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Talmy's typology in serializing languages: Variations on a VP

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Two types of resultative constructions that are unevenly distributed across languages (Talmy 2000) can be identified based on the lexicalization of manner and result meaning in the verbal main predicate: *resultative secondary predication* lexicalizes the manner component, while so called *means constructions* lexicalize the result component instead. However, this typology has been based primarily on non-serializing languages such as English and certain Romance varieties, in which the secondary manner or result predicate is necessarily non-verbal. This contrasts with resultatives in serializing languages, in which both the manner and result component are realized by verbal predicates, making it difficult to determine the underlying syntactic status of the respective predicates. By investigating the morphosyntactic and semantic properties of resultative serial verb constructions (RSVCs) in two serializing languages, Mandarin and Samoan, I argue that RSVCs are neither a uniform nor special phenomenon (contra Larson 1991; Slobin 2004), but show the same split observed in non-serializing languages. This observation has further implications on a unified configurational analysis of manner and result meaning within a syntactic account of event and argument structure building.

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1. Introduction

Resultatives are a form of complex predicate in which a manner predicate and a result predicate appear in a causal relation within a monoclausal structure. A proto-typical example of this construction is *resultative secondary predication*, in which a manner verb functions as the main predicate of the clause denoting an action that causes a patient to undergo a change of state, with the result state itself named by a stative secondary predicate (Halliday 1967; Simpson 1983; Beavers 2012). In English, the secondary predicate is realized by a non-verbal predicate, as, for example, by an adjective (Larson 1991).

- (1) a. *Kim **hammered** the metal **flat**.*
 b. *Kim **pushed** the door **open**.*

In addition to resultative secondary predication, resultative meaning may be expressed by a *means construction* (Dowty 1979; Sæbø 2008; Solstad 2009). In this construction, the main predicate of the clause is a causative verb which, by itself, expresses a causative relation between an underspecified event and a result state specified by the root. The manner predicate in this case is realized as an adjunct to the causative predicate modifying the entailed underspecified causing event with, for example, a manner *by*-phrase in English (also Truswell 2007).

- (2) a. *Kim **flattened** the metal **by hammering it**.*
 b. *Kim **opened** the door **by pushing it**.*

The two types of resultative constructions thus differ significantly in their underlying syntactic and semantic composition.

Cross-linguistically, it has been observed that languages vary in the type of construction in which resultative meaning is pre-dominantly realized (Talmy 2000): While satellite-framed languages like English prefer resultative secondary predication, verb-framed languages within the Romance language family prefer means constructions; in fact, resultative secondary predication is usually ungrammatical in verb-framed languages.

- (3) a. *María **aplanó** el metal **martilleándolo**.* SPANISH
 Maria flatten the metal hammering
 ‘Maria flattened the metal by hammering it.’
 b. **María **martilleó** el metal **plano**.*
 Maria hammered the metal flat
 Intended: ‘Maria hammered the metal flat.’ (Mateu 2012: 258)

However, this typology has been established primarily on the basis of non-serializing languages, in which the secondary predicate is necessarily realized by a non-verbal predicate; this makes it easy to determine the main predicate status of the verbal predicate. This contrasts with languages that show verb serialization, i.e. constructions in which more than a single verbal

predicate can appear in a monoclausal environment (Veenstra & Muysken 2017; Aikhenvald 2018; Hopperdietzel 2020). In *resultative serial verb constructions* (RSVCs), both the manner and the result predicate are realized by predicates of verbal category, as in the Lao (Kra-Dai) and Mandarin (Sino-Tibetan) examples (Lin 2004; Cole 2016).

- (4) a. *Candii liit sàa liap.* LAO
 Jandee iron shirt smooth
 ‘Jandee ironed the shirt smooth.’ (Cole 2016: 51)
- b. *Lisi ca-gan-le zhouzi.* MANDARIN
 Lisi wipe-dry-PFV table
 ‘Lisi wiped the table dry.’ (Lin 2004: 91)

Based on examples with intransitive result verbs as in (4), RSVCs are often treated as resultative secondary predication with verbal secondary predicates (Larson 1991; C. Collins 1997; Stewart 2001), or as a distinct type of equipollently-framed resultative, in which both manner and result predicates exhibit equal syntactic and semantic status (Slobin 2004; Zlatev & Yangklang 2004; Ameka & Essegbey 2013).

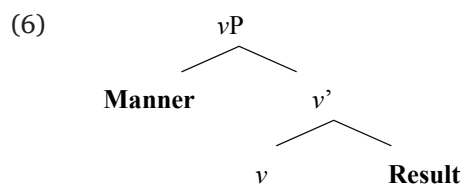
In this paper, I present novel data from the serializing language Samoan (Polynesian, Oceanic, Austronesian), in which result predicates of RSVCs are realized by transitive causative verbs (Mosel 2004; Hopperdietzel 2021c; see also Tomioka 2006 on Japanese; Ko & Sohn 2015 on Korean; Sugar 2019 on Uyghur (Turkic)).

- (5) a. *Sā solo fa’a-mamā e Malia le laulau.* SAMOAN
 PST wipe CAUS-clean ERG Mary ART table.ABS
 ‘Mary cleaned the table by wiping it.’
- b. *Sā tipi fa’a-pa’ū e Pita le la’au.*
 PST cut CAUS-fall ERG Peter ART tree.ABS
 ‘Peter felled the tree by cutting it.’

The investigation of the morphosyntactic and semantic properties of Samoan RSVCs indicates that they belong to the class of means constructions, in that the adjoined manner verb modifies the underspecified causing event entailed by the causative result verb. Samoan-type RSVCs therefore differ from Mandarin-type RSVCs in the same way that Romance-type resultatives differ from English-type resultatives in non-serializing languages. As a consequence, RSVCs do not instantiate either a uniform or special type of resultative, but reflect the general split in the resultative domain on the relevant level of syntactic and semantic composition (Talmy 2016).

These findings have further consequences for a unified analysis of resultative structures cross-linguistically. Adopting a decompositional approach to event and argument structure (Alexiadou et al. 2015; Folli & Harley 2020; cf. Ramchand 2008), I take manner and result interpretations

to arise from designated syntactic positions relative to a causing-event introducing verbalizer v : While a manner interpretation is associated with the modifying position to v (sister of v'), result meaning arises in the argument/complement position of v (Folli & Harley 2020; cf. Embick 2004; Mateu & Acedo-Matellan 2012; Alexiadou & Anagnostopoulou 2013).



To account for the cross-linguistic variation, I propose that resultative constructions can differ in the morphosyntactic type of the constituents that appear in certain positions, i.e. \checkmark vs. XP. Serializing languages like Samoan therefore extend the typology to include verbal manner modification, which so far includes only root, prepositional and nominal modifiers (Pylkkänen 2008; Alexiadou & Anagnostopoulou 2020; Folli & Harley 2020). Consequently, the split between non-serializing and serializing languages as between satellite and verb-framed languages can be reduced to language specific constraints on argument and event structure building in the syntax (cf. Beavers et al. 2010 on the motion domain).

This paper is organized as follows: In section two, I motivate a configurational analysis of manner and result meaning based on the complementary distribution of manner and result meaning in simple predicates. Based on the categorization restriction on roots, I show that resultative secondary predication and means constructions represent two available strategies to express resultative meaning in a monoclausal environment. In section three, I compare the syntactic and semantic properties of resultative constructions in two serializing languages: Mandarin and Samoan. The results indicate that resultatives exhibit the same split in both serializing and non-serializing languages. In section four, I sketch out a refined typology of manner and result specification, which leads to a novel understanding of cross-linguistic variation in the verbal domain. Section five concludes.

2. Two types of resultatives

Cross-linguistically, manner and result meanings have been shown to be in complementary distribution in mono-morphemic predicates. Such predicates can lexicalize *either* manner or result meaning components, but not *both* simultaneously (manner/result complementarity; Rappaport Hovav & Levin 2010; Beavers & Koontz-Garboden 2020; cf. Gast et al. 2014; Hopperditzel 2020 for a cross-linguistic picture). Due to this restriction, two strategies of complex predicate formation are used to express resultative meaning in monoclausal structures, which vary in the component of meaning lexicalized by the main verb (Talmy 2000): (i) resultative secondary predication (7a); and (ii) means constructions (7b).

- (7) a. *Kim pushed the door open.*
 b. *Kim opened the door by pushing it.*

In this section, I present a syntactic approach to event (de)composition that takes manner and result components as positions that are structurally defined relative to a causing-event introducing verbalizer head *v* (Mateu & Acedo-Matellan 2012; Alexiadou & Anagnostopoulou 2013; Folli & Harley 2020). Manner/result complementarity then results from the categorization restriction of the verbalizer, which makes it necessary to merge either the manner or result component as a pre-categorized constituent in resultative structures.¹

2.1. The distribution of manner and result meaning

In decompositional approaches to event structure, verbal predicates are built from atomic parts: (i) event structure templates based on grammatical primitives (structural verb meaning), and (ii) roots (lexical verb meaning; cf. Dowty 1979; Rappaport Hovav & Levin 1998; Beavers & Koontz-Garboden 2020), with two atomic eventualities that cannot be further decomposed; namely *States* and *Activities*. A State describes a stative eventuality which is denoted by the (stative) root itself (8a), whereas an Activity describes an abstract ACT(ion) event that is modified by an eventive (manner) root (8b).

- (8) a. State: [x <STATE>]
 [door <OPEN>]
The door is open.
 b. Activity: [x ACT_{<MANNER>} (y)]
 [Kim ACT_{<PUSH>} (door)]
Kim pushed (the door).

From these atomic eventualities and additional semantic operators, more complex eventualities can be derived: Causative accomplishment verbs such as *open* combine an underspecified (action) event and a (result) state, which is realized by the single (stative) root, via a CAUSE operator that introduces a causative relation between the two eventualities (cf. Lewis 1973).

- (9) Causative: [[x ACT] CAUSE [y <STATE>]]
 [[Kim ACT] CAUSE [door <OPEN>]]
Kim opened the door.

¹ I exclude so-called *spurious* or *pseudo* resultatives, such as *Kim painted the wall black* or *Kim cut the meat thinly*, as the result state is already denoted by the verb itself and further modified by the secondary predicate (Washio 1997; Kratzer 2005; Levinson 2010).

In resultative constructions, both the causing action event and the result state are specified by distinct roots: While an eventive root modifies the manner of the causing event, a stative root names the result state (Levin & Rappaport Hovav 2001; Kratzer 2005).

- (10) Resultative: $[[x \text{ ACT}_{\langle \text{MANNER} \rangle}] \text{ CAUSE } [y \langle \text{STATE} \rangle]]$
 $[[\text{Kim ACT}_{\langle \text{PUSH} \rangle}] \text{ CAUSE } [\text{door} \langle \text{OPEN} \rangle]]$
Kim pushed the door open.

Consequently, there are two ways for roots to be integrated into the event structure of verbal predicates: either as (i) event modifiers of an abstract ACT(ion) event specifying the manner of the event, or (ii) event arguments of the causative operator, naming the result state. Crucially, it has been observed that a single root cannot function as an event modifier or event argument simultaneously, resulting in a complementary distribution of manner and result meaning components in mono-morphemic verbs (Rappaport Hovav & Levin 2010).²

(11) **MANNER/RESULT COMPLEMENTARITY**

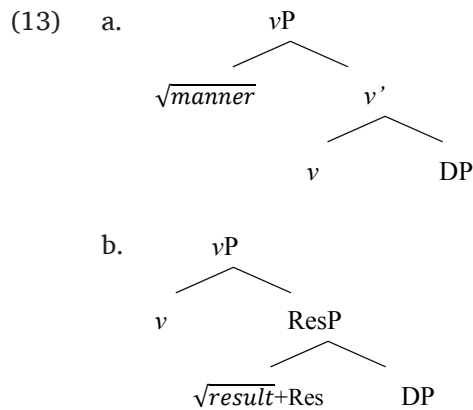
Manner and result meaning component are in complementary distribution: A verb lexicalizes only one.

