daakaka).

Keywords: Causatives, Event Structure, Oceanic, Resultatives, Verb Serialization.

1. Introduction

In the Oceanic language Daakaka, causative predicates obligatorily combine with manner verbs in resultative compounds. This observation is illustrated in (1) for derived causative verbs (e.g. *mwelili-ane* 'to make small'), causative variants of verbs subject to the manner/result ambiguity (e.g. *tiwiye* 'break') and lexical causative predicates (e.g. *wa* 'split').

(1) a. *Bong ma* ****(ta)*** ***mwelili-ane*** *lee ente.*
Bong REAL cut.INTR be.small-TR tree DEM
'Bong made the tree small by cutting it.'

b. *Bong ma* ****(ta)*** ***tiwiye*** *lee ente.*
Bong REAL cut.INTR break.TR tree DEM
'Bong broke the tree by cutting it.'

c. *Bong ma* ****(ta)*** ***wa*** *lee ente.*
Bong REAL cut.INTR split.TR tree DEM
'Bong split the tree by cutting it.'

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The obligatory specification of the causing event entailed by causative verbs in Daakaka contrasts with its optionality in most other languages, such as English (2).

(2) a. *Mary **split** the tree **(by cutting it)**.*
b. *Mary **opened** the door **(by pushing it)**.*

Investigating the internal morphosyntactic and semantic properties of causative verbs, I first show that serialization is a necessary condition on causative predicates in Daakaka, as causative predicates are infelicitous outside of resultative compounds. Based on the distribution of transitive morphology and the availability of a narrow repetitive reading of the repetitive modifier *tetes* 'again' (cf. Lechner et al. 2015, von Stechow 1996), I demonstrate that despite the bound nature of causative verbs, they are the semantic and syntactic head of the compound. Therefore, resultative compounds are instances of *means* constructions in which the manner predicate adjoins to the causative verb, modifying the underspecified causing event entailed by the causative verb (see example (2); Sæbø 2016, Solstad 2009, Truswell 2007).

To account for the serialization condition in Daakaka, I propose that languages vary as to whether they license existential closure over covert event variables (see Zimmermann 2007 for a related idea). In particular, I suggest that unlike languages such as English, existential closure in Daakaka requires the overt realization of the event variable by lexical (or functional) material. Consequently, the serializing condition on causatives follows from the covert event variable of the underspecified causing event entailed by causative predicates.

2. A serializing condition on causative predicates

In this section, I show that Daakaka exhibits three classes of causative verbs: (i) causative verbs derived from verbal property-concept lexemes, (ii) causative variants of verbs that are subject to manner/result ambiguity, and (iii) simple causative verbs.

2.1. Typological sketch

Daakaka (Northern/Central Vanuatu, Oceanic, Austronesian) is spoken by a relatively small community (~1,000 speakers) on the island of Ambrym in Vanuatu (von Prince 2015). Due to its small speaker population and the growing influence of the *lingua franca* Bislama, it qualifies as an endangered language. Most data presented in this paper comes from elicitation sessions with three speakers in Vanuatu (2017-2019), which was collected via story-board elicitation and judgement tasks, and is stored publicly accessible at the Kaipuleohone Language Archive (Hopperdietzel 2020a). Additional data was extracted from available sources, such as a detailed grammar (von Prince 2015) and corpus data (von Prince 2013).

The basic word order is Subject – Verb – Object (SVO) with an additional clause initial topic position. It shows mood-prominent TMA-marking with pre-verbal inflection (von Prince 2015). Verbs exhibit differential object marking sensitive to definiteness (Hopperdietzel 2020b). As a serializing language, more than a single verb can form a single, but complex predicate of a clause (Hopperdietzel 2020c, von Prince 2015).

2.2. Causative formation

Daakaka exhibits two classes of property concept (PC-) roots. On the one hand, it has a larger class of verbal PCs which can be used predicatively without any form of derivation or the presence of the copula *i*, as shown in (3a) by the verbal PC *mwelili* 'be.small'. This contrasts with a smaller class of adjectival PCs which can only be used predicatively in copula clauses, as shown in (3b) by the adjectival PC *towo* 'big' (von Prince 2015).

(3) a. *Lee ente ma mwelili*$_{V}$.
tree DEM REAL be.small
'The tree is small.'

b. *Tomo tów-an mw=i towo*$_{ADJ}$.
rat belly-3SG.POSS REAL=COP big
'The rat's belly was big.' (von Prince 2015: 273)

To derive a causative predicate from stative PC-predicates, the transitive morphology (here: the transitive suffix *-(a)ne*) attaches to the PC-root. Since transitive morphology also attaches to non-causative transitive verbs, it does not qualify as causative morphology, but is more generally related to Voice phenomena (Hopperdietzel 2020b). Notably, only verbal PC-predicates form causative predicates, as indicated by the ungrammaticality of (4b).[2]

(4) a. *Bong ma ta mwelili-ane lee ente.*
Bong REAL cut.INTR be.small-TR tree DEM
'Bong made the tree small by cutting it.'

b. **Adam mwe doko towo-ne tisot ente.*
Adam REAL pull.INTR big-TR tisot DEM
Intended: 'Adam made the T-shirt big by pulling it.'

However, derived causatives cannot function as the sole predicate of a clause. Instead, they require the presence of a manner predicate, e.g. in the context of resultative compounds (4a). Hence, a deletion of the initial manner verb in the above examples leads to ungrammaticality.

