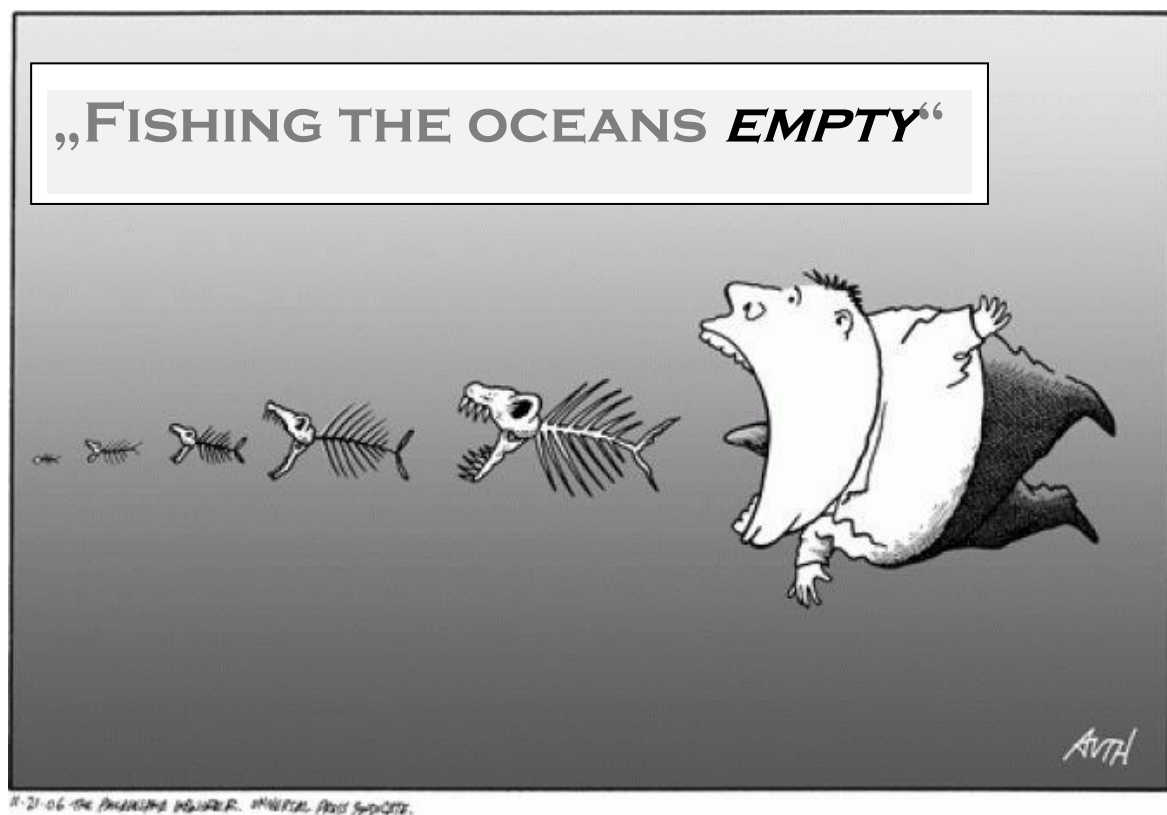


# On predicting resultative adjective constructions

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## Abstract<sup>1</sup>

Cross-linguistically, languages with adjectives as depictive predicates are ubiquitous. Languages with resultative adjectives are much more limited. This paper formulates a prediction based on a structural correlation: If a language makes available resultative complex verbal predicates (i.e. particle verbs or serial verbs), it thereby also makes available resultative adjective constructions, that is, complex verbal predicates with adjectives that receive a resultative interpretation. This generalization is supported by a sample of sufficiently well-analyzed languages. The focus of the paper rests on languages with/out particle verbs in combination with/out resultative adjectives.

In analytic terms, a resultative adjective is part of a complex predicate. Competing analyses with the resultative adjective as the head of a predicate phrase (‘small clause’) fail. In such an analysis, the observed correlations could not be captured adequately. It would wrongly predict depictive and resultative adjective constructions to generally coexist cross-linguistically, but obviously they don’t.

## 1. Introduction

Numerous languages admit adjectival secondary predicates with a depictive reading (see Schultze-Berndt & Himmelmann 2004), such as “*They left the party drunk*”. Less numerous are languages with resultative adjectival predicates, as in “*They pounded the lump flat*.” An obvious question to ask is this. What is the crucial difference between the grammatical settings of languages that admit this construction in comparison to those that don’t? Table 1 lists a sample of languages exemplifying the aforementioned contrast.

Table 1: Sample of languages and language families with/without resultative adjective constructions

	Chinese	GERMANIC	Hungar.	Latvian	Persian	Japanese	Korean	ROMANCE	SLAVIC
Result. adj.	☑	☑	☑	☑	☑	☒	☒	☒	☒
Depict. adj.	☑	☑	☑	☑	☑	☑	☑	☑	☑

Here is an example-sentence each for the languages listed in Table 1 that do not admit resultative adjective constructions. Italian and French are representative for Romance, and Russian illustrates the Slavonic languages.