Accordingly, roots can be grouped in two broad ontological classes: (i) eventive (manner) roots, such as $\sqrt{\text{hammer}}$, or $\sqrt{\text{run}}$, that act as event modifiers (12a), and (ii) stative (result) roots, such as $\sqrt{\text{flat}}$, or $\sqrt{\text{break}}$, that specify a result state (12b) of accomplishment predicates (Rappaport Hovav & Levin 2010; Alexiadou et al. 2015; Beavers & Koontz-Garboden 2020).

- (12) a. $[[\sqrt{\text{manner}}]] = \lambda e. \text{MANNER}(e)$
 b. $[[\sqrt{\text{result}}]] = \lambda s. \text{RESULT}(s)$

Adopting a syntactic approach to event decomposition, I assume that roots enter the derivation acategorially and must be categorized by a verbalizer, where the relative structural position of the root in relation to its verbalizer is semantically meaningful (Folli & Harley 2020; cf. Mateu & Acedo-Matellan 2012; Alexiadou & Anagnostopoulou 2013): Eventive manner roots, as event modifiers, merge in the modifier position, i.e. as sisters of v' (13a), whereas stative result roots, as event arguments, merge in the argument position of v , i.e. as complements of v (13b) (within a pre-categorial Res(ult)P). Manner/result complementarity then follows from two independent syntactic constraints on root categorization: (i) a single categorizer can only categorize a single root, making it impossible for two roots to merge with the same categorizer, and (ii) a single root can only merge in a single structural position (Embick 2010).

² The universality of manner/result complementarity has been challenged by potential counterexamples, in which roots arguably lexicalize both manner and result simultaneously, which however does not affect the analysis of this paper (e.g. Beavers & Koontz-Garboden 2012; but see Rappaport Hovav 2017).

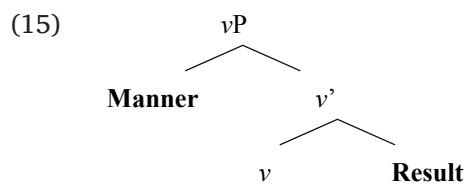


Additionally, I take causative semantics to be interpreted configurationally via contextual allosemy, when an eventive verbalizer v takes another eventuality as its complement (Wood 2015; cf. Higginbotham 2000; Ramchand 2008; Alexiadou et al. 2015 on telic pair formation; also Beck & Snyder 2001 on Principle R).³

(14) $[[v]] \Leftrightarrow \lambda e. \dots$
 $\Leftrightarrow \lambda P_{\langle v,t \rangle} \lambda e. \exists v. \text{Caus}(e, v) \wedge P(v) \setminus _ _ _ XP_{\langle v,t \rangle}$ (adapted from Wood 2015: 28)

The agent argument is introduced on top of the vP by a functional head Voice (Kratzer 1996; Alexiadou et al. 2015), resulting in a layered structured verbal domain: (i) VoiceP as the locus of agentive semantics, (ii) vP as the locus of (causative) event semantics, and (iii) ResP as the locus of (result) state semantics.

In the following, I generalize this configurational approach, taking manner and result meaning components as structural notions relative to an eventive verbalizer v , which can be realized by various syntactic constituents. I thus attribute the observed variation in the resultative domain to different strategies that avoid the categorization restriction on roots.



³ The generalizations made in this paper can also be easily accommodated within an analysis that assumes causative semantics to be introduced by designated syntactic heads such as v_{CAUSE} , which would correspond to the causative allotype of v in (14) (e.g. Pylkkänen 2008; Folli & Harley 2020). The source of causative semantics is not directly relevant for the analysis.

2.2. Resultative secondary predication

One strategy to circumvent the categorization restriction is to express the result state with a pre-categorized element, i.e. *resultative secondary predication* (see Beavers 2012 for an overview). In this construction, a manner verb functions as the main predicate denoting the manner of an action that causes a result state denoted by the secondary predicate. In non-serializing languages like English, resultative secondary predicates are necessarily non-verbal; they are adjectival (16a) or prepositional (16b) (Larson 1991; Embick 2004).

- (16) a. *Kim hammered the metal flat.*
 b. *Kim cut the meat into pieces.*
 c. **Kim hammered the metal flattened.*

As resultative secondary predication shares several syntactic and semantic properties with lexical causatives, both constructions are analysed as bi-eventive accomplishments (Dowty 1979; Levin & Rappaport Hovav 2001; Goldberg & Jackendoff 2004). Manner adverbs like *slowly*, for example, necessarily scope over the whole complex event in both contexts, and cannot independently modify the causing event in both types of constructions (Higginbotham 2000; Levin & Rappaport Hovav 2001; Koev 2019).⁴

- (17) a. *Kim flattened the metal slowly.*
 b. *Kim hammered the metal flat slowly.*

Additionally, both lexical causatives and resultative secondary predication allow for repetitive and restitutive readings of repetitive modifiers like *again* (von Stechow 1996; Beck & Snyder 2001; Lechner et al. 2015). Therefore, the clauses in (18) can be interpreted either such that the metal was in a state of being flat before or that Kim performed an action that led to the flattening of the metal before. Note that the causing action is only specified in resultative secondary predication.

- (18) a. *Kim flattened the metal again.*
 b. *Kim hammered the metal flat again.*

⁴ A. Williams (2015) presents a potential counterexample to this generalization in which independent manner modification becomes available if the causing event is further specified by a manner adjunct (i).

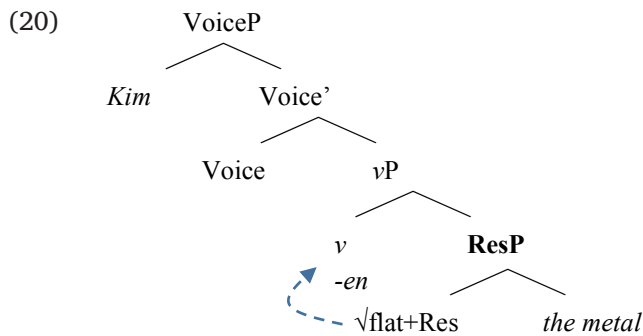
(i) *Striking the metal rapidly for a long time, Al slowly pounded the metal flat.*

Yet, manner adverbs like *slowly* and *rapidly* have been shown to be sensitive to the event structure of the modified predicate. If they attach to accomplishments, they scope over the duration of the complex event, whereas if they attach to activities, they modify the rate of the actions performed (Koev 2019). In (i), the presence of the time adverbial *for a long time* indicates that *rapidly* refers to individual strikes, not to the duration of the whole event.

Although the (implicit) theme argument of the causing action cannot be overtly realized in resultative secondary predication, the object argument does not need to be shared by the two predicates, as indicated by the felicity of unselected resultatives (Kratzer 2005; Beavers 2012; Levin 2020; cf. Wolff 2003). In (19a), the main predicate *run* is an intransitive verb that does not take an object in isolation, but appears in transitive resultative secondary predication. Therefore, the object is introduced by secondary predicate *threadbare*. This also holds for transitive resultatives as in (19b), as *the teapot* is not the object of *drink*, but the container of what is *drunk*, and receives its theta-role from the secondary predicate *dry* only.

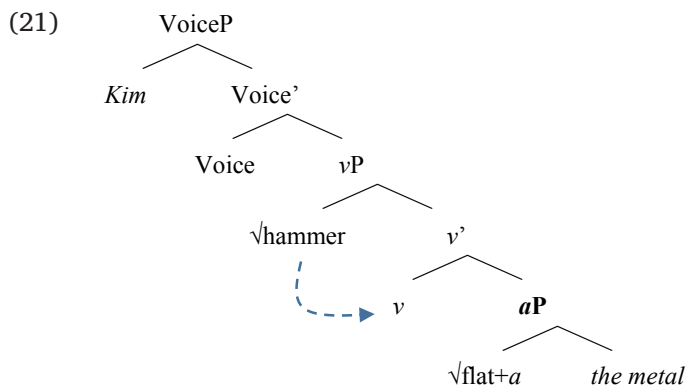
- (19) a. *Kim ran her shoes threadbare.*
 b. *Kim drank the teapot dry.*

Syntactically, resultative secondary predication has therefore been analysed as an accomplishment predicate on par with lexical causatives, where an eventive verbalizer *v* takes a stative complement (Hoekstra 1988; Embick 2004). However, resultative secondary predication differs from lexical causatives in the categorial status of the result component, which is realized by an acategorial ResP that incorporates into *v* for categorization purposes and blocks the insertion of an additional manner root in the context of lexical causatives (see section 2.1).



In resultative secondary predication however, the result component is realized by a pre-categorized constituent, i.e. an *aP* (or *PP*), which does not require (re-)categorization by *v*.⁵ The absence of Result-to-*v* movement therefore facilitates an additional manner modification by an eventive root, which attaches in the modifying position and gets categorized by lowering to *v* via m(orphological)-merger (Matushansky 2006; Folli & Harley 2020; cf. Mateu 2012).

⁵ While traditional small clause analyses commonly assume that the small clause subject is introduced by an additional Pred(ication) head (cf. Baker 2003), the existence of Pred has been challenged on both empirical and theoretical grounds (Matushansky 2019), which is why I do not adopt Pred here.



From a semantic perspective, the two predicates enter a causative relation, in which the event denoted by the verbal manner predicate causes the result state denoted by the secondary predicate (Dowty 1979; Levin & Rappaport Hovav 2001; Kratzer 2005). Compositionally, the v head introduces an event that is in a causative relation with the state denoted by the aP and is further modified by the manner root that combines with it.⁶

- (22)
- | | | | | |
|----|--------------------------------------|---|---|--|
| a. | $\llbracket hammer \rrbracket$ | = | $\lambda P_{\langle v,t \rangle} \lambda e. \exists s.$ | $hammer(e) \wedge Caus(e, s) \wedge P(s)$ |
| b. | $\llbracket flat \rrbracket$ | = | $\lambda s.$ | $flat(s)$ |
| c. | $\llbracket hammer\ flat \rrbracket$ | = | $\lambda e. \exists s$ | $hammer(e) \wedge Caus(e, s) \wedge flat(s)$ |

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

2.3. Means constructions

Another strategy to circumvent the categorization restriction in resultative constructions is to realize the manner component by a pre-categorized modifier. This configuration has been described as the *means construction* (Dowty 1979; Sæbø 2008; Solstad 2009). In English for example, manner *by*-phrases qualify as means constructions. Here, the main predicate is a causative verb that expresses a causative relation between an underspecified event and the result state denoted by the root with the prepositional adjunct specifying the manner of the causing event (also Truswell 2007).