(5) **Bong ma mwelili-ane lee ente.*
Bong REAL be.small-TR tree DEM
Intended: 'Bong made the tree small.'

Alternatively, resultative meaning is expressed by multiple-marking SVCs, in which both the manner and result predicate are marked for tense. In contrast to resultative compounds, the manner predicate appears in its transitive form, whereas the result-denoting predicate appears in its intransitive form. In this construction, adjectival predicates are available when introduced by the copula *i*. Therefore, multi-marking SVCs are less restrictive than resultative compounds.

[2] This categorial split is reminiscent of the hypothesis by Koontz-Garboden (2007) that non-verbal PC-predicates usually do not express change-of-state meaning in the absence of (regular) causativizing morphology or eventive modification (also Krajinovic 2020).

(6) a. *Bong mwe te lee ente ma mwelili.*
Bong REAL cut.TR tree DEM REAL be.small
'Bong cut the tree small.'

b. *Adam mwe doko-ne tisot ente mw=i towo.*
Adam REAL pull-TR T-shirt DEM REAL=COP big
'Adam pulled the shirt big.'

In sum, serialization is a necessary condition for the causativization of verbal PC-predicates as the causative form solely appears in verbal compounds. In the following sections, I demonstrate that this observation extends to causative predication in general.

2.3. Manner/result ambiguity

Some roots like $\sqrt{tiwiye}$ 'break (at)' are subject to manner/result ambiguity, in that they function as either manner or result verbs (cf. Levinson 2014 on braid, Levin & Rappaport Hovav 2013 on cut and climb). Other ambiguous verbs are *tewes* 'wipe/clean', *sengep* 'rattle/open' and *mawa* 'fight/spoil'. In its manner use, *tiwiye* describes an action that can be paraphrased as 'an attempt of an agent to break an object by manipulating it applying manual force' (~ proto-typical manipulative attempt to break something using ones hands). Notably, manner *tiwiye* does not entail that the manipulative action is successful, resulting in a change-of-state of the object. Instead, manner *tiwiye* is monoeventive, solely describing the manner of an action. This manner component can be satisfied when the agent acts on a branch, but not typically when the agents acts on a tree.

(7) *Bong ma tiwiye **pwesye** / **#lee** ente.*
Bong REAL break.at.TR branch tree DEM
'Bong broke at the branch / # the tree.'

In this context, *tiwiye* also shows other proto-typical characteristics of manner verbs (Beavers & Koontz-Garboden 2020, Rappaport Hovav & Levin 2010). For example, it allows object drop and pseudo noun incorporation PNI, which is indicated by the intransitive form *tiwir* (cf. *argument-per-subevent condition*; Levin & Rappaport Hovav 2001).

(8) *Bong ma **tiwir**.*
Bong REAL break.at.INTR
'Bong broke at (something).'

In its result use, the manner component drops out and *tiwiye* denotes an underspecified action that causes a 'broken' state of the theme's referent. This explains why (9) is now felicitous with *lee* 'tree' in the theme position.

(9) *Bong ma ta tiwiye pwesye/ lee ente.*
Bong REAL cut.INTR break.TR branch tree DEM
'Bong broke the branch / the tree by cutting it.'

In this context, causative *tiwiye* exhibits properties typically associated with result verbs. For example, it does not allow object/PNI – in direct contrast with its manner use in (8).

(10) **Bong ma ta tiwir.*
Bong REAL cut.INTR break.INTR
Intended: 'Bong broke (something) by cutting'

In resultative compounds, the underspecification of the causing event is indicated by its ability to combine with manner-denoting predicates such as *ta* 'cut' in (11a). Crucially, the manner and causative result form of the same ambiguous verb can both combine without being redundant (11b). While the initial manner verb *tiwir* identifies the causing action as an 'attempt of manual breaking', the non-initial causative verb *tiwiye* denotes the result state.

(11) a. *Bong ma ta tiwiye lee ente.*
Bong REAL cut.INTR break.TR tree DEM
'Bong broke the branches by breaking at them/ by cutting them.'

b. *Bong ma tiwir tiwiye pwesye ente.*
Bong REAL break.at.INTR break.TR branch DEM
'Bong broke the branches by breaking at them.'

This shows that manner and result variants are in complementary distribution. The result variant is restricted to the non-initial position in verbal compounds only, whereas the manner variant can occur independently or in the initial position of resultative compounds. Since the result variant requires the presence of a manner predicate, manner/result ambiguity supports the hypothesis of a serialization condition on causative predicates in Daakaka.

2.4. Causative verbs

Additionally, Daakaka exhibits a group of causative verbs which cannot appear outside of resultative compounds. This is shown in (12), where the causative verb *wa* 'split, break (lengthwise)' must be compounded with a manner predicate like *ta* 'cut'. Other causative verbs include *kote* 'break (crosswise)', *tae* 'pierce', *veni* 'kill', and *wesa* 'clear'.

(12) a. *Bong ma ta **wa** lee ente.*
Bong REAL cut.INTR split.TR tree DEM
'Bong split the tree by cutting it.'

b. **Bong ma **wa** lee ente.*
Bong REAL split.TR tree DEM
Intended: 'Bong split the tree.'

Due to their bound nature, causative verbs have been classified as 'verbal suffixes' by von Prince (2015). As such, causative verbs could be interpreted as bound state denoting elements, as with the German particle *auf* 'open', which must be combined with a verbal predicate but cannot be used attributively (13b) (cf. Larsen 2014, Zeller 2001).

