Themes to instruments: Non-canonical arguments in Mandarin RVCs

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Introduction. Mandarin resultative verbal compounds (RVCs) are well-known for argument structure alternations that are unfamiliar from an Indo-European perspective. In particular, they show greater variability regarding the thematic roles that can be assigned to their direct arguments, thus allowing theme arguments of manner verbs in non-selected resultatives to be overtly realized (2) (cf. Liu 2019, C.-T. Huang 2006). To account for this phenomenon, previous analyses have made language or construction-specific assumptions (e.g. Zhang 2022, Liu 2019, Lin 2004) that often challenge a uniform analysis of resultatives across languages (cf. Hopperdietzel 2022, Folli & Harley 2020, Williams 2015).

Proposal. Based on the novel observation that themes of non-selected resultatives can be overtly realized as oblique (instrumental) arguments in German, we propose an alternative analysis in which such themes are introduced as applied (non-canonical) arguments (NCAs) on top of a small-clause structure, parallel to instrumental NCAs outside of RVCs (cf. Zhang 2016, Y.-H. Li 2014). By doing so, we demonstrate that argument structure alternations in Mandarin RVCs can be derived from independently motivated and cross-linguistically attested phenomena, including anti-agentivity (Martin et al. 2022), non-recursive applicatives (Nie 2020), and pseudo-noun incorporation (PNI; H.-L. Huang 2016).

Themes in RVCs. Mandarin does not only exhibit transitive object-oriented resultatives, i.e. resultatives in which the result state holds for the object (O-RVCs) (1a), but also intransitive subject-oriented resultatives, in which the subject is the holder of the result state (1b) (S-RVCs) (C.-T. Huang 2006 *i.a.*).

(1) a. *Lisi   he-guang-le   ziu.*   O-RVCs   b. *Lisi   he-zui-le.*   S-RVCs
   Lisi   drink-empty-ASP wine   Lisi   drink-drunk-ASP
   'Lisi drank the wine empty.' (Gao 2001: 170)   'Lisi got drunk from drinking.' (Liu 2019: 152)

While S-RVCs are non-selected resultatives in that the holder of the result state is not the theme of the manner-denoting predicate, the theme argument can still be overtly realized either as the object (2a) or as the subject with the original subject switching to object position (2b) (Liu 2019, C.-T. Huang 2006).

(2) a. *Lisi he-zui-le   jiu.*   TR/S-RVCs   b. *Na ping jiu   he-zui-le Lisi.*   C/S-RVCs
   Lisi drink-drunk-ASP wine   DEM bottle wine   drink-drunk Lisi
   'Lisi got drunk from drinking wine.'   'That bottle of wine got Lisi drunk.' (Liu 2019: 109)

Thus, Mandarin non-selected RVCs contrast non-selected resultatives in languages like English or German, in which the overt realization of theme arguments as direct arguments is ungrammatical (3a/b).

(3) a. *Kim drank herself unconscious.*   b.*Kim drank wine unconscious.*   c. *Wine drank Kim unconscious.*

Instrumental themes. However, themes in non-selected resultatives can actually be syntactically realized as oblique arguments, e.g. by instrumental *mit*-PPs in German (4).

(4) a. *Kim trank sich mit dem Vodka bewusstlos.*   b. *Kim sang Robin mit einem Schlaflied in den Schlaf.*
   Kim drank REFL with the vodka unconscious   Kim sang Robin with a   lullaby   to the sleep
   'Kim drank herself unconscious with this vodka.'   'Kim sang Robin asleep with a lullaby.'

The intuition here is that the theme argument semantically functions as a facilitating condition, similar to other types of instruments in a causative chain (cf. Jerro 2017, Kratzer 2005, Wolff 2003). Crucially, instrumental themes are ungrammatical outside of resultative constructions (5).

(5) a. *Kim trank den Vodka / #mit dem Vodka.*   b. *Kim sang ein Schlaflied / # mit einem Schlaflied.*
   Kim drank the vodka   with the vodka   Kim sang a lullaby   with a   lullaby
   'Kim drank the vodka/#with the Vodka.'   'Kim sang a lullaby/#with a lullaby.'