- (23)
- Kim opened the door by pushing it.*
 - Kim flattened the metal by hammering it.*

According to Sæbø (2008), the preposition *by* is semantically vacuous and does not contribute any semantics to the composition of the two events denoted by the main and the adjoined

⁶ Note that a manner predicate like *hammer* entails a causative relation only when it appears in resultative secondary predication. In this configuration, the eventive v receives a causative interpretation prior to modification by the manner root (cf. Rothstein 2004 on accomplishment shifts of manner predicates in resultatives).

predicate. Instead, the manner adjunct adds an event description e' that identifies the manner of the underspecified causing event e which is entailed by the causative predicate. The two predicates are therefore in an asymmetric part-whole relationship, in which the presence of causative semantics licenses the modification by the *by*-phrase adjunct.

If both the manner adjunct and the causative verb predicate over the same (causing) event, a separate modification with temporal or manner adverbials will be infelicitous (cf. Eckardt 1998; Ernst 2002). As demonstrated by Fodor (1970), separate temporal modification in the manner adjunct is not felicitous in the context of lexical causatives, which entail a single causing event in their event structure (24a). In periphrastic causatives, which entail two underspecified causing events, namely the one introduced by the causative light verb and the other introduced by the anticausative predicate *die*, such a modification becomes available if both temporal modifiers are interpreted to scope over different causing events, i.e. John stabbed Bill on Saturday causing him to become dead on Sunday (24b) (cf. Martin 2020).

- (24) a. #*John killed Bill on Sunday by stabbing him on Saturday.*
 b. *John caused Bill to die on Sunday by stabbing him on Saturday.* (Fodor 1970: 433)

Relatedly, manner *by*-phrases are ambiguous in periphrastic but not in lexical causatives, reflecting the number of causing events in the event structure of the respective construction. In bi-eventive periphrastic causatives, the *by*-phrase can either be interpreted as John or Bill swallowing Bill's tongue, i.e. the *by*-phrase modifies either the causing or the caused event (25a), whereas in the context of mono-eventive lexical causatives, the *by*-phrase is unambiguous, i.e. John must be the one who swallows Bill's tongue (25b).

- (25) a. *John killed Bill by swallowing his tongue.*
 b. *John caused Bill to die by swallowing his tongue.* (Fodor 1970: 435)

The observed ambiguity of manner *by*-phrases in bi-eventive periphrastic causatives with embedded anticausative predicates further shows that manner *by*-phrases are event-related modifiers that do not presuppose the presence of an agentive argument (Alexiadou et al. 2015; also Solstad 2009; Biggs & Embick 2020 on manner *by*-phrases in periphrastic anticausatives).⁷

⁷ In this property, manner *by*-phrases resemble causer *from*-PPs which can occur in the context of anticausative verbs in the absence of an agent-introducing VoiceP, as indicated by the ungrammaticality of passive *by*-phrases (ia) that are in turn grammatical in the passive construction (ib), which entails a VoiceP (Alexiadou et al. 2015).

- (i) a. *The window opened from the wind / *by John.*
 b. *The window was opened by John.*

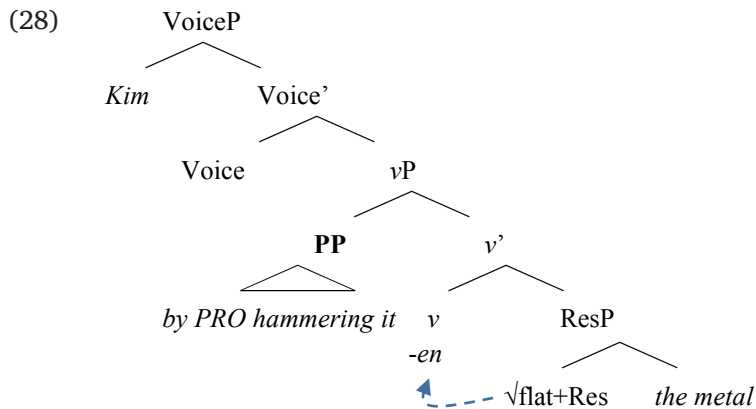
Manner *by*-phrases with lexical anticausatives are also attested, though rather rarely. This may be related to the presence of an agentive PRO argument in the manner adjunct that must be licensed by the internal argument of the matrix predicate (cf. Alexiadou 2013).

- (ii) *Kim_i died by PRO_i shooting herself with a gun.*

As *vP*-modifiers, manner *by*-phrases interact with other types of manner modification such as manner roots (see section 2.1): While manner *by*-phrases are generally felicitous in the context of accomplishment predicates that leave the manner of their causing event underspecified (26), they must be semantically compatible with the event denoted by the manner root (27) (Sæbø 2008; A. Williams 2015; Biggs & Embick 2020), as expected for adjoined structures (cf. Ernst 2002).⁸

- (26) a. *Kim flattened the metal by hitting it with a tuba.* (Biggs & Embick 2020: 16)
 b. *Kim flattened the metal by driving her roller over it.*
- (27) a. *Kim pounded the metal flat by hitting it with a tuba.* (Biggs & Embick 2020: 16)
 b. *Kim pounded the metal flat #by driving her roller over it.*

Syntactically, English *means* constructions therefore merge a stative result root in the complement position of an eventive *v*, which incorporates into *v* to satisfy the categorization requirement. As the causing event-introducing verbalizer cannot categorize an additional manner root, only pre-categorized manner adjuncts, such as manner *by*-phrases, are able to specify the manner of the causing event. Thus, *means* constructions are the mirror image of resultative secondary predication, as they merge a pre-categorized XP in the manner position.



Semantically, the causative result predicate introduces a causative relation between an underspecified event *e* and a state *s*, the latter of which is specified by the result root. The manner adjunct instead denotes the manner of an event, which then modifies the underspecified causing event of the causative main predicate, via Predicate Modification, Event Identification or Event Specification (Sæbø 2008; Solstad 2009), depending on the presence of an additional (open) argument variable and existential binding of the event variable in the adjoined predicate (see Alexiadou 2013 on the presence of PRO in English verbal gerunds).

⁸ Note that manner *by*-phrases must be licensed by causative semantics (cf. Alexiadou et al. 2015 on *from*-phrases)

(i) *Kim pounded the metal # by hitting it with a tuba.*

(Biggs & Embick 2020: 16)

- (29) a. $\llbracket \textit{flatten} \rrbracket = \lambda e. \exists s \text{ Caus}(e, s) \wedge \textit{flat}(s)$
 b. $\llbracket \textit{by hammering} \rrbracket = \lambda e. \text{hammer}(e)$
 c. $\llbracket \textit{flatten by hammering} \rrbracket = \lambda e. \exists s \text{ hammer}(e) \wedge \text{Caus}(e, s) \wedge \textit{flat}(s)$

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

2.4. Talmy's typology

Based on their syntactic and semantic properties, two strategies have been identified that enable the expression of resultative meaning in monoclausal structures by avoiding the categorization restriction on roots: In resultative secondary predication, the verbal main predicate denotes the manner of a causing action taking a pre-categorized stative predicate as a complement, whereas in means constructions, the verbal main predicate is a causative result verb whose causing event is modified by a manner adjunct (Table 1).

	RSP	<i>means</i>
Main predicate	manner verb	causative result verb
Secondary predicate	result XP	manner XP
Syntactic composition	Complementation	Adjunction
Semantic composition	Functional Application	Predicate Modification

Table 1: Syntactic and semantic properties of resultative secondary predication and means constructions.

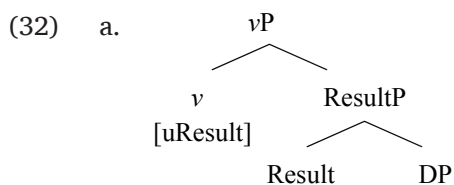
With a focus on the motion constructions, Talmy (2000) demonstrates that, cross-linguistically, languages differ significantly in their preferred strategy to express resultative meaning (see Levin & Rappaport Hovav 2001; Goldberg & Jackendoff 2004; Beavers 2012 on directed motion constructions as resultatives). On the one hand, there are so-called *satellite-framed* languages like English and German, which typically encode resultative meaning by resultative secondary predication, i.e. the result state is expressed by a secondary predicate, the *satellite*. In addition, satellite-framed languages usually exhibit a means construction as well.

- (30) a. *Unbekannte schossen den Verbrecher tot.* GERMAN
 unknown.persons shot the criminal dead
 'Unknown persons shot the criminal dead.'
- b. *Unbekannte töteten den Verbrecher durch einen Schuss.*
 unknown.persons killed the criminal through a shot
 'Unknown persons killed the criminal with a shot.' (Solstad 2009: 372)

On the other hand, so-called *verb-framed* languages like Spanish and other Romance languages typically express resultative meaning by means constructions, i.e. the result state is expressed by the verb itself. In contrast to satellite framed languages, verb-framed languages exhibit only a single strategy, disallowing resultative secondary predication (but see Son & Svenonius 2008 for potential variation across domains within a single language).

- (31) a. *María aplanó el metal martilleándolo.* SPANISH
 Maria flatten the metal hammering
 ‘Maria flattened the metal by hammering it.’
- b. **María martilleó el metal plano.*
 Maria hammer the metal flat
 Intended: ‘Maria hammered the metal flat.’ (Mateu 2012: 258)

To account for this pattern, Folli & Harley (2020) propose that obligatory Result-to-*v* movement distinguishes satellite-framed from verb-framed languages, in that verb-framed languages require the Result-denoting head to incorporate into *v*.⁹ By the assumption that head movement of a non-verbal head into a verbalizing head blocks the categorization of an additional manner root in the modifying position of *v* due to the (re-)categorization of the incorporated non-verbal element, resultative secondary predication is unavailable in verb-framed languages, as the manner root would be left uncategorized.¹⁰ Resultative secondary predication is therefore not available in verb-framed languages (32b). This contrasts with satellite-framed languages, in which such head movement is optional and thus both resultative secondary predication and means constructions are fully grammatical (32a).

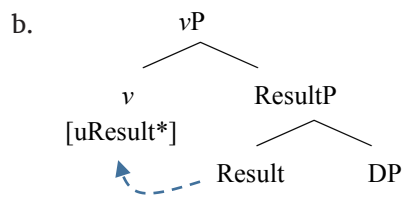


⁹ The use of the label “ResultP” in Folli & Harley (2020) is different from “ResP”, as used in this paper. While ResP refers to an acategorial projection in the verbal domain, ResultP subsumes all projections that may encode the result state, i.e. ResP, AP, PP, etc. This distinction is important, as verb-framed languages incorporate all kinds of Result-denoting heads, whereas satellite-framed languages may incorporate only roots.

¹⁰ Folli & Harley (2020) suggest that even pre-categorized roots that incorporate into *v* are re-categorized by complex head formation, based on more general assumptions on re-categorization, e.g. adjectivization.

(i) $[\text{category}]_N \rightarrow [[\text{category}]_N -\text{al}]_A$

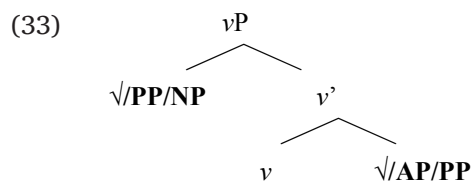
This analysis may be challenged by classical head-movement analyses of noun incorporation, in which a nominal head moves into a lexical verb without bleeding the categorization properties of the verbal head (Baker 1988; but see Barrie & Mathieu 2016 for a phrasal account).



As a consequence, satellite and verb-framed languages do not differ fundamentally in their underlying syntactic configuration, but are subject to parametrized Result-to-*v* movement, which results in the absence of resultative secondary predication in verb-framed languages.