- (1) a.\*Kanojo-wa niku-wo *taira-ni* tatai-ta      Jap. (Kageyama 1996: 242; Hasegawa 2000: 270)  
      she-TOP meat-ACC *flat*-NI<sup>2</sup> pound-PAST  
   b.\*Ku-nun sinpal-ul<sup>3</sup> talh-key<sup>4</sup> talli-ess-ta      Kor. (Wechsler & Noh 2001: 408)  
      he- TOP shoes- ACC threadbare-COMP run-PAST-DEC  
   c.\*Gianni ha martellato il metallo *piatto*      Ital. (Napoli 1994: 3565)  
      Gianni has hammered the metal<sub>masc.</sub> *flat*<sub>masc.</sub>  
   d.\*Jean a tiré sa cravate *serrée*      Fr. (Washio 1997:29)  
      John has tugged his tie *tight*

<sup>1</sup> The subject matter of this paper has been presented in part at the conference “*Grammatik der Zukunft – Zukunft der Grammatik*”, Munich, Feb. 12-13, 2015. I am grateful to the discussants.

<sup>2</sup> The particle ‘-ni’ is used for adjectives as nominals, while ‘-ku’ is used with those in the canonical adjective category (Uehara et al. 2001).

<sup>3</sup> A grammatical version of this sentence is ‘Ku-nun [sinpal-i<sub>Nom</sub> talh-key/-torok] talli-ess-ta.’ In this case, the resultative is clausal, with an absent copula: ‘He runs to the effect that his shoes are threadbare’. This is signaled by the nominative and the alternation of ‘-key’ and ‘-torok’, which combines only with resultative clauses.

<sup>4</sup> “The suffix -key, glossed as a complementizer in the above examples, is also used to derive adverbs.” (Wechsler & Noh 2001:411).

d.\*Ona mylila men'a *skolzkim*

Russ. (Strigin 2004: 5)

She soaped me *slippery*

The contrast is particularly robust for those instances of resultatives that Washio (1997) terms ‘strong resultatives’. ‘Weak resultatives’ are manner-like resultative adjuncts. As illustrated by (2a,b), ‘weak’ resultatives may be questioned like manner adverbs. When resultatives happen to be claimed for Japanese, Korean or Romance, these are ‘weak’ resultatives. The marks in table 1 refer to uncontroversial instances of resultatives, i.e. ‘strong’ resultatives.

- |  |                         |                      |
|--|-------------------------|----------------------|
| (2) a. <i>How</i> did he tie his shoelaces?  | – Tight/tightly!        | ‘weak’ resultative   |
| b. <i>How</i> did he paint the railing?      | – Pink!                 | ‘weak’ resultative   |
| c. <i>How</i> did the jockey race the horse? | – Dead! (*resultative)  | ‘strong’ resultative |
| b. <i>How</i> did she shake him?             | – Awake! (*resultative) | ‘strong’ resultative |

The literature on explaining the absence of resultatives in certain languages contains ambitious as well as less ambitious proposals. The less ambitious ones note the difference but do not attempt to correlate it. Goldberg (1995:1-2) and Jackendoff (1997: 558) treat the resultative construction as a “theoretical entity”, that is, an individual property of languages. For Cormack & Smith (1999), resultative and depictive adjectives are asymmetric conjuncts, conjoined by a covert conjunction that provides the appropriate semantic relation. Some languages lack the covert resultative conjoiner. Beck & Snyder (2001) and Beck (2005) postulate a [+R] parameter<sup>5</sup> as an unanalyzed resultative parameter. Kratzer (2005) notes that predicative adjectives are inflected in Romance languages but uninflected in German and hypothesizes that this might block resultatives in Romance. What this guess fails to appreciate is the fact that, for instance, Scandinavian languages inflect resultative adjectives (Whelpton 2007).

More ambitious proposals are Talmy’s (1985, 1991, 2000) framing typology<sup>6</sup> and Snyder’s (2001) compounding parameter. Talmy draws a distinction between ‘verb-framing’ (3a,c) and ‘satellite-framing’ languages (3b,d). In the former type, the verb denotes the resultative process (e.g. crossing, entering); in the latter type, the satellite specifies the resulting situation.

- (3) a. Elle *traversa* la rivière à la nage (Fr.) - *Atravesó* el río a nado (Sp.)<sup>7</sup>  
she crossed the river in a swim
- b. She swam *across* the river – Sie schwamm *über den Fluß* (Ger.)
- c. Il *entra* en courant (Fr.) - *Entra* corriendo (Sp.)  
he comes-in as running
- d. He ran *in and out* – Hij loopt *in en uit* (Dutch) – Er rannte *herein und hinaus* (Ger.)

What Talmy calls ‘verb-framed’ is not so much the setting of a potential parameter but rather the response to a grammatical deficit. If in a given language, adjectives or PPs cannot be licitly employed for indicating the resultant state or location, a verb is used to indicate the *result* state (*enter, leave, traverse, ...*) and an additional expression specifies the *manner* or direction.