(13) a. *Peter schloss die Tür **auf**.* GERMAN
Peter unlock.PST ART door open.PRTCL
'Peter unlocked/opened the door.'

b. **die **aufe** Tür*
ART open.PRTCL door
Intended: 'the unlocked/open door.'

c. *die Tür ist auf.*
ART door COP open.PRTCL
'The door is open.'

However, morphological and distributional observations suggest that verbal suffixes have the same underlying properties as other causative predicates in Daakaka. Firstly, some morphological processes in Daakaka are sensitive to the lexical category. For example, reduplication primarily applies to verbal predicates, in order to indicate pluractionality (14) or intensification. In contrast, non-verbal elements such as nouns and adjectives, as well as functional elements, do not usually reject reduplication (von Prince 2015).

(14) *Ka-m du yas~yas-ane ok wotop!*
2DU-REAL PROG RED~steal-TR 1SG.POSS breadfruit
'They are stealing my breadfruits (several of them)!' (von Prince 2015: 80)

As illustrated in (15), verbal suffixes like *wa* 'split' behave like independent verbs, in that they can reduplicate independently of the co-occurring manner verb to indicate pluractionality or intensification of the result state. As reduplication is primarily restricted to verbal elements only, the reduplication of verbal suffixes indicates their verbal nature.

(15) *Ma ta **wo~wa** lee ente.*
REAL cut.INTR RED~split tree DEM
'He split the trees by cutting them.'

Secondly, verbal suffixes are in complementary distribution with other causative predicates, such as ambiguous or derived causative verbs (see section 2.2 and 2.3). Hence, a compounding of two causative verbs is not grammatical in Daakaka, as shown by the examples below:

(16) a. **Bong ma ta (wa) tiwiye (wa) lee ente.*
Bong REAL cut.INTR split.TR break.TR split.TR tree DEM
Intended: 'Bong broke and split the tree by cutting it.'

b. **Bong ma ta (wa) mwelili-ane (wa) lee ente.*
Bong REAL cut.INTR split.TR be.small-TR split.TR tree DEM
Intended: 'Bong split the trees small by cutting them.'

Finally, verbal suffixes cannot appear in copula constructions. On the one hand, this constraint supports the verbal nature of verbal suffixes, since only non-verbal elements, such as adjectives and nouns, form predicates in combination with the copula. This contrasts state denoting particles in German, which can combine with a copula in predicative function. On the other hand, the fact that verbal suffixes cannot denote simple states in any syntactic environment strengthens the assumption that verbal suffixes are, in fact, causative verbs.

(17) **Lee ente ma / mw=i wa.*
tree DEM REAL REAL=COP split
Intended: 'The tree split.'

To summarize, this section reveals that causative verbs in Daakaka are subject to a serialization condition, as they obligatorily combine with manner verbs in resultative compounds.

(18) **Serializing condition on Daakaka causatives**
If a verb denotes a causative relation between an event and a state, it must combine with a manner that specifies the causing event.

This condition applies to derived causative verbs (e.g. *mwelili-ane* 'to make small'; section 2.1), causative variants of verbs that are subject to manner/result ambiguity (e.g. *tiwiye* 'to break') and causative verbs which only occur in resultative compounds (e.g. *wa* 'split').

3. On the main predicate status in resultative compounds

To further investigate the nature of the serializing condition in Daakaka, I take a closer look at the syntactic and semantic composition of the manner and result predicate in resultative compounds, focusing on the headedness of the construction. Despite their bound nature, this section reveals that causative verbs are the syntactic and semantic head of the compound.

3.1. Complementation vs. adjunction

Cross-linguistically, resultative meaning has been shown to be realized by various syntactic configurations, which primarily differ in the lexicalization of the result state by the verbal predicate (Talmy 1991 et seq.). Crucially, this distinction between the two types of resultative constructions boils down to the relation of the manner and result predicate, i.e., complementation/argument and adjunction/modification (Folli & Harley 2020, Hopperdietzel 2020c, Mateu & Acedo-Matellan 2015 among others). This is exemplified for English below.

In resultative secondary predication, the causing event is expressed by a manner verb (here: *hammered*), while the result state is expressed by a stative predicate, e.g. an adjectival predicate (here: *flat*) in English (see Beavers 2012 for a detailed overview).

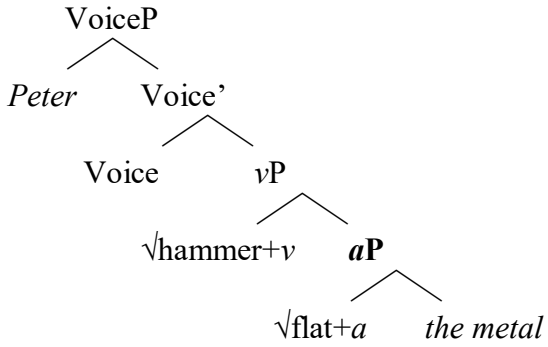
(19) a. *Peter hammered the metal flat.*
b. **Peter hammered the metal flattened.* / * *Peter hammer-flattened the metal.*

From a semantic perspective, the two predicates enter a causative relation, in which the event denoted by the manner predicate causes the result state denoted by the stative result predicate (Kratzer 2005, Levin & Rappaport Hovav 2001, Dowty 1979).