Instruments as NCAs. In contrast to German, Mandarin allows instruments to function as NCAs that appear to replace the theme argument (6) (Y.-H. Li 2014). Yet, Zhang (2018) demonstrates that NCAs do not occupy the *v*P-internal theme position but are merged *v*P-externally, a position that we identify as Spec, ApplP (Y. Li 2022; cf. Pylkkänen 2002 for an overview). Adopting Nie's (2020) analysis of non-recursive applicatives, we take the complementary distribution of NCAs and themes (and other applied arguments) to follow from the inability of Appl to license the DP in its specifier. Instead, NCAs are licensed by transitive Voice directly, ruling out ditransitive structures (6b) (cf. T.-H. Lin 2001).

(6) a. *Lisi he   lücha.*   b. *Lisi he   (*lücha)   xiao-bei.*   (7) *Lücha   (*guyi)   he-le.*
   Lisi drink green.tea   Lisi drink green.tea small-cup   green.tea   intentionally drink-ASP
   'Lisi drinks green tea.'   'Lisi drinks (*lücha) with small cups.'   'The green tea got (*intentionally) drunk.'

Anti-agentivity. Crucially, NCAs can also replace agents (8). We relate this observation to the general ability of Mandarin (manner) verbs to occur in agentless, anti-agentive, contexts (7) (Martin et al. 2022, Williams 2014; cf. Carvalho 2016 on Brazilian Portuguese), in which a semantically vacuous, but potentially transitive, expletive Voice head is merged instead of an agentive Voice head (9a) (cf. Schäfer 2007). If to this anti-agentive structure, an instrumental argument is merged in Spec,ApplP (8a), it gets licensed by the transitive expletive Voice head and promoted to subject position via Spec, VoiceP (9b).

(8) a. *Nei-ge xiao-bei he lücha.* b. *lücha he (*nei-ge) xiao-bei.*
   DEM-CL small-cup drink green.tea   green.tea drink DEM-CL small-cups
   'That small cup is used to drink tea.'   'Tea is drunk with small cups.'

PNI. Finally, anti-agentive constructions with NCAs may show up in a reversed order with the theme argument in subject position (8b). Notably however, post-verbal NCAs in such constructions differ from their preverbal counterparts in showing properties of PNI, e.g. they reject A'-movement, are non-ana-phoric, and lack a DP layer (8b) (Y.-H. Li 2014; cf. H.-L. Huang 2016). Adopting Massam's (2001) analysis of PNI, we argue that post-verbal NCAs in anti-agentive constructions are structurally-reduced NPs that escape nominal licensing, thereby allowing the theme to be promoted to subject position (9c).

(9) a. VoiceP [=(7)]   b. VoiceP [=(8a)]   c. VoiceP [=(8b)]
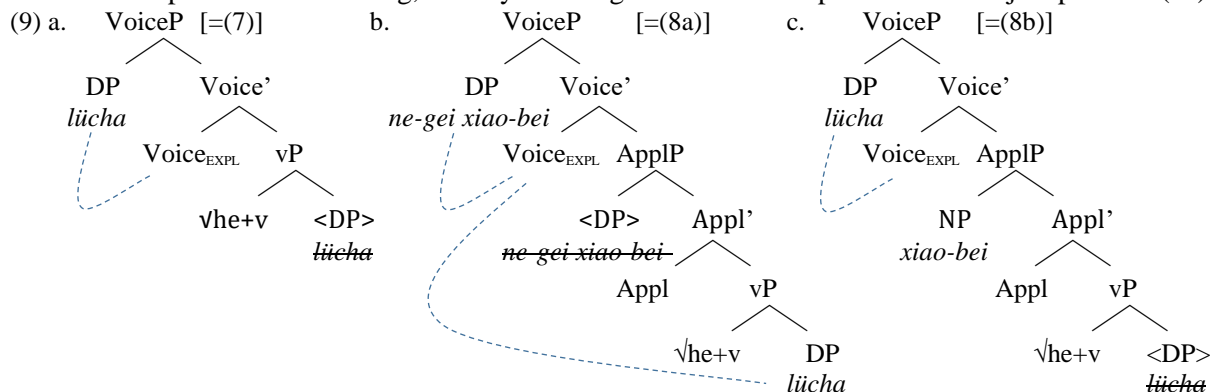
NCAs in RVCs. With the observation that theme arguments of non-selected resultatives can be overtly realized in the same way as oblique (instrumental) arguments in German, we propose to analyze such themes in Mandarin S-RVCs as NCAs that are merged in Spec, ApplP on top of an anti-agentive small clause structure (10) (cf. Hopperdietzel 2022, Liu 2019, C.-T. Huang 2006). As such, they exhibit the same properties as their instrumental counterparts outside of RVCs; with their morphosyntactic size, i.e. DP (10b) or NP (10c), responsible for the observed word order alternations.