2.5. Summary

In this section, I have developed a configurational account that treats manner and result meaning as structural notions in relation to an (causing) event-introducing verbalizer *v* (adjunct/modifier = Manner; argument/complement = Result). On the assumption that the observed complementary distribution of manner and result meaning in mono-morphemic verbs follows from the categorization restriction on roots, resultative meaning must be realized by two types of complex predicates, which differ in the (pre-)categorial status of their respective meaning components: While in resultative secondary predication the result component is realized by a pre-categorized element, it is the manner component in the means constructions. The (cross-linguistic) variation in the resultative domain can therefore be attributed to the properties of the elements that appear in the respective manner or result position (cf. A. Williams 2008, 2015).



3. Two types of RSVCs

Most studies addressing the internal structure of resultative constructions focus primarily on non-serializing languages, such as English or Spanish, in which the secondary predicate is readily distinguishable from the main predicate by its non-verbal nature. However, in many serializing languages resultative meaning is expressed by RSVCs, in which both the manner and result predicates are realized by verbs (Aikhenvald 2018; cf. von Prince 2017; Verkerk & Frostad 2013).¹¹

- (34) a. *Lisi ca_v-gan_v-le zhouzi.* MANDARIN
 Lisi wipe-dry-PFV table
 ‘Lisi wiped the table dry.’ (Lin 2004: 91)

¹¹ I assume that RSVCs and RVCs are instances of the same phenomenon (Durie 1997; Stewart 2001).

- b. *Sā solo_v fa'a-mamā_v e Malia le laulau.* SAMOAN
 PST wipe CAUS-clean ERG Mary ART table.ABS
 'Mary cleaned the table by wiping it.'

Although Talmy (2000) includes serializing languages in his original typology, much work on RSVCs (implicitly) presupposes that RSVCs are a uniform phenomenon. Based on studies of RSVCs in African and South-East Asian languages, RSVCs are commonly analysed as a form of resultative secondary predication with verbal secondary predicates (e.g. Larson 1991; C. Collins 1997; Stewart 2001). Moreover, other authors have argued that RSVCs are a distinct type of equipollently-framed resultatives, in which the manner and the result verb have equal predicational status (Slobin 2004; Zlatev & Yangklang 2004; Ameke & Essegbey 2013).

In this section, I compare the syntactic and semantic properties of RSVCs in two serializing languages, Mandarin and Samoan, to demonstrate that resultative constructions in serializing languages exhibit the same split as in non-serializing languages on the relevant level (Talmy 2016). In doing so, I argue that RSVCs are neither uniform nor special.

3.1. Mandarin resultative verbal compounds

In Mandarin, one way to express resultative meaning is via resultative verbal compounds (RVCs; Lin 2004; Huang 2006; Tham 2015). In such compounds, two verbs form a complex predicate in which the initial verb denotes the manner of an action that causes the result state named by the non-initial verb, followed by the aspectual marker *le*.

- (35) a. *Sanmao peng_v-lie_v-le jingzi.* MANDARIN
 Sanmao bang-crack-PFV mirror
 'Sanmao banged the mirror, cracking it.' (Tham 2012: 602)
- b. *Lisi ca_v-gan_v-le wanpan.*
 Lisi wipe-dry-PFV dishes
 'Lisi wiped the dishes dry.'

Although individual analyses of Mandarin RVCs may vary significantly, there is growing consensus that Mandarin RVCs instantiate resultative secondary predication, i.e. the initial manner verb takes the non-initial result verb as a complement (e.g. Lin 2004; Huang 2006; J. Liu 2021).¹² In

¹² Mandarin RVCs occur in contexts which are quite unexpected from an English perspective, e.g. subject-less (ia) or subject-oriented RVCs (ib). Here, I focus on object-oriented RVCs and take the observed variation to derive from general properties of Mandarin argument and event structure building (Lin 2004; J. Liu 2021).

- (i) a. *Shu kan-dao-le.* MANDARIN
 tree chop-fall-PFV
 'The tree got chopped down.' (Lin 2004: 105)
- b. *Zhangsan chi-bao-le.*
 Zhangsan eat-full-PFV
 'Zhangsan ate himself full.' (Lin 2004: 100)

the following, I discuss two major diagnostics that support this line of research, before sketching out an analysis within the framework developed in section 2.

3.1.1. Transitivity of the result predicate

The first diagnostic comes from the transitivity of the result predicate in transitive resultatives: In resultative secondary predication, the result-denoting predicate is intransitive, introducing only the holder of the result state, while the agent role is introduced by the manner predicate (36a). In means constructions however, the causative result predicate is transitive, introducing both the agent and the holder argument (36b).

- (36) a. *The metal is flat.*
 b. *Kim flattened the metal.*

In Mandarin RVCs, the non-initial result-denoting predicate is an intransitive verb that cannot appear in transitive structures as independent predicates, as illustrated for the result verb *lie* ‘crack’ and the property concept verb *gan* ‘dry’ (Tham 2013).¹³ Outside of RVCs, *lie* functions as an anticausative predicate that denotes a change into a state. The anticausative nature of *lie* can be shown by the infelicity of the intensifier *hen* ‘very’ which solely combines with stative predicates.

- (37) a. *Jingzi lie-le.* MANDARIN
 mirror crack-PFV
 ‘The mirror cracked.’
 b. **Jingzi hen lie.*
 mirror very crack
 Intended: ‘The mirror is (badly) cracked.’ (Tham 2012: 601)

While result verbs like *crack* participate in the (anti-)causative alternation in languages like English, this is not the case Mandarin (38a). Instead, verbs like *lie* ‘crack’ require the presence of an additional light or manner verb, which introduces the agent argument in transitive contexts (38b).

- (38) a. **Sanmao lie-le jingzi.* MANDARIN
 Sanmao crack-PFV mirror
 Intended: ‘Sanmao cracked the mirror.’ (Tham 2012: 601)
 b. *Sanmao peng-lie-le jingzi.*
 Sanmao collide-crack-PFV mirror
 ‘Sanmao banged the mirror, cracking it.’ (Tham 2012: 602)

¹³ The verbal status of stative property concept lexemes in Mandarin is under debate (McCawley 1992; Paul 2010). As I will assume that such lexemes actually appear as anticausative predicates in resultatives which are necessarily verbal (Tham 2012), it does not affect my analysis of Mandarin RVCs as serializing structures.

The same observation holds for property concept verbs like *gan* ‘dry’, which may be ambiguous between a stative interpretation, e.g. in the context of the intensifier *hen* (39a), and an anticausative interpretation, e.g. in the context of the perfective suffix *le* (39b) (Tham 2013).

- (39) a. *Wanpan hen gan.* MANDARIN
 dishes very dry
 ‘The dishes are (very) dry.’
 b. *Wanpan (*hen) gan-le.*
 dishes very dry-PFV
 ‘The dishes dried.’

Despite this stative/anticausative alternation, Mandarin property concept verbs cannot appear as independent transitive predicates, but, like result verbs, require the presence of a light or manner verb that introduces the agent argument.

- (40) a. **Sanmao gan-le wanpan.* MANDARIN
 Sanmao dry-PFV dishes
 Intended: ‘Sanmao dried the dishes.’
 b. *Lisi ca-gan-le wanpan.*
 Lisi wipe-dry-PFV dishes
 ‘Lisi wiped the dishes dry.’

Whereas property concept verbs alternate between stative and anticausative predicates outside RVCs, the infelicity of stative modifiers like *hen* ‘very’ in the context of RVCs indicates the anticausative nature of the result-denoting verb in such constructions (J. Liu 2021).

- (41) *John (*hen) mo-(*hen)-bao-le na-kuai tie-pian* MANDARIN
 John very rub-very-be.thin-PFV that-CLF metal-plate
 Intended: ‘John rubbed that metal plate very thin.’ (J. Liu 2021: 75)

Consequently, these observations suggest that the non-initial result verb in Mandarin RVCs is an anticausative secondary predicate, as it can only appear in intransitive contexts.

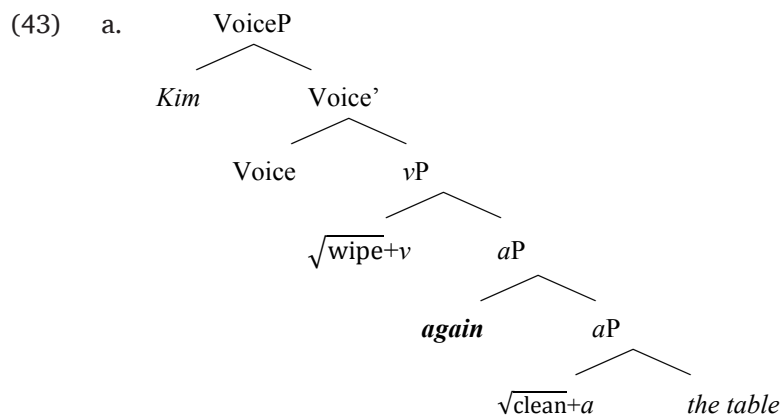
3.1.2. Narrow repetitive again

Further support for this analysis comes from the unavailability of a narrow repetitive reading of *you* ‘again’ in the context of Mandarin RVCs. Cross-linguistically, repetitive modifiers like English *again* have been shown to be ambiguous between a repetitive and restitutive reading in the context of causative or resultative structures (Beck & Snyder 2001).

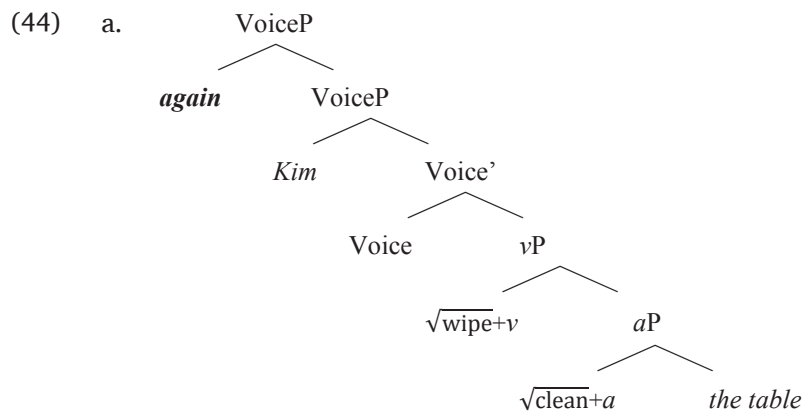
- (42) a. Context: Kim’s kitchen table got dirty. After Kim wiped it table clean, Therefore, ...
 the table got dirty again.
Kim wiped the table clean again. REPETITIVE

- b. Context: Kim bought a new clean table. After a while, the table got dirty. Therefore, ...
Kim wiped the table clean again. RESTITUTIVE

Adopting a structural approach, repetitive and restitutive readings arise from different syntactic positions of repetitive modifiers (von Stechow 1996; Bale 2007; Lechner et al. 2015): If *again* attaches to the result-denoting phrase, it takes only the result state in its scope (43a). In contrast, if *again* attaches to the full verb phrase, i.e. to VoiceP, it necessarily takes wide scope over the whole complex event, including the causing action and the result state (43b).