(20) a. ⟦hammer⟧ = λe. hammer(e)
b. ⟦flat⟧ = λs. flat(s)
c. ⟦hammer flat⟧ = λe.∃s. hammer(e) ∧Caus(e, s) ∧ flat(s)

Adopting a decompositional analysis of causative semantics, the causative relation between the two eventualities is assumed to be read off the syntactic configuration when an event-denoting head takes a state-denoting XP as its complement (via contextual allosemy; Wood 2015; cf. Alexiadou et al. 2015, Ramchand 2008, Higginbotham 2000 on telic pair formation, also Beck & Snyder 2001 on Principle R).[3] This is illustrated for our English example below, where the manner verb *hammer* takes an *a*P-small clause as a result-denoting complement (Folli & Harley 2020, Embick 2004, cf. Hoekstra 1988 et seq.).

(21)



In sum, resultative secondary predication exhibits the following properties: (i) the manner verb is the main predicate of the construction, (ii) the stative result predicate is a secondary predicate, (iii) the secondary predicate is an argument/complement of the main predicate, and (iv) both predicates stand in a causative relation.

An alternative way to express a resultative meaning is the *means* construction, in which a causative predicate (here: *flattened*) combines with a means adjunct (here: *by hammering it*) that specifies the manner of the underspecified causing event entailed by the causative predicate (Biggs & Embick 2020, Sæbø 2016, Truswell 2007). In English, the means adjunct is typically realized by a prepositional, as in (22), or gerundival phrase.

(22) *Peter flattened the metal by hammering it.*

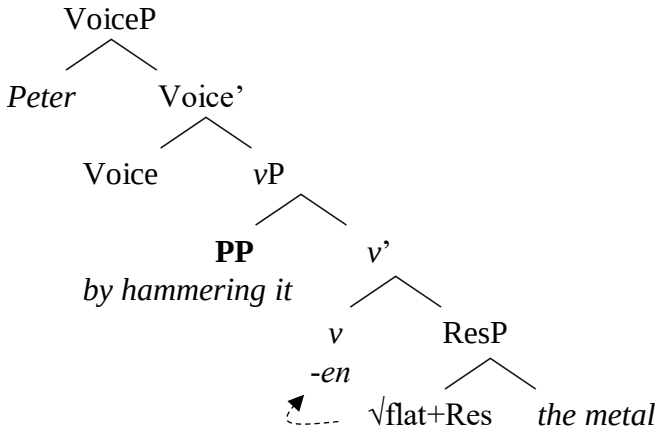
In contrast to resultative secondary predication, the causative relation between a causing event and a result state is introduced by the causative predicate itself, as in (23a). As an event modifier, the means adjunct, which simply denotes the manner of an event in (23b), specifies the underspecified causing event already entailed in the event structure of the causative predicate in (23c), via Predicate Modification (Sæbø 2016, Solstad 2009).[4]

(23) a. ⟦flatten⟧ = λe.∃s. Caus(e, s) ∧ flat(s)
b. ⟦by hammering⟧ = λe. hammer(e)
c. ⟦flatten by hammering flat⟧ = λe.∃s. hammer(e) ∧Caus(e, s) ∧ flat(s)

[3] Note that a complementation analysis is compatible with the assumption of designated causative head which introduces causative semantics and selects for a stative complement, e.g. v_{CAUS} (Folli & Harley 2020).
[4] Here, I abstract over the presence of agent and patient arguments in the semantic denotation of the means adjunction (see Alexiadou 2013 for arguments that *-ing* nominals involve a Voice projection introducing an agent argument). If an agent role is present, the composition will require Event Identification (Kratzer 1996).

Syntactically, the means adjunct functions as an event modifier attached to the causative *v*P of the causative predicate, which is the main predicate of the construction (Hopperdietzel 2020c, Biggs & Embick 2020, Solstad 2009). Therefore, the manner component in the means construction is not realized by the verb, as in resultative secondary predication, but by a PP, which functions as a manner-denoting secondary predicate. In contrast, the result component is realized by the causative verb (Folli & Harley 2020, Mateu & Acedo-Matellan 2015).

(24)



In sum, the means construction displays the following properties: (i) the causative result verb is the main predicate of the construction, (ii) the manner predicate is a secondary predicate, (iii) the secondary predicate is an adjunct to the main predicate, and (iv) the secondary predicate asymmetrically modifies the (causing) event entailed by the causative main predicate.

The syntactic and semantic properties of resultative secondary predication and *means* constructions are summarized in Table 1. However, since both manner and result predicate in resultative compounds show verbal properties, the headedness of the construction cannot be established on the categorical type of the predicates (as in English). Instead, I apply independent syntactic and semantic diagnostics that are sensitive to the observed properties.

	RSP	***means***
Main predicate	manner	causative/result
Secondary predicate	stative/result	manner
Syntactic composition	complementation	adjunction
Semantic relation	causation	modification

Table 1: Syntactic and semantic properties of resultative constructions.

3.2. Transitivity marking

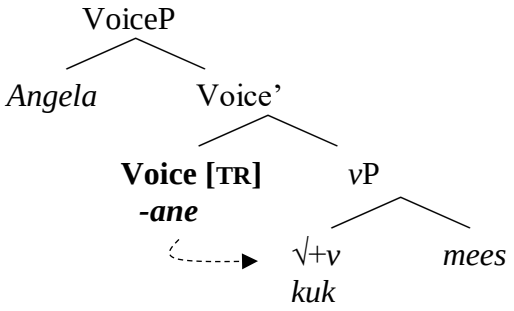
Initial evidence comes from transitive morphology that occurs on the non-initial causative verb, but not on the initial manner verb. As already mentioned in sections 2.2. and 2.3., most verbs in Daakaka mark their transitivity by transitive morphology – e.g. by the transitive suffix *–ane*, as in (25b), or suppletive morphology (von Prince 2015).