<sup>5</sup> Beck (2005:22) focuses primarily on resultative PPs: “Goal PP constructions are complex predicates in (+R) languages. They denote accomplishments in (+R) languages, but not in (-R) languages.”

<sup>6</sup> “the world’s languages generally seem to divide into a two-category typology on the basis of the characteristic pattern in which the conceptual structure of the macro-event is mapped onto syntactic structure. To characterize it initially in broad strokes, the typology consists of whether the core schema [framing event] is expressed by the main verb or by the satellite.” Talmy (2000: 221)

<sup>7</sup> Thanks to Matthias Heinz and Bernhard Pöll for providing me with Italian and Spanish data, respectively.

‘Verb-framing’ merely means paraphrasing something that cannot be expressed by means of resultatively interpretable items employed in other languages. Hence it is not surprising that the ‘verb framing’ option is available in ‘satellite-framing’ languages as well (4).

- (4) a. Er schwamm über den Fluss - Er *überquerte* den Fluss *schwimmend* (Ger.)  
       he swam across the river – he *crossed* the river *swimming*  
   b. Er *hinkte* durch die Passkontrolle – Er *passierte* die Passkontrolle *hinkend*  
       he limped through the border control – he *passed* the border control *limping*  
   c. Er bügelte den Stoff *trocken* – Er *trocknete* den Stoff *durch Bügeln*  
       he ironed the cloth *dry* – he *dried* the cloth *by ironing*

Under the account to be presented here, ‘satellite-framing’ merely means that the grammar of a given language admits adjectives, particles or goal-denoting PPs with motion verbs as ‘satellites’. ‘Verb-framing’ means that languages which lack these means allocate alternatives for expressing the same communicative content (cf. Searle’s “Principle of Expressibility”).<sup>8</sup>

If there existed a genuine ‘framing’ parameter, resultative concepts would come in two complementary varieties, cross-linguistically. This is not true, however, since verb-framing is always an option in satellite-framing languages, too, but not vice versa. Verb-framing is the response to a grammatical restriction whose grammatical basis is structural, as will be shown.

Snyder (2001: 328) proposes a ‘compounding parameter’. “The grammar {disallows\*, allows}<sup>9</sup> formation of endocentric compounds during the syntactic derivation. [\* = unmarked value]” He contends that “across languages, the availability of complex predicates (as found in English) should pattern closely with the availability of productive root compounding (e.g. N-N compounding).”

Even if the correlation may turn out to be empirically accurate it remains mysterious since the complex predicates are not compounds, contrary to Snyder’s assumption. His argument rests on the occurrence of cluster-internal resultative adjectives in Dutch verbal clusters, which apparently defy the non-intrusion property of verbal clusters. However, verbal clusters are not *word-level* compounds but *syntactic* units consisting of clustered lexical items (‘verb clusters’). For a more detailed discussion see section 3. In the absence of any theory that connects compounding in word formation and verb clustering in syntax,<sup>10</sup> the correlation remains a potentially accidental or at least highly indirect correlation.

## 2. Towards a generalization

Languages that admit *resultative adjective* constructions are languages with complex verbal predicates, that is, particle verbs or serial verbs. Serial verbs combine two verbs into a verbal predicate. Particle verbs consist of a particle plus a verb. In both cases, the complex verbal predicate is a syntactic unit and not a morphological one (i.e. a compound). This shows, for instance, when one of the item is syntactically displaced and the other gets stranded thereby.

<sup>8</sup> “What can be meant can be said” (somehow).

<sup>9</sup> Let’s note that this is only a description of the *effect* a parameter, but not the parameter itself. The parameter would have to be formulated in terms of the specific grammatical setting that produced this effect.

<sup>10</sup> Clustering is a general property of languages with head-final VPs (Haider 2013).

The following table once again lists the sample of language families and individual languages from table 1, amended with the information on particle verbs. It corroborates a generalization. All languages with particle verbs are languages with resultative adjective constructions. Languages or language families without resultative particle verbs do not display resultative adjectives unless they are languages with serial verb constructions (e.g. Chinese), see Table 2.

Table 2: Correlation – languages with particle verbs are languages with resultative adjectives

	GERMANIC	Hungar.	Latvian	Persian	Japanese	Korean	ROMANCE	SLAVIC	Chinese
V & prtc.	✓	✓	✓	✓	✗	✗	✗	✗	<i>serial v.</i>
Res. adj.	✓	✓	✓	✓	✗	✗	✗	✗	✓
Dep. adj.	✓	✓	✓	✓	✓	✓	✓	✓	✓

The claim to be defended is this. The grammatical setting for resultative particle verbs is sufficient for providing the structural means for a resultative adjective construction. The latter construction gets a ‘free ride’ on structures provided by the former construction, namely a resultative *complex-predicate* structure. A resultative adjective is an adjective + verb construction that is a structural variant of the particle + verb construction. If a grammar makes particle verb constructions available, the grammar thereby provides a structure that is instrumental for resultative adjectival constructions as well.