- b. $\llbracket \text{again} \rrbracket (aP) = \text{again} (\lambda s. \text{clean}(s) \wedge \text{Hd}(\text{table}, s))$
 \rightarrow presupposition: $\exists s'. s' < s \wedge \text{clean}(s) \wedge \text{Hd}(\text{table}, s)$

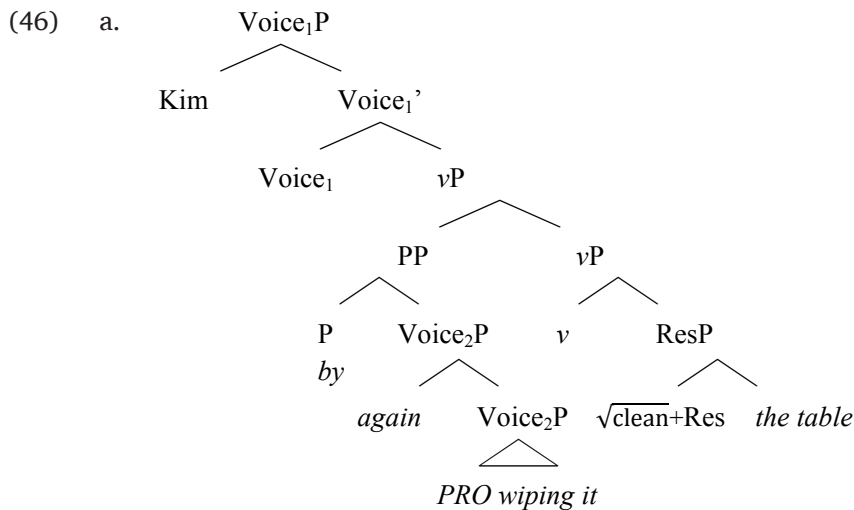


- b. $\llbracket \text{again} \rrbracket (\text{VoiceP}) = \text{again} (\lambda e. \exists s \text{ Ag}(\text{Kim}, e) \wedge \text{wipe}(e) \wedge \text{Cause}(e, s) \wedge \text{clean}(e) \wedge \text{Hd}(\text{table}, s))$
 \rightarrow presupposition: $\exists e' \exists s. e' < e \wedge \text{Ag}(\text{Kim}, e) \wedge \text{wipe}(e) \wedge \text{Cause}(e, s) \wedge \text{clean}(e) \wedge \text{Hd}(\text{table}, s)$

In addition to the wide repetitive reading, a narrow repetitive reading is available in the means construction if *again* is attached within the manner adjunct (for restitutive and repetitive readings in the context of causative predicates, see section 2.2).¹⁴

- (45) Context: Kim wiped the table, but failed to clean it. Later though, after putting in some more effort,
 a. *Kim cleaned the table by wiping it again.* MEANS CONSTRUCTION
 b. *#Kim wiped the table clean again.* RESULTATIVE SECONDARY PREDICATION

In this position, *again* does not c-command the result projection and is therefore able to scope over the causing event to the exclusion of the result state (Hopperdietzel 2020). On the assumption that *again* only attaches to propositional phrasal nodes, *again* cannot directly attach to a root, ruling out narrow repetitive readings in resultative secondary predication (see Lechner et al. 2015 for a comparison with *re-*).



- b. $\llbracket \text{again} \rrbracket (\text{Voice}_2\text{P}) = \text{again} (\lambda e. \text{Ag}(\text{Kim}, e) \wedge \text{wipe}(e) \wedge \text{Pat}(\text{table}, e))$
 \rightarrow presupposition: $\exists e'. e' < e \wedge . \text{Ag}(\text{Kim}, e) \wedge \text{wipe}(e) \wedge \text{Pat}(\text{table}, e)$

In Mandarin, the repetitive modifier *you* ‘again’ has been demonstrated to resemble the properties of English *again*, as it is ambiguous between a (wide) repetitive (47a) and restitutive reading in the context of RVCs (47b) (H. Liu 2009; Xu 2016; J. Liu 2021).¹⁵

¹⁴ Many thanks to one reviewer for a clarifying discussion of the relevant contexts that facilitate a narrow repetitive reading in means constructions.

¹⁵ The interpretation of Mandarin *you* is not sensitive to word order, which was the one of the original motivations for the structural analysis to *again* in English. However, see Xu (2016) for a discussion of (covert) movement of the repetitive modifier and semantic reconstruction in the context of a structural analysis of Mandarin *you*.

- (47) a. Context: Zhangsan had opened the door before. After a while, someone else closed the door. Feeling hot, ...
Zhangsan you da-kai-le men. MANDARIN
 Zhangsan again hit-open-PFV door
 ‘Zhangsan opened the door again.’
- b. Context: Lisi built a wardrobe for Zhangsan. He set the door on its hinges and then closed it. Curious what was inside the wardrobe, ...
Zhangsan you da-kai-le men. MANDARIN
 Zhangsan again hit-open-PFV door
 ‘Zhangsan opened the door again.’ (Xu 2016: 24)

As expected for resultative secondary predication, an additional narrow repetitive reading is absent, showing that *again* is not able to take scope over the manner predicate alone.

- (48) Context: Yesterday, Zhangsan washed some clothes in the sink, and he managed to do so without any water leaking out of the sink. Today, Zhangsan washed some clothes, but this time the sink leaked while he was washing them.
 #*Zhangsan you xi-lou-le lianpen.* MANDARIN
 Zhangsan again wash-leak-PFV washbasin
 Intended: ‘Zhangsan made the sink leak by washing (some clothes) again.’

Under a structural analysis of Mandarin *you* (Xu 2016), repetitive modification thus provides semantic evidence for Mandarin RVCs to be analysed as resultative secondary predication.

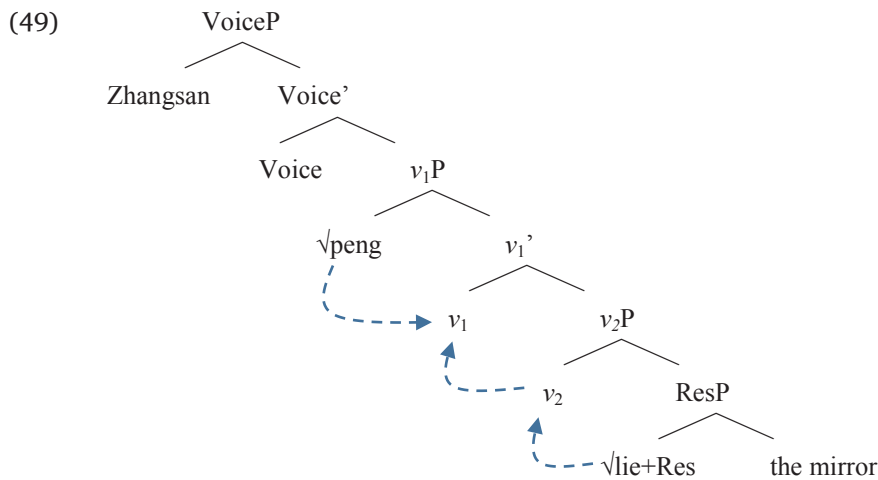
3.1.3. Mandarin RVCs as resultative secondary predication

Building on the morphosyntactic and semantic properties of Mandarin RVCs, I adopt a complementation analysis in which the initial manner verb takes an anticausative result verb as its complement (J. Liu 2021; cf. Lin 2004; Huang 2006). Therefore, Mandarin RVCs can be analyzed as resultative secondary predication with anticausative secondary predicates, as illustrated in (49) below. In particular, an eventive v_2 head takes a result state-denoting ResP as its complement, forming an anticausative result verb via Res-to- v movement. An additional eventive v_1 head takes the anticausative v_2 P as its complement, introducing an additional causing event, which is then modified by the manner root that is m-merged with v_1 . As a result, Mandarin RVCs involve a stacking of two causative v Ps.¹⁶ Despite the underlying structure of resultative

¹⁶ Instead of v P-stacking, it has been proposed that both roots directly merge to a single v head (e.g. J. Liu 2021 on intransitive RVCs), which however is ruled on both theoretical and empirical grounds. Firstly, a single categorizer can only categorize a single root (see section 2.1). Secondly, additional syntactic material, such as the negative particle *bu*, can intervene between the two verbs (Tham 2012).

- (i) *Xiaohair ya-bu-bian ni-tuan.* MANDARIN
 child press-NEG-flat mudball
 ‘The child is unable to flatten the mudball by pressing it.’ (Tham 2012: 609)

secondary predication, the compound structure of Mandarin RVCs follows from additional Result-to- v movement of the embedded anticausative verb, familiar from means constructions in verb-framed languages (see section 2.4). While Result-to- v movement is blocked in resultative secondary predication in non-serializing languages due to the non-verbal nature of the result-denoting component, such movement becomes available in serializing languages like Mandarin as the incorporated result verb does not require re-categorization and therefore enables the modification by an additional manner root.



In addition, Mandarin RVCs differ from resultative secondary predication in non-serializing languages in their event structure. As the anticausative secondary predicate denotes a change-of-state by itself, I propose that Mandarin RVCs exhibit a tri-eventive structure, in which the event denoted by the manner verb causes the process event entailed by the result verb which finally causes the result state.¹⁷

- (50)
- a. $\llbracket peng \rrbracket = \lambda e. \text{bang}(e_1) \wedge \text{Caus}(e_1, e_2) \wedge P(e_2)$
 - b. $\llbracket lie \rrbracket = \lambda e. \exists s \text{ Caus}(e, s) \wedge \text{cracked}(s)$
 - c. $\llbracket peng-lie \rrbracket = \lambda e. \exists e \exists s \text{ bang}(e_1) \wedge \text{Caus}(e_1, e_2) \wedge \text{Caus}(e_2, s) \wedge \text{cracked}(s)$

To summarize, Mandarin RVCs exhibit the properties of resultative secondary predication in non-serializing languages, in that the secondary result predicate is a complement/argument of the manner main predicate. They differ however in their lexical category, verbal vs. non-verbal, and event structure, i.e. stative vs. anticausative, of the secondary predicate.

¹⁷ The tri-eventive semantics predicts that Mandarin RVCs differ from bi-eventive lexical causatives in their event properties, which appears to be borne out by the data. Firstly, Mandarin lexical causative but not RVCs and anticausatives are defeasible, i.e. allow a denial of the result state in certain contexts (Martin & Gyarmathy 2019; Martin et al. forthcoming). Secondly, several authors have noted the prominence of the result state in negation or aspectual modification, not observed for lexical causatives (see Chief 2007 for a discussion). The parallel behaviour of RVCs and anticausative verbs may therefore follow from the embedded anticausative predicate.

3.2. Samoan RSVCS

In the Polynesian language Samoan, resultative meaning is expressed by the serialization of an initial manner verb and a non-initial result verb (Mosel & Hovdhaugen 1992; Mosel 2004; Hopperdietzel 2020, 2021c). Crucially, the result predicate is marked by the causative prefix *fa'a-*.

- (51) a. *Sā solo_v fa'a-mamā_v e Malia le laulau.* SAMOAN
 PST wipe CAUS-clean ERG Mary ART table.ABS
 'Mary cleaned the table by wiping it.'
- b. *Sā tipī_v fa'a-pa'ū_v e Pita le la'au.*
 PST cut CAUS-fall ERG Peter ART tree.ABS
 'Peter felled the tree by cutting it.'

In this way, Samoan RSVCS superficially resemble means constructions, which also exhibit causative verbs realizing the result component. This first intuition is supported by the result of the syntactic and semantic diagnostics that have already been applied to Mandarin RVCs, which indicate that both types of RSVCS differ in the same way as resultative secondary predication and the means construction do in non-serializing languages.