(10) a. VoiceP [=(1b)]   b. VoiceP [=(2a)]   c. VoiceP [=(2b)]
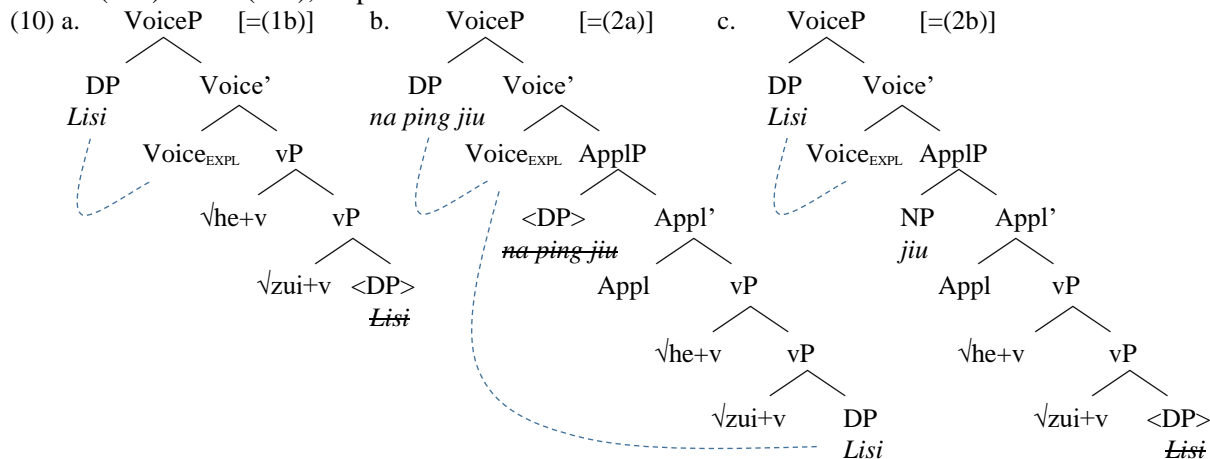
Crucial evidence for a unified analysis of alternating S-RVCs comes from the PNI-ed status of post-verbal themes (12a) and the thematic constraint on apparent causers to be the theme of the manner verb (12b) (Liu 2019; but see Huang 2006); two observations that require additional language or construction-specific assumptions in alternative analyses (cf. Zhang 2022, Williams 2014, J. Lin 2004).

(12) a. *Lisi he-zui-le (*na ping) jiu.* b. # *yumende xinping he-zui-le Lisi.*
   Lisi drink-drunk-ASP DEM bottle wine   depressed mood drink-drunk-ASP Lisi
   'Lisi got drunk from drinking (this bottle   'The depressed feeling made Lisi drunk from
   of) wine.' (Liu 2019: 109)   drinking.'(Liu 2019: 117)

Conclusion. Based on the observation that themes in non-selected resultatives as syntactically oblique arguments, we derive the argument structure alternations of Mandarin RVCs from a (language specific) combination of independent syntactic properties. Therefore, Mandarin RVCs do not challenge a uniform analysis of resultatives. However, instrumental/oblique themes may have further theoretical implications for the semantic status of theme arguments in (non-selected) resultatives (cf. Williams 2015).