(25) a. *Angela ma kuk.*
Angela REAL cook
'Angela cooked.'

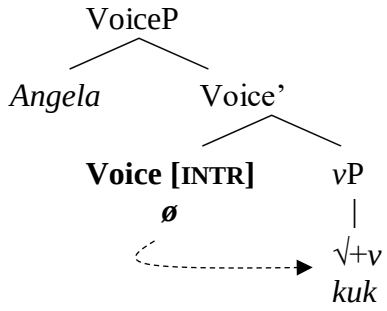
b. *Angela ma kuk-ane mees ente.*
Angela REAL cook-TR food DEM
'Angela cooked the food.'

In Hopperdietzel (2020b), I have demonstrated that transitive morphology is the spell-out of an external argument introducing head, Voice, in transitive configurations that undergoes Voice-to-*v* lowering (Nie 2020, cf. Arregi & Pietraszko 2020).

(26) a.



b.



In resultative compounds, transitivity is obligatorily marked on the non-initial causative verb, whereas the initial manner predicate must appear in its intransitive form. This is illustrated for the derived causative verbs *mwelili-ane* 'make small' and the causative variant of the ambiguous verb *tiwiye* 'break', as in (27). Crucially, if the manner verb *ta* 'cut' appears in its suppletive transitive form *te* 'cut', as in (27b/c), the resultative compound is ungrammatical.

(27) a. *Bong ma ta mwelili-ane / tiwiye lee ente.*
Bong REAL cut.INTR be.small- TR break. TR tree DEM
'Bong made the tree small by cutting it.' / 'Bong broke the tree by cutting it.'

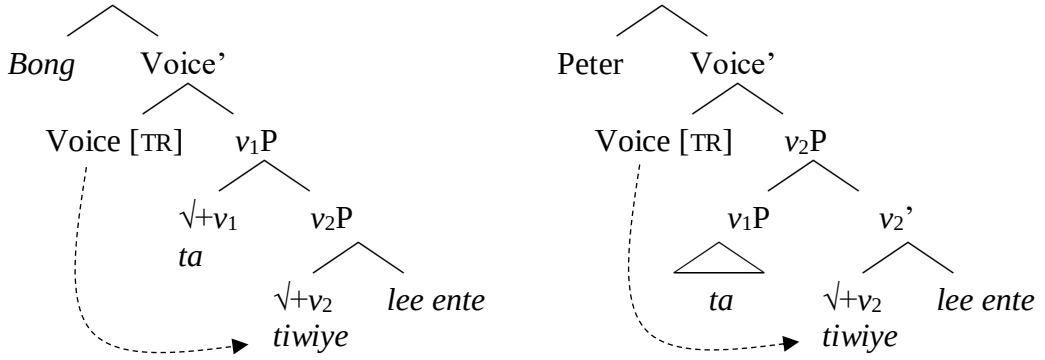
b. **Bong ma te mwelili-ane / tiwiye lee ente.*
Bong REAL cut. TR be.small-TR break. TR tree DEM

c. **Bong ma te mwelili / setyup lee ente.*
Bong REAL cut. TR be.small be.broken.INTR tree DEM

Notably, root suppletion has been shown to be subject to locality constraints, which provides a syntactic diagnostic for the distinction between complementation and adjunction in resultative compounds (Bobaljik & Harley 2017, Bobaljik 2012, also Moskal 2015, but see Embick 2010). Contrary to the observation in (27), the intervention of the manner verb in between Voice and the causative is expected to block root suppletion in complementation structure under cyclic head movement, as in (28a) (Arregi & Pietraszko 2020, Baker 1985). Instead, transitive morphology on the manner verb would be expected (see Hopperdietzel 2020c for a more detailed discussion).

However, with the assumption that the manner verb adjoins to the causative predicate, Voice is expected to lower to the causative verb, since adjuncts are opaque to head movement, as shown in (28b) (Arregi & Pietraszko 2020, Baker 1985). In this position, Voice triggers root suppletion of the non-initial causative verb only. Consequently, the distribution of suppletive transitive morphology indicates the main predicate status of the causative verb.

(28) a. * VoiceP COMPLEMENTATION b. VoiceP ADJUNCTION



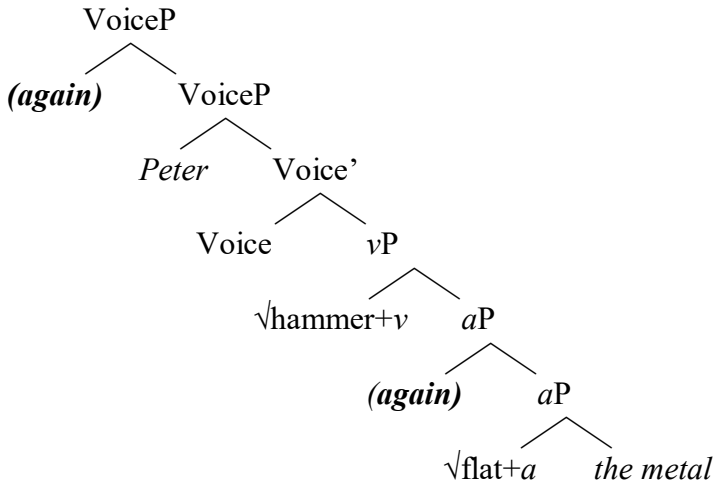
3.3. A narrow repetitive reading of *tetes* 'again'