3.2.1. Transitivity of the result predicate

As noted above, stative and anticausative predicates must be derived by the causative prefix *fa'a-* to function as the result-denoting predicate in Samoan RSVCS. With respect to transitivity, Samoan *fa'a-*causatives differ significantly from morphological causatives, like *flatten* in English, as they do not participate in the causative alternation, but require the presence of an agent argument, which in Samoan is obligatorily marked by ergative case (52a) (Hopperdietzel 2021a; cf. Tollan 2018 on the semantics of Samoan case). Thus, *fa'a-* only occurs in transitive, but not in intransitive (anticausative) contexts (52b/c).

- (52) a. *Sā fa'a-mamā e Malia le laulau.* SAMOAN
 PST CAUS-clean ERG Mary ART table.ABS
 'Mary cleaned the table.'
- b. **Sā mamā e Malia le laulau.*
 PST clean ERG Mary ART table.ABS
 Intended: 'Mary cleaned the table.'
- c. #*Sā fa'a-mamā le laulau.*
 PST CAUS-clean ART table.ABS
 Intended: 'The table became clean.'

Anticausative meaning is instead primarily expressed by stative verbs in the context of the inchoative aspect marker *ua* (Hohaus 2016; cf. Koontz-Garboden 2007 on closely related Tongan).

- (53) a. *Sā mamā le laulau.* SAMOAN
 PST clean ART table.ABS
 ‘The table was clean.’
 b. *‘ua mamā le laulau.*
 INCH clean ART table.ABS
 ‘The table became clean.’

Moreover, Samoan *fa’a*-causatives differ from English lexical causatives in selecting for an already categorized verbal complement (Hopperdietzel 2021a; cf. Pykkänen 2008; Harley 2017). This is indicated by the presence of verbalizing morphology in between *fa’a*- and the embedded verb, such as the stativizer *ma*- (54a) or the anticausativizer *liu*- (54b).

- (54) a. *Sā fa’a-ma-tala e Malia le faitoto’a.* SAMOAN
 PST CAUS-STAT-open ERG Mary ART door.ABS
 ‘Mary opened the door.’ (lit.: ‘Mary caused the door to be opened.’)
 b. *Sā fa’a-liu-suavai e le teine le gao.*
 PST CAUS-ANTICAUS-liquid ERG ART girl ART fat.ABS
 ‘The girl melted the fat.’ (lit.: ‘The girl caused the fat to become liquid.’)

In contrast to Mandarin RVCs, the result state in Samoan RSVCs is therefore realized by a transitive causative predicate. Consequently, both predicates could in principle be the main predicate of the construction based on their argument structure.

3.2.2. Narrow repetitive again

Discriminating evidence comes from repetitive modification. Like its English or Mandarin counterparts, Samoan *toe* ‘again’ has been shown to be ambiguous between a repetitive and a restitutive reading in causative and resultative contexts (Hohaus 2016; Hopperdietzel 2020). In the repetitive reading, *toe* scopes over both the causing action and the result state (55), whereas in the restitutive reading, *toe* takes solely the result state in its scope (56).¹⁸

- (55) Context: Peter and his family were having breakfast at their kitchen table. After the breakfast, the table was full of crumbs, so Peter wiped the table clean. A few minutes later, one of his children spilled some juice on the table. So, Peter wiped the table clean again.
Sā toe solo~solo fa’a-mamā e Pita le laulau. SAMOAN
 PST again RED~wipe CAUS-clean ERG Peter ART table.ABS
 ‘Peter again cleaned the table by wiping it.’

¹⁸ As it is the case of Mandarin *you*, the interpretation of Samoan *toe* is not sensitive to word order, which however does not preclude a structural analysis (see fn. 15).

- (56) Context: Peter bought a new table from the shop. At home, he put the new table in his living room. It is spotlessly clean. After dinner, the table got very dirty, covered in crumbs and sauce, so Peter wiped the table clean again.
- Sā toe solo fa'a-mamā e Pita le laulau.* SAMOAN
 PST again wipe CAUS-clean ERG Peter ART table.ABS
 'Peter cleaned the table again by wiping it.'

Crucially, repetitive modification in the context of Samoan RSVCs gives rise to an additional, narrow repetitive reading in which *toe* 'again' solely scopes over the causing event to the exclusion of the result state.¹⁹

- (57) Context: Peter bought a new table from the shop. At home, he realized that the table had some marks on it. Before he returned the table to the shop, he tried to clean it first. He took a cloth and wiped the table, but the table didn't get any cleaner. Therefore, he got himself some soap and put it on the cloth. He wiped the table again and then it became clean.
- Sā toe solo~solo fa'a-mamā e Pita le laulau.* SAMOAN
 PST again RED~wipe CAUS-clean ERG Peter ART table.ABS
 'Peter cleaned the table by wiping it.'

As elaborated in section 3.1.2, such a narrow repetitive reading of repetitive modifiers like *toe* is only expected in the means construction, in which *toe* can attach to the adjoined manner verb phrase prior to the modification of the causing event entailed by the main predicate.²⁰

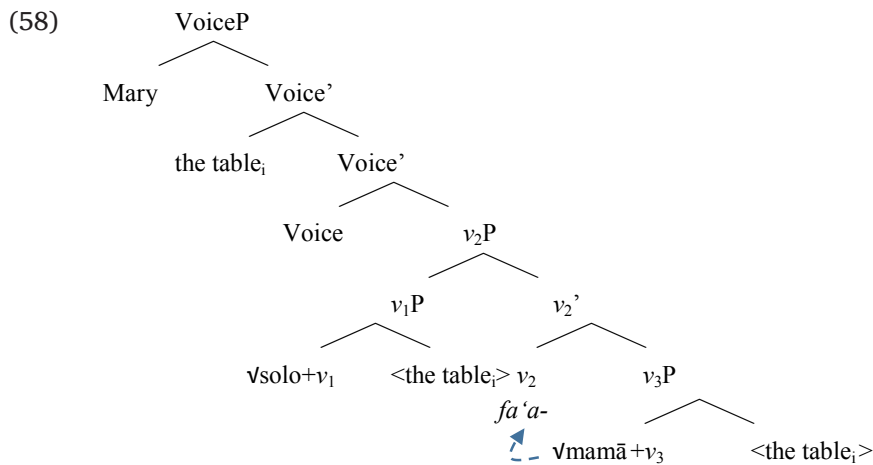
3.2.3. Samoan RSVCs as means constructions

Based on the transitivity of the result-denoting predicate and the availability of a narrow reading of the repetitive modifier *toe* 'again', Samoan RSVCs can be identified as a verbal means construction in which the initial manner verb is adjoined to the causative result verb, which functions as the main predicate of the clause. The result component is realized by a stative or anticausative verb, which moves to the causing-event introducing head, spelled-out as *fa'a-*, to form the causative main predicate of the clause.

¹⁹ One reviewer asks whether Samoan *toe* resembles English *re-* rather than *again*, as *re-* does allow for a narrow repetitive (and for some speakers a restitutive) reading in English resultative secondary predication, e.g. % *Kim re-hammered the metal flat* (Lechner et al. 2015; Wilson & Roeper 2021). However, unlike *re-* (but like *again*), *toe* is grammatical in the context of unergative verbs, which supports an analysis of *toe* parallel to *again*.

(i) *Sā toe siva le tama.* SAMOAN
 PST again dance ART boy
 'The boy danced again.'

²⁰ Further morphological evidence for the adjunct status of the manner verb comes from the presence of the causative prefix *fa'a-* on the result verb (Hopperdietzel 2021c).



The phrasal status of the manner adjunct is further supported by the ability of adverbial manner modifiers to intervene between the manner and causative verb (cf. A. Williams 2008, 2015). As in Samoan, adverbial modifiers attach to the right edge of the verb phrase (Mosel 2004; J. N. Collins 2017), the occurrence of manner adverbs in SVC-medial position shows that an independent modification of the manner verb is possible.

- (59) a. *Sā [[solo vave] fa'a-mamā] e Malia le laulau.* SAMOAN
 PST wipe quick CAUS-clean ERG Mary ART table.ABS
 'Mary cleaned the table by wiping it quickly.'
- b. *Sā [[solo fa'a-mamā] vave] e Malia le laulau.*
 PST wipe CAUS-clean quick ERG Mary ART table.ABS
 'Mary cleaned the table quickly by wiping it.'

Based on the absence of Voice-related morphology, such as the causative prefix *fa'a-* (Hopperdietzel 2021a), on the initial verb, the manner component is realized by a vP -sized adjunct to the causative main predicate (Hopperdietzel 2020, 2021c).²¹

²¹ For the general purposes of this paper, the exact size of the verbal adjunct in Samoan is not relevant (see section 3.3 on VoiceP-adjunct in Uyghur RSVCs). As pointed out by one reviewer, another way to check for the presence of Voice in the means adjunct is the grammaticality of agent-oriented adverbs, such as *angrily* or *unwillingly*, in RSVC-medial position. Yet, it is unclear whether Samoan exhibits subject-oriented adverbs, as the respective meaning is commonly realized by either clausal predicates (ia) or prepositional adjuncts which generally appear in clause-final position (ib) (cf. Hopperdietzel 2020). While additional research is needed, subject-oriented modification may be unavailable as a diagnostic for Voice in the means adjunct for independent reasons.

- (i) a. *'ua musu e alu 'i le ā'oga.* SAMOAN
 INCH unwilling GENR go OBL ART school
 'S/he was unwilling to go to school.' (Mosel & Hovdhaugen 1992: 369)
- b. *'ua taufai oso tagata 'iate ia ma le ita.*
 INCH all jump people OBL 3SG with ART anger
 'The people jumped on him angrily.' (Mosel & Hovdhaugen 1992: 385)

- (60) #*Sā fa'a-gao fa'a-la'iti e Pita le lala.* SAMOAN
 PST CAUS-break CAUS-small ERG Peter ART branch.ABS
 Intended: Peter made the branch small by breaking it.'

Additional support for the absence of Voice in the manner adjunct comes from object sharing in Samoan RSVCs. As shown in (61a), the internal argument of the manner verb can be neither distinctly realized nor interpreted independently from the single object of RSVCs.²² Instead, the intended meaning must be realized by a bi-clausal construction (61b).

- (61) a. **Sā lamu (pulu) fa'a-pa~pa'e e le teine nifo.* SAMOAN
 PST chew gum CAUS-RED~white ERG ART girl teeth.ABS
 Intended: 'The girl whitened her teeth by chewing (gum).'
- b. *Sā lamu pulu e fa'a-pa~pa'e ai ona nifo.*
 PST chew gum GENR CAUS-RED~white ANAPH 3SG.POSS teeth.ABS
 'She chewed gum to whiten her teeth.'

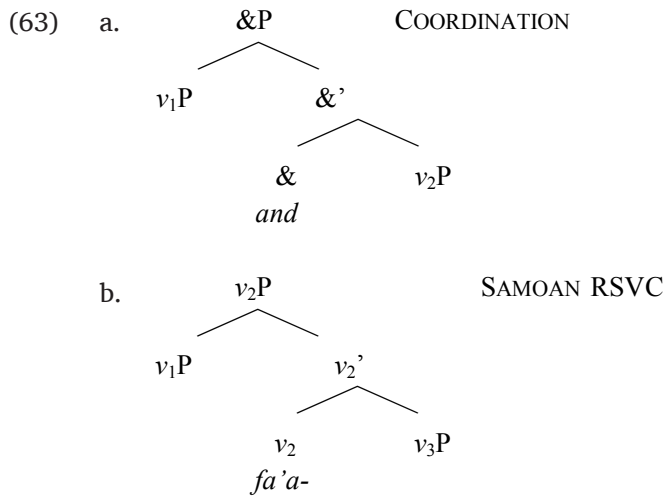
This contrasts with English-type means constructions, in which the manner adjunct can introduce its own separate object, which can differ from the one of the causative main predicate, if it is interpreted as an instrument or facilitating condition (Wolff 2003; Levin 2020).

