Talmy's typology in serializing languages: Variations on a *v*P

Intro. In the typological literature on resultatives, two types of construction have been identified based on both the lexicalization of manner and result meaning (Folli & Harley 2020, Mateu & Acedo-Matellan 2015, Talmy 2000). First, in resultative secondary predication (RSP) (1), the main predicate encodes the manner of the causing action/event while the caused result state is expressed by a non-verbal small clause (or satellite; see Beavers 2012 for an overview). Second, in *means* constructions (2), a causative predicate functions as the main predicate entailing a causing event that is identified by a secondary manner adjunct (Biggs & Embick 2020, Sæbø 2016, Truswell 2007). While in non-serializing languages such as English, the secondary predicate is necessarily expressed by a non-verbal predicate, this is not the case in resultative serial verb constructions (RSVCs), making it difficult to assess which verb is the main predicate in serializing languages, such as Mandarin or Samoan (5).

Proposal. Based on original fieldwork, I demonstrate that, although Samoan has RSVCs, they show the morphosyntactic and semantic properties of *means* constructions in that the manner verb functions as a *means* adjunct to the causative verb. Therefore, I argue that RSVCs can neither be reduced to a categorial variation of RSP (verbal vs. non-verbal SP; Larson 1991, cf. Liu 2019 on Mandarin, Baker & Stewart 2002 on Édò, Collins 2002 on ‡Hoan) nor do they instantiate a special type of symmetric 'equipollently-framed' languages (Ameka & Essegbey 2013, Slobin 2004). Rather, they exhibit the same split in the resultative domain as non-serializing languages (cf. Talmy 2000). These findings moreover have wider implications for the typology of *v*P-internal event composition and argument structure building cross-linguistically.

Two types of resultatives. Resultatives are a subtype of causative constructions that not only express the nature of the result state, but also specify the manner of the causing action (Levin 2020, Kratzer 2005, Dowty 1979). Since a single root cannot lexicalize both manner and result meaning at the same time, resultative semantics is necessarily expressed via complex predication, typically involving a manner and a result predicate (Beavers & Koontz-Garboden 2020, Rappaport Hovav & Levin 2010 on the manner/result complementarity). In English RSP, for example, the manner component is realized by a manner verb (here: *hammer*), whereas the result state is expressed by a non-verbal adjectival SP (here: *flat*).
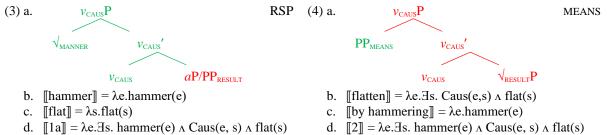
(1) a. *Peter hammered the metal flat.*　　　　b. **Peter hammer(-flattened) the metal (flattened)*　　RSP

Syntactically, RSP is analyzed as a complementation structure in which the manner verb takes the result denoting XP as a complement (3a) (Folli & Harley 2020, Mateu & Acedo-Matellan 2015, Embick 2004). Semantically, both predicates enter a causative relation, in which both the manner and the result predicate are arguments of a causative relation (3d) (Levin 2020, Kratzer 2005, Dowty 1979). Yet, resultative meaning can also be expressed by the *means* construction where a causative verb (here: *flatten*) is modified by a manner adjunct (here: *by hammering it*).

(2)　　*Peter flattened the metal by hammering it.*　　　　　　　　　　　　　　　MEANS

Syntactically, the *means* construction is analyzed as adjunction of a secondary manner predicate to a causative *v*P (4a), which modifies the underspecified causing event entailed in the event structure of the causative verb at the semantic level (4d) (Biggs & Embick 2020, Sæbø 2016, Solstad 2009, Truswell 2007). Based on the preferred realization of resultative meaning, languages are classified as satellite- (RSP-) or verb-framed (*means*-) languages (Talmy 2000).

(3) a. [tree: v_{CAUS}P → √MANNER, v_{CAUS}' → v_{CAUS}, aP/PP$_{RESULT}$]　　RSP　　(4) a. [tree: v_{CAUS}P → PP$_{MEANS}$, v_{CAUS}' → v_{CAUS}, √RESULTP]　　MEANS

b.　$\llbracket$hammer$\rrbracket = \lambda e.\text{hammer}(e)$
c.　$\llbracket$flat$\rrbracket = \lambda s.\text{flat}(s)$
d.　$\llbracket$1a$\rrbracket = \lambda e.\exists s.\ \text{hammer}(e) \wedge \text{Caus}(e,s) \wedge \text{flat}(s)$

b.　$\llbracket$flatten$\rrbracket = \lambda e.\exists s.\ \text{Caus}(e,s) \wedge \text{flat}(s)$
c.　$\llbracket$by hammering$\rrbracket = \lambda e.\text{hammer}(e)$
d.　$\llbracket$2$\rrbracket = \lambda e.\exists s.\ \text{hammer}(e) \wedge \text{Caus}(e,s) \wedge \text{flat}(s)$

Two types of RSVCs? In contrast to non-serializing languages, such as satellite-framed English and verb-framed Romance, both the manner and the result meaning component of a resultative construction in serializing languages, such as Mandarin (5) and Samoan (6), are primarily expressed by two verbal predicates (Liu 2019 among others;, Mosel 2004, respectively).