(5) [... [[X°] [V°]]<sub>V°</sub> ...]<sub>VP</sub><sup>11</sup>      X° ∈ particle or adjective (or verb)

The relevant structure in (5) is a complex verbal head. It is the head-to-head adjunction structure well-known from particle verb constructions. The complex verbal head in (5) is a syntactic complex resulting from head-to-head adjunction of independent head-level elements. Crucially, it is not a word formation compound, that is, a morphologically complex unit. In other words, a compound is a complex *word*, while a particle verb is a syntactically complex *head* of a VP. Since morphological compounds are single words, they cannot be disintegrated by syntactic processes. Complex verbal heads such as particle verbs can be split if the verb gets displaced, with concomitant standing of the particle. Stranding of particles or resultative adjectives betrays their status as independent syntactic units.

In English, particles are found in two positions within the VP, namely in the pied-piped position (6a) and the stranded position (6b). In German,<sup>12</sup> particles are stranded only by V2 (6c), but they are pied-piped by topicalization (6d,e):

- (6) a. She [*sent up*] a drink to him  
 b. She *sent*<sub>i</sub> him [*e<sub>i</sub> up*] a drink  
 c. Er *stellte*<sub>i</sub> einen Pfahl *auf* *e<sub>i</sub>* (Ger.)  
     he put a pole up  
 d. [*Aufhängen*] darf er das Poster nicht  
     up-hang may he the poster not  
 e. \**Hängen*<sub>i</sub> darf er das Poster nicht auf-*e<sub>i</sub>*  
     put may he the poster not up

<sup>11</sup> The relative serialization of the verb and the resultative item depends on the directionality of the head. In VO, the order is V + resultative; in OV it is resultative + V.

<sup>12</sup> As for German, the structural parallels between resultative adjectives and resultative particles have been discussed by Chang (2008) in a construction-grammar approach.

Structurally, the distribution of resultative adjectives is completely parallel to the distribution of resultative verbal particles (7). Even though pied-piping (7c-g) is less frequent for resultative adjectives in comparison to resultative particles, it is well-attested in corpora.

- |     |  |                     |
|-----|--|---------------------|
| (7) | a. They <i>cut</i> it <i>open</i>  | (BNC) <sup>13</sup> |
|     | b. Jung <i>threw</i> everything <i>open</i> to reflection and inspection | (BNC)               |
|     | c. She [ <i>threw open</i> ] the lid dramatically                        | (BNC)               |
|     | d. [ <i>Cut open</i> ] the chillis and remove the seeds                  | (BNC)               |
|     | e. They [ <i>shot dead</i> ] the station director                        | (BNC)               |
|     | f. He will [ <i>set free</i> ] the oppressed                             | (CoCA)              |
|     | g. Then they [ <i>cut loose</i> ] the craft                              | (CoCA)              |

The pied-piped position of the resultative adjective in (7c-g) is a strong indicator for the structure sketched in (5). In English, and in fact in all Germanic SVO languages, a direct object DP must be adjacent to the lexical verb. The only licit interveners are items that belong to the verb, that is, particles and resultative adjectives. A depictive adjective or an adverbial is not admitted in this position.

An immediate theoretical consequence of this fact is the following. It straightforwardly rules out a competing analysis for resultative adjectives, namely a small-clause analysis (see Stowell 1983, Hoekstra 1988, 1992a, 1992b, Den Dikken 1995), as alternative to the complex-predicate analysis. As a phrasal constituent, the resultative small clause would be an illicit intervener in (5). There is no room for phrasal items between the verb and one of its nominal objects (cf. 9b). The following section adduces a set of independent facts that render small-clause analyses highly implausible.

### 3. Theoretical issues

In the research literature, the two rival accounts of resultative constructions still co-exist. The resultative expression is either considered to be part of a complex predicate consisting of the verb and the resultative item (e.g. Larson 1988, Dowty 1979, Neeleman 1994, Winkler 1997, Müller 2002; Neeleman & Van de Koot 2002), or it is analyzed as the predicate of a ‘small clause’ (SC) construction (e.g. Stowell 1983, Hoekstra 1988, Mateu 2001). A ‘small clause’ groups the result predicate together with the target of predication in a subject-predicate constituent (8a). The complex predicate (8b) joins the verb and a resultative predicate into a complex predicate.

- |     |   |                                 |
|-----|---|---------------------------------|
| (8) | a. [..... [DP Pred] <sub>SmallClause</sub> .... ]   | small clause analysis           |
|     | b. [..... DP [Pred V <sup>o</sup> ] <sub>Compl.pr.</sub> ....]  | complex predicate analysis (OV) |
|     | c. [..... [V <sup>o</sup> Pred] <sub>Compl.pr.</sub> DP ....]   | complex predicate analysis (VO) |
|     | d. [..... V <sup>o</sup> <sub>i</sub> DP [e <sub>i</sub> Pred] <sub>Compl.pr.</sub> ....] <sup>14</sup> | complex predicate analysis (VO) |

Counter-evidence for the small-clause analysis is strong enough for excluding it as a main-tenable account on empirical grounds. The SC analysis fails in several independent areas.