- (62) *Kim cut herself by carving the pumpkin.*

Hopperditzel (2020) attributes the observed contrast to the availability of a nominal licensing head, such as Voice, in the means adjunct (cf. Sheehan & van der Wal 2018; Nie 2020). In English, the internal argument of the manner predicate is licensed by transitive Voice entailed by the adjoined verbal gerund (cf. Alexiadou 2013). In the absence of transitive Voice in the means adjunct in Samoan RSVCs however, the internal arguments of both the adjoined manner and the causative verb must instead be licensed by a single matrix Voice head via movement (see J. N. Collins 2017 on obligatory object-movement in Samoan). Since the stative/anticausative v_3 P and the manner v_1 P are in a configuration that facilitates ATB-movement, both copies move out of the respective v Ps to Spec, VoiceP for licensing purposes (see Lidz & Williams 2002 on ATB-movement in Kannada (Dravidian) resultatives; cf. Hiraiwa & Bodomomo 2008; Žaucer 2009).

²² Note that although Samoan allows discourse prominent objects to be dropped, they are still syntactically realized by *pro*, as they trigger ergative case marking on the subject (ia), which is not lexically assigned given the grammaticality of absolutive marked subjects in PNI contexts (ib) (J. N. Collins 2017; Hopperditzel 2020).

- (i) a. *Sā solo #(e) le tama.* SAMOAN
 PST wipe ERG ART boy
 'The boy wiped (something).'
- b. *Sā solo laulau (*e) le tama.*
 PST wipe table ERG ART boy
 'The boy wiped tables.'



As ATB-movement is subject to identity constraints (Ross 1967; E. Williams 1978), a distinct internal argument in the means adjunct would be left unlicensed, causing the derivation to crash (see also J. N. Collins 2017 on ATB movement of internal arguments to Spec, VoiceP in low vP-coordination in Samoan). Therefore, the contrast between English and Samoan follows from the absence of a nominal licenser in the means adjuncts, and in combination with the morphological evidence supports a vP-adjunction analysis of Samoan RSVCs.

To summarize, Samoan RSVCs qualify as a means construction, based on the main predicate status of the causative result verb. The underspecified causing event is then modified by a vP-adjunct which specifies the manner of causing action.

- (64) a. $\llbracket fa'a\text{-}mama\bar{a} \rrbracket = \lambda e.\exists s \text{ Caus}(e, s) \wedge \text{clean}(s)$
 b. $\llbracket solo \rrbracket = \lambda e. \text{wipe}(e)$
 c. $\llbracket solo\ fa'a\text{-}mama\bar{a} \rrbracket = \lambda e.\exists s \text{ wipe}(e) \wedge \text{Caus}(e, s) \wedge \text{clean}(s)$

3.3. Cross-linguistic variation: Against a uniform analysis

The investigation of RSVCs in two serializing languages reveals that serializing resultative constructions exhibit the same split as non-serializing languages do with respect to the predicational status of the manner or result predicate: While Mandarin RVCs qualify as resultative secondary predication, Samoan RSVCs qualify as means constructions. Cross-linguistically, RSVCs may show further variation.

On the one hand, verbal resultative secondary predication does not necessarily involve Result-to-*v* movement as observed in Mandarin. Languages like Edo (Niger-Congo) or Lao instead show that verbal secondary predicates may also occur separately from the manner verb. In addition, the result component may not necessarily be realized by an anticausative (65a), but also by a stative verb (65b) (Stewart 2001; Cole 2016).

- (65) a. *Oso sua Adesuwa de.* EDO
 Osa push Adesuwa fall
 ‘Esosa pushed Adesuwa down.’ (Stewart 2001: 15)
- b. *Candii liit sùà liap.* LAO
 Jandee iron shirt smooth
 ‘Jandee ironed the shirt smooth.’ (Cole 2016: 51)

On the other hand, verbal manner adjuncts in means constructions may differ in their morphosyntactic properties. Daakaka (Oceanic, Austronesian) RSVCs show for example that object matching is not a necessary condition on *v*P-adjointing RSVCs cross-linguistically, as the object of the adjoined manner verb can be interpreted distinctly from the one of main predicate, in the absence of an underlying syntactic representation (as indicated by the suppletive intransitive form of the manner verb; Hopperdietzel 2020; 2021b; also Tomioka 2006 on Japanese RSVCs); an option that is unavailable in Samoan (see fn. 22).

- (66) *Bong ma ta sengave seli.* DAAKAKA
 Bong REAL cut.INTR open.TR road
 ‘Bong opened/cleared the road by cutting (grass).’

Likewise in Uyghur RSVCs, object matching is optional because the manner component is realized by a VoiceP adjunct, which enables the licensing of an (overt) syntactic object of the manner verb that is distinct from the one the causative result verb (Sugar 2019; also Ko & Sohn 2015 on Korean RSVCs).

- (67) *Shox bala derizini qol-i-diki tash-ni at-ip*
 naughty child window-ACC hand-3SG.POSS-REL stone-ACC throw-LK
chaq-iwet-di-ø. UYGHUR
 break-COMPL-PST-3SG
 ‘The naughty child broke the window by throwing the stone in their/her/his hand.’
 (Sugar 2019: 123)

Therefore, the variation found in RSVCs does not only include the split into resultative secondary predication and means constructions, but also apparent micro-variation based on language specific constraints on event and argument structure (cf. Hopperdietzel 2020).

Consequently, the comparison of RSVCs in different serializing languages demonstrates that RSVCs are neither a uniform syntactic phenomenon (cf. Larson 1991; C. Collins 1997; Stewart 2001) nor a typologically distinct type of equipollently-framed resultatives (cf. Slobin 2004; Zlatev & Yangklang 2004; Ameka & Essegbey 2013). Although Mandarin RVCs may come close to such a type by forming a resultative compound, the underlying syntactic and semantic structure clearly indicates the hierarchical order of the predicates. It is therefore expected that RSVCs can be classified as either resultative secondary predication or means constructions on

the relevant compositional level (also Talmy 2016). The difference between serializing and non-serializing languages can thus be reduced to a categorial split in the secondary predicates, as already implicated in the original formulation of the typology by Talmy (2000), as illustrated in Table 2.²³

	satellite-framed	verb-framed
non-serializing	English	Spanish
serializing	Mandarin	Samoan

Table 2: Typology of resultative constructions across (non-)serializing languages.

4. Variations on a VP

The investigation of compositional properties of RSVCs indicates that resultative constructions in both serializing and non-serializing languages do not differ fundamentally in their underlying syntactic and semantic structure. Languages instead vary in their specific strategies for expressing resultative semantics, i.e. in the way in which they express manner and result meaning components in configurations relative to a (causing) event-introducing *v* head. In this section, I briefly review the cross-linguistic variation of manner modification and result complementation that has been observed, sketching out a preliminary typology of resultative constructions by integrating them into the configurational account of the verbal domain developed in section 2.

4.1. Manner component

Several potential ways to realize the manner component in resultative structures have already been discussed. In resultative secondary predication, the manner component is realized by a (manner) root that attaches directly to the (causing) event-introducing *v*. Due to the categorization restriction, the result component must be realized by a pre-categorized constituent in this context.

²³ While the focus of this paper is primarily on resultative constructions, the classification of serializing languages as satellite or verb-framed makes potential predictions about the availability of structures that have been argued to be part of a macro-parameter. For example, directed motion and double object constructions tend to be absent in classical verb-framed languages (Talmy 2000; Snyder 2001; Folli & Harley 2020); though the existence of a macro-parameter has been challenged by Son & Svenonius (2008). While Mandarin, as a satellite-framed language, has been argued to exhibit both types of constructions (F.-h. Liu 2006; Talmy 2016, 2000), they have been (superficially) described to be marginal or even absent in Polynesian languages like Samoan which may support its verb-framed status (Talmy 2000; Margetts 2007). Since a detailed examination of the Samoan data is beyond the scope of this paper, future research may shed further light on the typological classification of serializing languages with respect to a potential macro-parameter.

(68) *Kim hammered the metal flat.*

In addition to root modification, the manner component may be realized by a pre-categorized phrasal constituent, enabling the realization of the result component by a root in means constructions, as demonstrated by prepositional manner *by*-phrases.

(69) *Kim flattened the metal by hammering.*

If resultatives are primarily understood as the specification of both the manner and the result component, anticausatives that co-occur with prepositional causers, like German *durch*-phrases, fall under this definition. In this construction, the causing event of the anticausative main predicate is modified by the causer PP (Pylkkänen 2008; Schäfer 2008).

(70) *Die Vase zerbrach durch ein Erdbeben.* GERMAN
 the vase broke through an earthquake
 ‘The vase broke from an earthquake.’ (Schäfer 2008: 127)

In the same vein, causer-DPs that modify the causing event in internally caused change-of-state (71) or object experiencer psych-verbs in English and Greek have also been argued to function as *v*P-level event-modifiers (Alexiadou 2014; Alexiadou & Anagnostopoulou 2020). Therefore, causer-DPs can also be taken to realize the manner component in a resultative construction.

(71) *O thalasinós areas skuriase to frahti* GREEK
 the sea air rusted the fence
 ‘The sea air rusted the fence.’ (Alexiadou 2014: 884)

Furthermore, verbal manner adjuncts express the manner component of RSVCs in serializing languages such as Samoan, as demonstrated in section 3.2.

(72) *Sā solo fa’a-mamā e Malia le laulau.* SAMOAN
 PST wipe CAUS-clean ERG Mary ART table.ABS
 ‘Mary cleaned the table by wiping it.’

In some languages, manner particles have likewise been shown to modify the manner of a causing action, but cannot occur as independent predicates. In Atsugewi (Hokan), for example, these particles appear in the initial position of the tripartite semantic core of polymorphemic verbs, in which they do not function as the main predicate (Talmy 2000, 2016).

(73) *S’w-cu-s’taq’-cis-^a.* ATSUGEWI
 1SG > 3SG.FACT-with.stick-move.icky.material-into.fire-1SG > 3SG.FACT
 ‘I prodded the guts into the fire with a stick.’ (Talmy 2000: 59)

In contrast, the status of adjectival predicates in manner-modifying positions is yet unclear. In English, examples like *dry-clean* occur, but they seem rather idiosyncratic and not very

productive. The potential absence of adjectival manner modifiers may be related to their stative nature, which makes them unlikely to function as event modifiers (but see Rothmayr 2009 on stative causatives in the psych domain).

(74) *Kim dry-cleaned her jacket.*

This brief overview suggests that manner modification in resultative structures can be realized by adjuncts of various grammatical categories, as long as they obey syntactic constraints, e.g. nominal adjuncts can only occur in a position in which they are licensed (see Sheehan & van der Wal 2018 for a recent discussion), and satisfy semantic requirements on event composition, i.e. they must be of the right event type (see Truswell 2007 for a preliminary survey).²⁴

Due to their status as syntactic adjuncts, manner modifiers are expected to exhibit special properties that distinguish them from syntactic arguments, such as the result component: Firstly, manner modifiers are iterable, as long as they are able to jointly modify a single (causing) event in a non-coordinated structure. This can be illustrated by the co-occurrence of manner *by*-phrases and root-modifiers in English means constructions (75a) or two manner verbs in RSVCs in Daakaka (75b) (A. Williams 2015; Hopperdietzel 2020).