Corroborating evidence for this claim comes from the repetitive modifier *tetes* 'again'. Cross-linguistically, it has been shown that repetitive modifiers are often ambiguous with respect to their scope (Lechner et al. 2015, Beck & Snyder 2001, Dowty 1979). In English, for example, *again* licenses both repetitive and restitutive readings in the context of resultative secondary predication. Under the restitutive reading, only the result state is in the scope of *again*, as in (29a), whereas under the repetitive reading, *again* takes the whole complex resultative event in its scope, including both the causing event and the result state, as in (29b). Yet, a third reading, where *again* scopes solely over the causing event, is infelicitous, as in (29c).

(29) *Peter (again) hammered the metal flat (again)…*
- a. *… and the metal was flat before.* RESTITUTIVE
- b. *… and Peter hammered the metal flat before.* REPETITIVE (WIDE)
- c. #*… and Peter hammered the metal before.* REPETITIVE (NARROW)

Adopting a structural approach, the asymmetric entailment of the restitutive reading in the repetitive reading follows from the syntactic position of the repetitive modifier in the derivation (Lechner et al. 2015, von Stechow 1996). Therefore, if *again* attaches low to the *a*P, it only takes the result state in its scope, as in (31); if *again* attaches high to VoiceP, it scopes over the whole (complex) predicate in its c-command domain, as in (32).

(30)



(31) a. ⟦again⟧(aP)= again(λs. flat(s)) RESTITUTIVE
b. Presupposition: ∃s'. s'<s ∧ flat(s')

(32) a. ⟦again⟧(VoiceP) = again(λe.∃s. wipe(e) ∧ Caus(e, s) ∧ flat(s)) REPETITIVE (WIDE)
b. Presupposition: ∃e'∃s. e'<e ∧ wipe(e') ∧ Caus(e', s) ∧ flat(s)

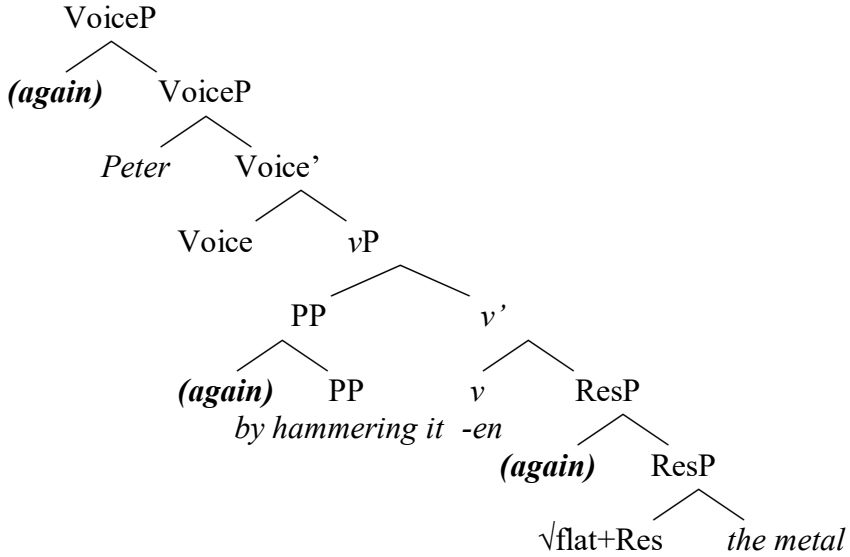
With the assumption that *again* can only attach to propositional nodes, a narrow repetitive reading in the context of resultative secondary predication is ruled out, since *again* cannot attach to the causing event introducing *v* prior to the merge of the result-state introducing complement (in contrast, for example, to *re-*; Lechner et al. 2015, Bale 2007).

Crucially, in addition to a repetitive and restitutive reading, an additional narrow repetitive reading becomes available in the means constructions. This narrow repetitive reading becomes felicitous when *again* attaches to the predicate within the means adjunction (Hopperdietzel 2020c).

(33) *Peter (again) flattened the metal (again) by hammering it (again).*
a. … and the metal was flat before. RESTITUTIVE
b. … and Peter hammered the metal flat before. REPETITIVE (WIDE)
c. … and Peter hammered the metal before. REPETITIVE (NARROW)

Therefore, the morphosyntactic size of the manner component—i.e the PP, as in (33)—enables *again* to attach to the manner denoting means adjunct before it modifies the causing event entailed by the causative predicate, as in (34). In this position, *again* scopes solely over the manner event without pre-supposing a prior result state, as in (35).

(34)



(35) a. ⟦again⟧(PP) = again(λe. hammer(e))
b. Presupposition: ∃e'. e'<e ∧ hammer(e')

In Daakaka, the repetitive modifier *tetes* 'again' displays similar properties to English *again*, in licensing both restitutive and repetitive readings in the context of resultative compounds.

Note that the fixed position of tetes ‘again’ does not necessarily preclude a structural analysis of repetitive modifiers (cf. Xu 2016 on Mandarin you 'again').