First, it rules out pied-piped resultative items that are instances of (8d),<sup>15</sup> illustrated by (7c-g), since a SC would not be able to intervene between the verb and its direct object. (9b) is cor-

<sup>13</sup> BNC = British national corpus; CoCA = Corpus of contemporary American.

<sup>14</sup> The same structure is needed for particle verbs, e.g. cut off, as in: He cut<sub>i</sub> the rope [e<sub>i</sub> off].

rectly predicted to be ungrammatical, but (9d) would be wrongly ruled out for the same reason. The adjectival head of the small clause could not intervene between the verb and the subject of the small clause that receives its case from the verb. Hence, (7c-g) ought to be unacceptable.

- |     |   |                                    |
|-----|---|------------------------------------|
| (9) | a. She drinks her coffee <sup>i</sup> [ <sub>SC</sub> PRO <sup>i</sup> black] | depictive adjective; SC analysis   |
|     | b. *She drinks <i>black</i> her coffee  | depictive adjective; SC analysis   |
|     | c. She cut [ <sub>SC</sub> the vanilla bean open]                             | resultative adjective; SC analysis |
|     | d. She cut <i>open</i> the vanilla bean                                       |                                    |

If fronting the predicate of the SC were possible in or out of the SC, both types would have to pattern alike which they evidently don't. In each case, there would be no grammatical excuse for fronting the predicate of the small clause.

Second, the SC analysis fails in OV languages. While it under-generates for (9d) in English by ruling it out, it over-generates in OV languages such as German. It would admit patterns such as (10b), although (10b) is unacceptable. In the SC analysis, nothing would prevent an adverbial PP to intervene between the small clauses in (10a,b). (10a) and (10b) should pattern alike. In the complex predicate analysis, the resultative adjective is part of the verbal cluster in Dutch or German, and the verbal cluster is compact, that is, it does not tolerate interveners. This rules out (10b).

- |      |   |                                    |
|------|---|------------------------------------|
| (10) | a. Das Ei hätte er <i>roh</i> unter keinen Umständen gegessen     | <i>depictive</i> adjective         |
|      | the egg would-have he <i>raw</i> under no circumstances eaten     |                                    |
|      | b. Das Glas hätte er <i>leer</i> unter keinen Umständen getrunken | * <i>resultative</i> adjective     |
|      | the glass would-have he <i>empty</i> under no circumstances drunk | (ok as <i>depictive</i> predicate) |

Third, the SC analysis wrongly predicts that intransitively used verbs with resultative SCs (11c-e) in participial adnominal attributes are as unacceptable as their counterparts without a SC (11a-c).

- |      |  |
|------|--|
| (11) | a. *das geweinte Taschentuch                         |
|      | the cried handkerchief                               |
|      | b. *die gehämmerten Nachbarn                         |
|      | the hammered neighbors                               |
|      | c. *die gefischten Ozeane                            |
|      | the fished oceans                                    |
|      | d. das [(von ihr) nass geweinte] Taschentuch         |
|      | the [(by her) wet cried] handkerchief                |
|      | e. die [(von uns) wach gehämmerten] Nachbarn         |
|      | the [(by us) awake hammered] neighbors               |
|      | f. die [(von Trawlerflotten) leer gefischten] Ozeane |
|      | the [(by trawler-flotillas) empty fished] oceans     |

<sup>15</sup> In addition to resultative adjectives, pied-piping may apply to PPs with lexicalized complex predicates as in:

- i. "The Third cut *to pieces* the Nazi forces in the Saar-Palatinate region."  
[N.Y. Times; obituary for Gen. Patton, Dec. 22, 1945]
- ii. "and slashed *to ribbons* the royal army on the coast."  
[N.Y. Post, Oct. 31, 1948; on the Seven-Day War].

Past participle formation turns a transitive or intransitive verb into an unaccusative verb form by blocking the original subject argument (Haider 2010:348). Hence, intransitive verbs are deprived of their single argument slot and cannot function as an adnominal adjective (11a-c) anymore. Consequently, according to the SC analysis, the participles in 11(d-f) would be deprived of their only argument since neither the SC subject nor the SC itself is an argument of the verb. In the competing analysis, the complex predicate consisting of the verb and the adjective is a transitive predicate (see Müller 2006, sect. 5.2).

The full acceptability of (11d-f) indicates that the argument introduced by the resultative predicate is treated as an argument of the complex predicate headed by the verb. The intransitive versions of ‘weinen’ (to cry), ‘hämmern’ (to hammer) or ‘fischen’ (to fish) end up as heads of a transitive complex predicate. Participle formation treats the direct object of the complex predicate like a genuine direct object of the head verb of the complex. In the small clause analysis, the verb would stay intransitive and the participial construction would be ungrammatical, with or without a small clause.