(5) *Sanmao ca$_V$-gan$_V$-le wanpan.*   MANDARIN (6) *Sā solo$_V$ fa'a-mamā$_V$ e Malia le laulau.* SAMOAN
     Sanmao wipe-dry-ASP dishes   PST wipe CAUS-clean ERG Mary ART table
     'Sanmao wiped the dishes dry.' (Tham 2009: 1)   'Mary cleaned the table by wiping it.'

As both predicates are realized by verbal elements, the main predicate status cannot be easily determined by their category. However, since the distinction between RSP and *means* construction boils down to the contrast of complementation and adjunction/modification, I demonstrate that both morphosyntactic and semantic diagnostics that are sensitive to this contrast indicate that RSVCs may vary regarding their underlying syntactic and semantic composition.

Transitivity. The first diagnostic comes from the transitivity of the result predicate: While the result state is expressed by an intransitive predicate in RSP, it is expressed by a transitive verb in the *means* construction. Crucially, Mandarin have been shown to pattern with RSP in that the result predicate in RVCs cannot function as a transitive/causative predicate independently (Tham 2009). In contrast, Samoan RSVCs realize the result state with a transitive/causative verb that cannot otherwise occur in intransitive/anticausative contexts (Hopperdietzel 2021).

(7) a. *Wanpan gan-le.*   ANTICAUSATIVE b.**Sanmao gan-le wanpan.*   CAUSATIVE
     dishes dry-ASP   Sanmao dry-ASP dishes
     'The dishes dried'   'Sanmoa dried the dishes.' (Mandarin; Tham 2009: 4ff)

(8) a. *Ua (#fa'a-)mamā le laulau.* ANTICAUS. b. *Sā **fa'a-**mamā e Malia le laulau.* CAUSATIVE
     INCH CAUS-clean ART table.   PST CAUS-clean ERG MARY ART table
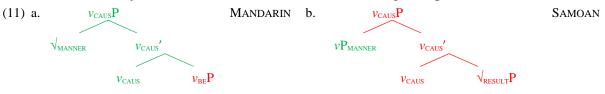   'The table became clean.'   'Mary cleaned the table.' (Samoan)

Narrow *again*. Additional semantic evidence comes from the narrow repetitive reading of *again,* in which the repetitive modifier solely scopes over the causing event (excluding the result state). Notably, this reading is only available in the *means* construction, but not in RSP (cf. Lechner et al. 2015, Beck & Snyder 2001, von Stechow 1996).

(9) a. *Peter hammered the metal flat **again***   → # He hammered it before.
   b. *Peter flattened the metal by hammering it **again**.* →   He hammered it before.

As expected, Samoan but not Mandarin allows for a narrow reading of the repetitive modifiers *you* and *toe* in the context of RSVCs (cf. Xu 2016, Hohaus 2016, respectively).

(10) a. *Lulu **you** xi-ganjing-le nei-jian shangyi.* b. *Sā **toe** solo fa'a-mamā e Malia le laulau.*
     Lulu again wash-clean-ASP that-CL jacket   PST again wipe CAUS-clean ERG Mary ART table
     'Lulu washed her Jacket clean. (Mandarin)   'Mary cleaned the table by wiping it again.' (Samoan)
        → # Lulu washed her jacket before.'   → Mary wiped the table before.

Corroborating evidence comes from further morphosyntactic (e.g., case marking in Samoan) and event semantic diagnostics (e.g., manner modification; Zimmermann & Amaechi 2019).

***v*P-modifiers.** The findings indicate that while RSVCs in Mandarin are a type of RSP (11a) (Liu 2019, Lin 2004), RSVCs in Samoan belong to the *means* constructions (11b). Thus, I propose that the manner verb is merged as a *v*P-sized adjunct to the causative verb, modifying the causing event entailed by the causative verb (parallel to 4d). Therefore, RSVCs exhibit the same split in the resultative domain as non-serializing languages, varying primarily in the category of the manner or resultative SP (cf. Talmy 2000). Consequently, Samoan RSVCs extend the cross-linguistic typology of *v*P-internal event modification, which has been argued to include roots (Folli & Harley 2020), PPs and DPs (Alexiadou & Anagnostopoulou 2020).

(11) a. v_{CAUS}P   MANDARIN   b. v_{CAUS}P   SAMOAN

    √$_{MANNER}$ v_{CAUS}' vP$_{MANNER}$ v_{CAUS}'

            v_{CAUS} v_{BE}P v_{CAUS} √$_{RESULT}$P

References:

Alexiadou, Artemis & Elena Anagnostopoulou. 2020. Experiencers and causation. In Elitzur Bar-Ashel Siegal & Nora Boneh (eds.), *Perspectives on Causation.*, 297-317. Springer: Dordrecht.

Ameka, Felix K. & James Essegbey. 2013. Serialising languages: Satellite-framed, verb-framed or neither. *Ghana Journal of Linguistics* 2(1), 19-38.