- (75) a. *By striking it rapidly for hours, Kim pounded the metal flat.*
 b. *Bong mwe doko sengep tiwiye beleem.* DAAKAKA
 Bong REAL push rattle break door
 ‘Bong broke the door by push’n’rattling it.’

Secondly, *wh*-extraction out of manner modifiers should be ungrammatical, as adjuncts are syntactic islands. Yet, Truswell (2007) observes that *wh*-extraction out of manner adjuncts is actually possible, which challenges the argument/adjunct-distinction more generally and raises questions about the syntactic status of the manner modifier.

- (76) a. *What_i did Mary cut herself carving ____i ?*
 b. **Who_i did Mary cry after John hit ____i ?*

Thirdly, manner modifiers should be optional. While this prediction is borne out for most languages, Hopperdietzel (2020, 2021b) presents data from RSVCs in Daakaka showing that, although manner verbs are adjoined as manner modifiers, they are obligatory for the felicity of causative verbs.

²⁴ This constraint can be satisfied even if the manner adjunct does not specify the manner condition of the causing event, but restricts the set of causing events as it is the case with change-of-state verbs (Sæbø 2008; see also Beavers & Koontz-Garboden 2012 for potential relation to the properties of break-type roots).

(i) *Yahwed saved the Israelites by opening the Sea of Reeds.* (Sæbø 2008: 141)

- (77) *Bong ma *(ta) tiwiye lee ente.* DAAKAKA
 Bong REAL cut.INTR break.TR tree DEM
 ‘Bong broke the tree by cutting it.’

The last two data points indicate that the argument/adjunct distinction in resultatives appears to be fuzzy and may shed new light on this distinction more generally (cf. Sæbø 2008).

4.2. Result component

Parallel to the manner component, the result component can also be realized by various strategies. In English means constructions, roots express the result state, such that the manner component is necessarily realized by a pre-categorized manner adjunct.

- (78) *Kim flattened the metal by hammering it.*

Moreover, pre-categorized phrasal elements can also occur as the result-denoting complement in resultative secondary predication. In English, the result component may therefore be realized by adjectival (79a) or prepositional phrases (79b).

- (79) a. *Kim hammered the metal flat.*
 b. *Kim cut the meat into pieces.*

In languages like German, also result particles that cannot function as independent predicates, such as *auf* ‘open’, can denote the result state in resultative secondary predication (Zeller 2001).

- (80) *Kim schloss die Tür auf.* GERMAN
 Kim locked the door open.PART
 ‘Kim unlocked the door.’ (lit.: ‘Kim locked the door open.’)

While adjectival and prepositional secondary predicates are frequently found in satellite-framed languages, nominal secondary predicates have been observed only rarely, if they exist at all. Although nominal predicates in resultative constructions in Hungarian (Finno-Ugric) or Warlpiri (Pama-Nyungan) appear to resemble resultative secondary predication, more detailed studies have re-analyzed them as either adjuncts, covert prepositional complements, or purpose clauses (see Simpson 1983; Matushansky 2012).

- (81) a. *Futballistá-nak neveli a gyerek-ek-et.* HUNGARIAN
 football.player-DAT train.PRES.SG ART child-PL-ACC
 ‘S/he trains the children to become football players.’ (Matushansky 2012: 32)
- b. *Ngaju-rlu = rna paka-rnu nyampu jampita pinpinpa-karda.* WARLPIRI
 1SG-ERG = 1SG.SBJ hit-PST this can flatness-TRANS
 ‘I hit this can flat.’ (Margit Bowler, p.c.)

Whether a potential absence of nominal secondary predicates can be attributed to restrictions on nominal licensing or to the semantic properties of nominal predicates is yet unclear. However, it should be noted that in English nominal secondary predicates can be grammatical in periphrastic (anti-)causative constructions, in which they may also occur in the means construction.

- (82) a. *Kim became a star by playing the lead role in a movie.*
 b. *Toni made Kim a star by casting her in the lead role of his movie.*

Further, this study has demonstrated that verbal predicates can also realize the result component in serializing languages. Verbal secondary predicates thus differ from stative adjectival secondary predicates in being able to introduce anticausative semantics, as shown for Mandarin RVCs (83a). In non-serializing languages, only prepositional secondary predicates may express similar change-of-state/path semantics within the result component itself (83b/c) (cf. Son & Svenonius 2008).

- (83) a. *Sanmao peng_v-lie_v-le jingzi.* MANDARIN
 Sanmao bang-crack-PFV mirror
 ‘Sanmao banged the mirror, cracking it.’ (Tham 2012: 602)
 b. *#Kim hammered the metal flattened/bent.*
 c. *Kim cut the meat into pieces.*

Serializing languages are however not necessarily restricted to realize the result component with verbal predicates, as verbal and adjectival secondary predicates can be found in the same language, e.g. in Edo (indicated by a tone-change; Stewart 2001).

- (84) a. *Òzó gíá írúnmwùn gièghé_v* EDO
 Ozo cut grass be.short
 ‘Ozo cut the grass short.’
 b. *Òzó gíá írúnmwùn gièghé_{ADJ}*
 Ozi cut grass short
 ‘Ozo cut the grass short.’ (Stewart 2001: 208)

Due to their syntactic status as result complements, only a single (non-distinct) result is expected to be realized per construction (Goldberg 1991 *inter alia*). This prediction is borne out, as two resultative secondary predicates that are not conjoined are generally ungrammatical across serializing and non-serializing languages (Stewart 2001), which highlights the different status of manner and result predicates in resultatives.²⁵

²⁵ This also holds for so-called pseudo-resultatives in which an already specified result state may be further specified by an adjunct, like in *the lake froze solid* (Kratzer 2005; Levinson 2010).

- (85) a. **Kim wiped the table clean dry.*
 b. **Ozo sua omo de wu.* EDO
 Ozo push child fall die
 ‘Ozo pushed the child down to its death.’ (Stewart 2001: 100)

Finally, the means construction and resultative secondary predication can co-occur when both the manner and result component are realized by pre-categorized predicates, as in Samoan RSVCs.

- (86) *Sā pulu fa’a-ma-tala e Malia le faitoto’a.* SAMOAN
 PST push CAUS-STAT-open ERG Mary ART door.ABS
 ‘Mary opened the door by pushing it.’

Therefore, resultative secondary predication and means constructions are not necessarily exclusive strategies to express resultative meaning in a monoclausal environment. Instead, both strategies can interact in more complex resultative constructions, which results in further complexity in the resultative domain.

4.3. Towards a typology of resultative constructions

To summarize, the brief cross-linguistic survey of resultative constructions indicates that the manner and the result component can be realized by constituents of various morphosyntactic categories, as long as they take on the right semantic form. On the one hand, eventive roots, PPs, VPs and NPs can modify the manner component of the causing event in resultative structures, while AP-modifiers are very rare. On the other hand, roots (within ResP), APs, PPs and VPs can realize the stative or anticausative result component, while NP complements are very rare. Finally, the absence of a manner component results in causative accomplishments in which the causing action is left underspecified, whereas the absence of a result component results in mono-eventive activity verbs. Consequently, the data suggests that the underlying syntactic configuration of meaning components within the verbal domain is most likely constant across languages, whereas the morphosyntactic category of the elements that realize such meaning components may vary from language to language (cf. A. Williams 2008; 2015 for a similar intuition).

- (87)
-
- ```

graph TD
 vP --> C1["ø/V/PP/VP/NP/?AP"]
 vP --> v["v"]
 v --> C2["v"]
 v --> C3["ø/V/AP/PP/VP/?NP"]

```

The observed cross-linguistic variation is therefore expected to follow from language specific constraints on event and argument structure that restrict the availability of certain types of

resultative constructions (cf. Beavers et al. 2010). For example, obligatory Result-to-*v* movement rules out resultative secondary predication in verb-framed languages, as discussed in section 2.3 (Folli & Harley 2020). In addition, the ability of result roots and verbal resultative secondary predicates to incorporate into the main verb has an effect on word order, as only they can exhibit a non-contiguous word order in SVO languages (A. Williams 2008). Furthermore, the investigation of Samoan RSVCs in section 3.2 shows that the absence of a nominal licensing head in Samoan *v*P-adjuncts restricts the interpretation of the (covert) object argument, as syntactic identity is a pre-requisite for the object to undergo ATB-movement to a licensing position outside of the adjunct, a restriction not observed in the context of English PP- or Uyghur VoiceP-adjuncts. Moreover, subject-less Mandarin RSVCs as in (88b) reflect the general grammaticality of agent deletion in the context of activity verbs in the language (88a), whereas equivalent structures are ungrammatical in languages like English (cf. A. Williams 2014; J. Liu 2021; Martin et al. forthcoming).

- (88) a. *Wazi xi-le.* MANDARIN  
 socks wash-PFV  
 ‘The socks washed.’
- b. *Wazi xi-ganjing-le.*  
 socks wash-clean-PFV  
 Lit.: ‘The socks washed clean.’ (Martin et al. forthcoming: 9)

In sum, the presented analysis offers a unified account of the verbal domain that derives various causative and resultative structures from variation in the realization of manner and result meaning components within a potentially universal configuration within the verbal domain.

## 5. Conclusion

In this paper, I have revisited the internal structure of resultative constructions in serializing languages, which have been claimed to be either a uniform or distinct phenomenon. However, the application of syntactic and semantic diagnostics has revealed that RSVCs in serializing languages like Mandarin or Samoan exhibit the same split in the resultative domain as non-serializing languages do, contrary to the expectation.

Adopting a syntactic approach to event decomposition, I have proposed an analysis of resultative constructions within a configurational account of the *v*P, in which manner and result meaning components are related to designated positions in relation to the (causing) event-introducing verbalizer *v*: While manner modifiers merge in the modifier position (sister of *v*), result arguments merge as complements of *v*. Given the categorization restriction on roots, the split in resultative constructions can therefore be interpreted as two distinct strategies to express resultative meaning in a monoclausal structure by realizing at least one of the event components by pre-categorized constituents.

I have suggested that languages vary significantly regarding the morphosyntactic and semantic contribution of those pre-categorized elements. Consequently, event structure building may be less sensitive to grammatical categories, but instead be driven primarily by semantic compatibility. If the underlying configurational analysis of manner and result meaning is correct, we expect the observed cross-linguistic variation to be explained by language or construction specific constraints on event and argument structure, as sketched out above for the rather unexpected object matching facts in Samoan RSVCs or agentless Mandarin RSVCs.

However, many of those factors still need to be identified. Even the split of satellite and verb-framed languages, which has been the centre of attention for a while, is not fully understood yet. Likewise, there is no satisfying account of the cross-linguistic distribution of verb serialization. With this paper, I hope to contribute to this enterprise by highlighting the structural similarities in the resultative domain across languages.

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## Abbreviations

The abbreviations follow the Leipzig Glossing Rules, except: ANTICAUS = anticausative; FACT = factual evidential mood; INCH = inchoative aspect; LK = linker; PART = particle; RED = reduplication; STAT = stativizer; TRANS = translative case.

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## Competing interests

The author has no competing interests to declare.

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