Fifth, the SC analysis misses the essential cross-linguistic generalization. Since in the SC analysis both, the depictive as well as the resultative adjective construction, involve an SC, languages that admit one construction are expected to admit the other as well. The structure available for depictives would be the structure that suffices for resultatives as well. Table 1 clearly shows that the empirical situation is different. In English or German, (12a,b) is systematically ambiguous, in other languages, only a depictive reading would be admitted.

- (12) a. They raced their horses [PRO sweaty]<sub>SC</sub>                      depictive or resultative  
       b. They cooked the chicken [PRO dry]<sub>SC</sub><sup>16</sup>                    depictive or resultative

Sixth, the SC analysis is incompatible with the fact that resultative adjectives may intrude verbal clusters (13a) and pattern parallel to resultative particles (13b). In the Dutch verbal cluster there would be no room for a small clause, however.

- (13) a. Als je elk moment door politie kunt worden opgepakt en zonder vorm van proces  
       [kunt worden *dood of beurs* geslagen], dan heb je geen leven meer (Hoeksema 2015)  
       if you every moment by the police can be arrested and without any form of court-  
       procedure [may be *dead or bust* beaten], then have you no life any-more  
       b. dat er een medicijn [kan worden *uitgevonden*]  
       that there a drug [can be out-found]  
       ‘that there can be invented a drug’

Seventh, in OV languages, not only single verbs but whole verb clusters may be nominalized (Haider 2013: 207-10). For Dutch and German, nominalizing a verb entails a switch from a clause-final into a clause-initial head, viz. the head of an NP. Crucially, a resultative adjective becomes a part of the nominalized cluster (14). This would be impossible for a small clause since a full phrase cannot be integrated by the word structure. Moreover, the resultative particle is obligatorily part of the cluster. If it is stranded, the expression is ungrammatical; see (14) in comparison to (15a,c).

- (14) a. het [doodslaan van robben]                      Du.

<sup>16</sup> Be aware that the bracketed structure is assigned merely for expository reasons in these example sentences.

- the deat-beat<sub>Inf.</sub> of seals
- b. het [leegpompen van een tank]  
the empty-pump<sub>Inf.</sub> of a tank
- c. das [Totschlagen von Robben]      Ge.  
the dead-beat<sub>Inf.</sub> of seals
- d. das [Leerpumpen eines Tanks]  
the empty-pump<sub>Inf.</sub> a<sub>Gen.</sub> tank<sub>Gen.</sub>

Noun-phrases are head-initial constructions in Dutch and German. ‘Nominalization’ of infinitives is merely a category conversion. The category V° is replaced by the category N°. Since nouns, unlike verbs, do not form clusters, category conversion applies only to the root V° category of the cluster (14). So, the resultative adjective cannot be stranded (15).

- (15) a. \*het [pompen van een tank *leeg*]      Du.  
the pump<sub>Inf.</sub> of a tank empty
- b. Hij pompt een tank *leeg*  
he pumps a tank empty
- c. \*das [Pumpen von Tanks *leer*]      Ge.  
the pump<sub>Inf.</sub> of tanks empty
- d. Er pumpt Tanks *leer*  
he pumps tanks empty

Depictive adjectives cannot be part of a nominalized cluster:

- (16) a. das [Leerräumen des Verstecks]  
the empty-clear<sub>Inf.</sub> the hiding-place<sub>Gen.</sub> (‘the clearing empty of the hiding-place’)
- b. \*/?? das [Leerfinden des Verstecks]  
the empty-find<sub>Inf.</sub> the hiding-place<sub>Gen.</sub> (‘the finding the hiding-place empty’)
- b. \*/?? das [Kaltessen seines Steaks]  
the cold-eat<sub>Inf.</sub> of his steak (‘eating his steak cold’)

Eighths, the patterns of verbs with resultative adjectives are structurally parallel to the patterning of verbs with resultative particles. There can be hardly any doubt that these adjectives and particles are part of a verb cluster,<sup>17</sup> that is, a syntactically complex verb. The particles of resultative particles verbs do not head a small clause and the resultative adjectives do not head one either.

#### 4. Empirical issues

As has been noted in the research literature, the resultative adjective construction and the depictive construction differ syntactically in many respects. These properties follow from the complex predicate structure, but not from an SC analysis. The following grammatical properties will be examined in detail in this section.

<sup>17</sup> Additional independent evidence comes from nuclear stress assignment. The stressed word is underlined:

i. Er singt gerade einen Saal leer (neutral)      – Er singt gerade einen *Saal* leer (narrow focus only)

ii. Er isst gerade ein Steak roh (narrow focus only)      – Er isst gerade ein Steak roh (neutral)

Neutral nuclear stress rests on the head of the most deeply embedded phrase. In (i), the neutral nuclear stress rests on the object, since ‘leer’ is part of the VP-head, i.e. the verbal cluster. In (ii), the neutral nuclear stress rests on the adjective, since this is the head of the most deeply embedded phrase, namely the depictive AP.