Baker, Mark C. & Osamuyimen T. Stewart. 2002. A serial verb construction without constructions. Ms., Rutgers University, New Brunswick, NJ.

Beavers, John. 2012. Resultative constructions. In Robert Binnick (ed.), *The Oxford handbook of tense and aspect*, 908-933. Oxford: OUP.

Beavers, John & Andrew Koontz-Garboden. 2020. *The roots of verbal meaning*. Oxford: OUP.

Beck, Sigrid & William Snyder. 2001. The resultative parameter and restitutive *again*. In Caroline Féry & Wolfgang Sternefeld (eds.), *Audiatur vox sapientiae: A Festschrift for Arnim von Stechow*, 48-69. Berlin: Akademie Verlag.

Biggs, Alison & David Embick. 2020. On the event structural properties of the English *get* passive. *Linguistic Inquiry* just accepted, 1-74.

Collins, Chris. 2002. Multiple verb movement in ǂHoan. *Linguistic Inquiry* 33(1), 1-29.

Dowty, David. 1979. *Word meaning and Montague grammar: The semantics of verbs and times in generative semantics and in Montague's PTQ*. Dordrecht: Reidel.

Embick, David. 2004. On the structure of resultative participles in English. *Linguistic Inquiry* 35(3), 355-392.

Folli, Raffaella & Heidi Harley. 2020. A head movement approach to Talmy's typology. *Linguistic Inquiry* 51(3), 425-470.

Hohaus, Vera. 2016. The inchoative aspect in Samoan. *Proceedings of AFLA23*, 96-110.

Kratzer, Angelika. 2005. Building resultatives. In Claudia Maienborn & Angelika Wöllstein (eds.), *Event arguments: Foundations and applications*, 177-212. Tübingen: Niemeyer.

Larson, Richard. 1991. Some issues in verb serialization. In Claire Lefebvre (ed.), *Serial verbs: Grammatical, comparative and cognitive approaches*, 185-211. Amsterdam: John Benjamins.

Lechner, Winfried, Giorgos Spathas, Artemis Alexiadou & Elena Anagnostopoulou. 2015. On deriving the typology of repetition and restitution. Paper presented at GLOW38, Paris 8 & CNRS, Paris.

Levin, Beth. 2020. Resultatives and constraints on concealed causatives. In Elitzur Bar-Asher Siegal & Nora Boneh (eds.), *Perspectives on causation*. Dordrecht: Springer.

Lin, Jimmy. 2004. *Event structure and the encoding of arguments: The syntax of the Mandarin and English verb phrase*. PhD thesis, Massachusetts Institute of Technology, Cambridge, MA.

Liu, Jianxu. 2019. *The syntax of V-V resultatives in Mandarin Chinese*. PhD thesis, University of Victoria.

Mateu, Jaume & Víctor Acedo-Matellan. 2015. Parameters and argument structure I: Motion predicates and resultatives. In Antonio Fábregas, Jaume Mateu & Michael Putnam (eds.), *Contemporary linguistic parameters*, 99-122. London: Bloomsbury.

Mosel, Ulrike. 2004. Complex predicates and juxtapositional constructions in Samoan. In Isabelle Bril & Françoise Ozanne-Rivierre (eds.), *Complex predicates in Oceanic languages: Studies in the dynamics of binding and boundness*, 263-296. Berlin: Mouton de Gruyter.

Rappaport Hovav, Malka & Beth Levin. 2010. Reflections on manner/result complementarity. In Malka Rappaport Hovav, Edit Doron & Ivy Sichel (eds.), *Lexical semantics, syntax and event structure*, 21-38. Oxford: OUP.

Sæbø, Kjell J. 2016. "How" questions and the manner-method distinction. *Synthese* 193, 3169-3194.

Slobin, Dan. 2004. The many ways to search for a frog: Linguistic typology and the expression of motion events. In Sven Strömquist & Ludo Verhoeven (eds.), *Relating events in narrative, vol. 2: Typological and contextual perspectives*, 219-257. Mahwah, NJ: Erlbaum.

Solstad, Torgrim. 2009. On the implicitness of arguments in event passives. *Proceedings of NELS38(2)*, 365-375.

Talmy, Leonard. 2000. *Toward a cognitive semantics, vol. 2: Typology and process in concept structuring*. Cambridge, MA: MIT Press.

Tham, Shiao Wei. 2009. Building resultatives in Mandarin (from the result). Paper presented at 10th Semantics Fest, Stanford University.

Truswell, Robert. 2007. Extraction from adjuncts and the structure of events. *Lingua* 117(8), 1355-1377.

von Stechow, Armin. 1996. The different readings of *wieder* ('again'): A structural account. *Journal of Semantics* 13(2), 87-138.

Xu, Ting. 2016. *Almost again: On the semantics and acquisition of decomposition adverbs*. PhD thesis, University of Connecticut.

Zimmermann, Malte & Mary Amaechi. 2019. The syntax and event semantics of Serial Verb Constructions in Igbo (Benue Congo). Paper presented at GLOW42, University of Oslo.