(36) Yesterday morning, Bong bought a new truck from the shop. The truck was perfectly clean. In the afternoon, he drove to the gardens to get some firewood. He loaded the truck with some wood and drove back home. After he unloaded the truck, he realized that the truck got very dirty. He took a broom and swept the truck clean again.

Bong mwe tewes ***gu~kuo-ne*** *trak* ***tetes.*** RESTITUTIVE
Bong REAL sweep RED~clean-TR truck again
‘Bong swept the truck clean again.’

(37) Yesterday, Bong sat down on his old bench which broke under their weight. Therefore, he fixed the bench quickly. After work, Bong sat down on the fixed bench to have a rest. Unfortunately, the bench broke under his weight again.

Bong ma ***tas tiwiye*** *etastas* ***tetes.*** REPETITIVE (WIDE)
Bong REAL sit break bench again
‘Bong and Adam again broke the bench by sitting on it.’

In addition to a repetitive and restitutive reading, Daakaka resultative compounds allow for a narrow repetitive reading, in which *tetes* ‘again’ takes scope over the manner predicate only.

(38) Bong is a huge man. Yesterday, he was working the whole day in the gardens. In the evening, he came back from work and sat down on his new chair in front of his house. After a while, he stood up and went inside to have dinner with his family. After dinner, he went back outside and sat down on the chair again. This time, the chair broke under his weight.

Bong ma ***tas*** *tiwiye etastas* ***tetes*** ***(mon)****.* REPETITIVE (NARROW)
Bong REAL sit break.TR chair again again
‘Bong broke the chair by sitting (on it) again.’

The availability of a narrow repetitive reading suggests that the manner verb is adjoined to the causative verb, as such a reading is only expected in the means constructions, but not in resultative secondary predication.

To summarize, both morphosyntactic and semantic diagnostics univocally indicate the main predicate status of causative verbs in Daakaka resultative compounds, with the manner verb as an adjoined predicate. However, given the observed serializing condition on causative verbs, these results are unexpected since adjunction is thought to be syntactically optional.

4. On the interpretation of causing events

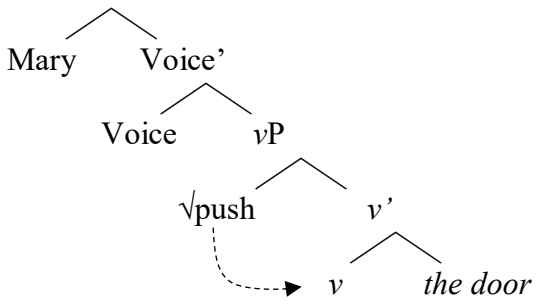
In this section, I will present a tentative analysis, on semantic grounds, of the serializing condition on Daakaka causative verbs in relation to the interpretation of the causing event. More

particularly, I propose that the serializing condition follows from language specific restrictions on the existential closure over covert event variables in Daakaka.

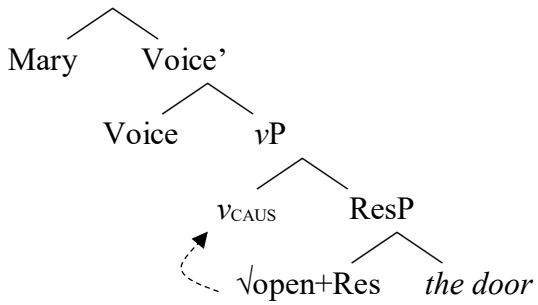
4.1. A syntactic approach to event (de)composition

Adopting a syntactic approach to event (de)composition, I assume that event structure is derived by the relative configuration of lexical and functional heads within the elaborate VP-domain (Folli & Harley 2020, Alexiadou et al. 2015, Ramchand 2008). Acategorial roots, which provide the lexical information of the verbal predicate, come in two classes, depending on their ability to modify a (causing) event, i.e. manner roots, or a (result) state, i.e. result roots (Beavers & Koontz-Garboden 2020, Rappaport Hovav & Levin 2010 *inter alia*). While manner roots merge as modifiers (sisters of *v'*) of the event-introducing verbalizer *v*, result roots are introduced within a state-introducing, acategorial Res(ult)P in the complement position of the eventive *v* head (Folli & Harley 2020, Alexiadou et al. 2015, Embick 2004). As noted above, I take causative semantics to be located on *v* whenever *v* takes a stative complement (contextual allosemy; Wood 2015). The external argument is introduced by a separate Voice head, the locus of agentive semantics, whereas the internal argument is introduced *v*P-internally (Alexiadou et al. 2015, Kratzer 1996). The structures below show the configuration of mono-eventive manner verbs in (39a) and bi-eventive causative result verbs in (39b).

(39) a.



b.



4.2. Manner predicates as event modifiers

In English, lexical causatives such as *open* denote a set of events that cause a result, which is specified by the verbal root, leaving the properties of the causing event underspecified. The derivation up to the level of the *v*P is given in (40).

(40) a, $[\![\text{ResP}]\!]$ = $[\![\text{open the door}]\!]$ = $\lambda s.$ open(s) ∧ Hd(door, s)
b. $[\![v_{\text{CAUS}}]\!]$ = $[\![\text{ø}]\!]$ = $\lambda P \lambda e. \exists s.$ Caus(e, s) ∧ P(s)
c. $[\![v\text{P}]\!]$ = $[\![\text{open the door}]\!]$ = $\lambda e. \exists s.$ Caus(e, s) ∧ open(s) ∧ Hd(door, s)

As the causing event *e* is underspecified, it must be contextually interpreted in the absence of lexical modification such as roots or adverbial modifiers. For English, it has been argued that in the presence of an agentive Voice head, the causing event which is introduced by *v* is interpreted as an action event (41), while in the absence of such a Voice head, it is interpreted

as a change that finally causes the result state (42) (Martin 2020, cf. Alexiadou et al. 2015, Ramchand 2008, Levin & Rappaport Hovav 1995, but seeKoontz-Garboden 2009).