- *Serialization*: as discussed in the preceding section, result predicates may occur in positions which are barred for depictive predicates, in particular, they may ‘intrude’ in otherwise compact syntactic structures;
- *Singularity*: depictive adjectives may be iterated; for a resultative predicate there is a singularity restriction, viz. one per clause.
- *Direct object restriction*: the result predicate relates to only to direct objects or subjects that are promoted objects, as observed first by Simpson (1983).<sup>18</sup>
- *Transitivizing*: the resultative construction may ‘add’ a genuine object argument to an intransitive verb.
- *Resultative semantics*: where does the appropriate semantics come from?
- *Nominalization* of verbs in combination with resultative adjectives

#### 4.1 Resultative adjectives as singletons

Depictive adjectives are not restricted to a single occurrence per clause; for a resultative predicate, on the other hand, there is only room for one per clause (17).<sup>19</sup> Neither ‘*müde*’ (tired) in (17a) nor ‘*kaputt*’ (bust) in (17b) can receive the resultative reading it could get in the absence of ‘*nieder*’ (down) or *fertig* (ready), respectively. The only reading they can get is a (pragmatically odd) depictive reading.

- (17) a. Er hat sie alle *müde*<sub>[\*resultative]</sub> *niedergeredet*  
           he has them all *tired down-talked*  
       b. Sie hat das Bild *kaputt*<sub>[\*resultative]</sub> *fertig* restauriert  
           she has the painting *bust polished* restored

Depictive predicates are secondary predicates. Since there is no grammatical selection relation for them, there is no number restriction just like there is no grammatical restriction for the number of adverbs per clause or the number of adnominal attributes per NP. Resultative predicates on the other hand are restricted in at least three respects. First, they come as singletons, second, they relate only to direct objects; and third they depend on verbs, with which they form a complex predicate. These are three facets of the same property, namely the property of being part of a complex predicate, as will be shown.

Tenny (1987, 1994) tries to cover data such as (17) by a constraint on the semantic structure, viz. by a ‘single-delimiting constraint’: “The event described by a verb may only have one measuring-out and be delimited only once” (Tenny 1994:79). The constraint is to cover data such as (18).

- (18) a. \*Martha wiped the table<sup>i</sup> dry<sup>i</sup> clean<sup>i</sup> (Tenny 1994: 80)  
       b. \*John washed the clothes<sup>i</sup> clean<sup>i</sup> white<sup>i</sup> (Tenny 1994: 154)

In fact, the examples in (18) merely exemplify that there is no room for more than one resultative adjective, but Tenny’s constraint is in fact more general. It would not only cover adject-

<sup>18</sup> As a consequence, if a resultative adjective is to relate to the subject, a reflexive as a pseudo-object is employed which in turn is bound by the subject. As a consequence the resultative indirectly relates to the subject: ‘Er lacht sich krank’ (He laughs himself sick); ‘Er lacht krank’ (He laughs sick) is not resultative but depictive.

<sup>19</sup> Example: ‘He ate his steak *raw drunk*’ – ‘Er aß sein Steak *betrunken roh*’ (Ger.); see Haider (1997) – He ate the meat *thinly cut raw* – Er aß das Fleisch *dünn geschnitten roh* (cf. the *thinly cut raw* meat – das dünn geschnittene rohe Fleisch)

tives, but also resultative particles and PPs. The examples in (19) contradict Tenny’s semantic constraint. (19a), for instance, says that everything is bust *and* has ended up in small pieces.

- (19) a. *Kaputt* gehackt hat er alles *in kleine Stücke*  
 bust-chopped has he everything into small pieces  
 a. *Wegespült* hat sie alles *in den Ausguss*  
 away-rinsed has she everything into the gutter

The grammatical causality behind (17) and (18) is not semantical; it is a *structural* restriction. In a complex predicate, there is no room for more than one resultative adjective or resultative particle or a combination of both. A resultative PP, on the other hand, would not be part of the cluster, whence the acceptability of (19).

The following observation provides independent evidence. A resultative adjective does not combine with particle verbs even if the particle is not resultative, that is, it would not be an additional delimiter. This indicates that a particle verb does not combine with a resultative in forming a verbal cluster. The semantic quality of the particle – resultative or not resultative – is irrelevant (20b).<sup>20</sup>

- (20) a. Sie haben nichts *kaputt* gereinigt/renoviert/restauriert (Ger.)  
 they have nothing *bust*<sub>[resultative]</sub> cleaned/renovated/restored  
 b. Sie haben nichts *kaputt*\*<sub>[resultative]</sub> *vorgereinigt/nachrenoviert/mitrestauriert*  
 they have nothing bust *pre-cleaned/re-renovated/joint-restored*  
 c. Sie haben die Ozeane *leer*\*<sub>[\*resultative]</sub> *weitergefischt*  
 they have the oceans *empty* further-fished  
 ‘they kept on fishing the oceans empty’  
 d. Sie haben die Ozeane *weiter leer* gefischt  
 they have the oceans *further empty* -fished  
 ‘they kept on fishing the oceans empty’

The resultative reading for the adjective ‘kaputt’ (bust) in (20a) is not available anymore once a (non-)resultative particle is combined with these verbs (20b). Semantically, (20c) would be straightforward: keep on fishing until the oceans are empty. However, the resultative reading is barred. In (20d), ‘weiter’ is used as an adverbial with the reading that is unavailable for (20c).