(41) a. *Mary opened the door.*
b. ⟦VoiceP⟧ = ⟦Mary opened the door⟧
= ∃e.∃s. Ag(Mary, e) ∧ **Action(e)** ∧ Caus(e, s) ∧ open(s) ∧ Hd(door, s)

(42) a. *The door opened (by itself).*
b. ⟦VoiceP⟧ = ⟦The window opened⟧
= ∃e.∃s. **Change(e)** ∧ Caus(e, s) ∧ open(s) ∧ Hd(door, s)

Optionally, the causing event can be further specified by adverbial modification, e.g. by a *means* by-phrase, as discussed in section 3.1.

(43) a. *Mary opened the door by pushing it.*
b. ⟦VoiceP⟧ = ⟦Mary opened the door by pushing it⟧
= ∃e.∃s. Ag(Mary, e) ∧ **push(e)** ∧ Caus(e, s)∧ open(s) ∧ Hd(door, s)

However, given the serializing condition on causative verbs, the specification of the causing event is mandatory in Daakaka. To account for this variation, I tentatively suggest that the serializing condition follows from a language specific constraint on existential closure of covert event variables, i.e. event variables that are not overtly realized by lexical or functional material. In languages such as English, existential closure can be performed over covert event variables – as in, for example, the context of English causative verbs above. In contrast, Daakaka requires event variables to be valued by lexical roots as a condition for existential closure. Thus, the adjoined manner verb is mandatory for the felicity of causative verbs (44).

(44) a. *Bong ma #(doko) sengave beleem ente.*
Bong REAL pull.INTR open.TR door DEM
'Bong opened the door by pulling.'

b. ⟦VoiceP⟧ = ⟦Bong **doko** sengave beleem ente⟧
= ∃e.∃s. Ag(Bong, e) ∧ **pull(e)** ∧ Caus(e, s) ∧ open(s) ∧ Hd(door, s)

While such a condition might be unexpected, potentially related observations have been made for the Austroasiatic language Bura (Zimmermann 2007) and the Austronesian language Eastern Cham (Backlawski Jr. 2018), where existential closure is overtly realized by designated particles in the absence of contextual interpretation, e.g. in the context of negation (45).

(45) *Pindar #(adi) ata sa mbal wa.* BURA
Pindar EC FUT drink beer NEG
'Pindar will not drink beer.' (Zimmermann 2007: 335)

Although the constraints on existential closure in Bura and Eastern Cham differ significantly from Daakaka, these examples suggest that in some languages, existential closure over event variables appears to interact with the presence of overt syntactic material. Therefore, further research ought to elaborate and evaluate this proposal for Daakaka resultative compounds.

4.3. The status of anticausatives

A strong prediction of the analysis proposed in the last section deals with the felicity of anticausative verbs in Daakaka. Since anticausative predicates (like causative predicates), entail an underspecified causing event (here: a *process* event; see example (41) above), anticausative verbs should be subject to the same conditions as causative verbs. This prediction is not borne out, as anticausative resultative compounds are infelicitous, as shown in (46).[5]

(46) **Beleem ente ma doko sengep.*
door DEM REAL pull.INTR open.INTR
Intended: 'The door got opened by pulling.'

However, morphologically simple anticausative verbs are presumably absent in Daakaka (Krajinovic 2020, Koontz-Garboden 2007 on related Oceanic languages). Instead, anticausative meaning is expressed by the coercion of stative verbs, e.g. in the context of the progressive marker *bwe* (47a), or by periphrastic constructions with the verb *me* 'come' (47b).

(47) a. *Kaingas bwe mese.*
Kaingas REAL.PROG be.sick
'Kaingas got sick' (von Prince 2013: 2406)

b. *Mwe me ma gao~gao*
REAL come REAL RED~be.dry
'It becomes dry.' (von Prince 2015: 357)

Therefore, the absence of morphological lexical anticausatives supports the hypothesis that the entailed causing event in (anti-)causative predicates needs to be overtly realized by lexical (or functional) material on independent grounds.

5. Conclusion

To conclude, I have shown that all three types of causative verbs in Daakaka are subject to a serialization condition in that they must combine with a manner verb in resultative compounds. Based on syntactic and semantic evidence, I have shown that causative verbs are the syntactic and semantic head of resultative compounds with the adjoined manner verb modifying the underspecified causing event entailed by the causative verb. Therefore, Daakaka resultative compounds belong to the class of *means* constructions. To account for the obligatory presence of the manner adjunct, I propose a language specific constraint that rules out existential closure over covert event variables. While this proposal requires further elaboration, it may also explain the absence of anticausative verbs in Daakaka.

[5] A potential exception to this generalization are change-of-location verbs (e.g. *soar* 'arrive', *seling* 'go.down'), which are attested in isolation, although they often combine with directional verbs *vyan* 'go' *me* 'come' (von Prince 2015). As an investigation of the lexical semantics of motion verbs in Daakaka is still pending, I leave this issue for future research.

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