The structural constraint that rules out a resultative adjective in combination with a particle verb must be sought in the process of amalgamating the argument structures of the resultative item and the base verb. There is no general restriction against multiple-particle verbs (21a), and the V-adjacent particle may be a resultative particle. The restriction is more specific. It only blocks the combination of a *resultative* particle and a verb that already has a particle (21b):

<sup>20</sup> This does not rule out that there may exist additional, semantic constraints that are responsible for blocking complex predicates consisting of a predicative adjective combined with a resultative verb (see Hoekstra 1992a: 165; Abraham 2013:139): ‘zerschneiden’ = to cut up something; ‘besaufen’ – to liquor up oneself

i. Er (\*zer-)schnitt den Stoff kaputt                      ii. Es (\*be-) soff sich ins Grab  
 he (PREF-)cut the cloth bust                      he (PREF-)boozed himself into the grave

Note that these verbs are not particle verbs. The prefix is a word formation prefix and cannot be split off.

- (21) a. [mit [*aus* [packen]]], [vor [*ein* [checken]]], [um [*ein* [teilen]]], [nach [*zu* [stellen]]]  
 b. \*[weg [ein [stecken]]], \*[*aus* [vor [machen]], \*[ab [nach [machen]]]

The examples in (21b) are clearly deviant, but it is not immediately evident what rules out these structures. Descriptively speaking, the resultative adjective must be a sister of the verbal head, but why? The key for understanding this restriction is the management of argument structure in the complex predicate (sect. 4.2). The resultative adjective and the verb share an argument. The shared argument is either the direct object of the verb (sect. 3.3) or the argument of the resultative adjective or particle (sect. 3.2). This specific symmetry relation requires a symmetric structural relation, namely the sister relation of the argument-sharing heads in the cluster. If an argument A of a predicate P<sub>1</sub> is shared with a predicate P<sub>2</sub>, then P<sub>2</sub> shares an argument B with P<sub>1</sub>, and B = A.

#### 4.2 Transitivity

In a resultative construction, the resultative may ‘transitivize’ an intransitive verb. The argument introduced by the resultative becomes the direct object of the complex predicate and is syntactically treated like the direct object of the verb:

- (22) a. Er hustete alles *herauf/heraus/fort/nass*  
           he coughed everything *up/out/away/wet*  
 b. Er wischte alles *hinunter/weg/trocken*  
           he wiped everything *down/away/dry*

‘Husten’ (cough) is an intransitive verb. ‘Wischen’ (wipe) is transitive, but the object of ‘*wipe down*’ or ‘*wipe away*’ in (22b) is not the typical theme-argument of ‘wipe’, as in ‘*wipe the floor*’.<sup>21</sup>

The transitivity effect is a consequence of compositional theta management in the complex predicate. The theta grid of the resulting complex predicate is the aggregate of the theta grid of the verbal head plus the external argument of the joined resultative adjective or particle. Neeleman & Van de Koot (2003, sect. 4.2) describe in detail the compositional theta management in terms of ‘*delayed mapping*’ and ‘*theta copying*’. A complex predicate (cf. 23d) is a projection of the verbal head (23a). Hence the resulting structure is a V° category, due to head to head merger. The mapping of the theta grid of the verbal head is ‘delayed’. The external theta role of the resultative is ‘copied’ into the theta grid of the complex predicate.

- (23) a. cough<sub>V°</sub> : <θ<sub>1</sub>>  
       b. wet<sub>A°</sub> : <θ<sub>2</sub>>  
       c. out<sub>P°</sub> : <θ<sub>2</sub>>  
       d. [cough<sub>V°</sub> wet<sub>A°</sub>]<sub>V°</sub> , [cough<sub>V°</sub> out<sub>P°</sub>]<sub>V°</sub> : <θ<sub>1</sub>, θ<sub>2</sub>>

If the verb already has a direct object argument as in ‘*wipe dry*’, the argument of the resultative and the argument of the verb are unified as the single direct object argument of the complex predicate. If the verb does not provide an object argument as in ‘*cry wet*’, the argument provided by the co-predicate becomes the argument of the complex predicate. Syntactic pro-

<sup>21</sup> The semantic difference becomes particularly clear in the following example of a current fuel company’s ad:

i. Tanken Sie ihren Motor *sauber* (‘Tank-up your motor *clean*’)

The communicated message is resultative: “*Clean* your motor by tanking this fuel.”



guage but only in a subset. The absence of a resultative construal of adjectives in certain languages contrasts with the fact that every language has resultative verbs, that is, verbs that denote resultative processes. In other words, the result-relation is a universal feature of lexical semantics but not of compositional semantics. The answer is simplified greatly once the correlation with resultative particle verbs is acknowledged. The answer can be reduced to the fact that resultative adjectives are handled on a par with resultative particles – same structure, same interpretation.

Whatever grammatical mechanism joins a particle with a verb into a complex predicate called ‘particle verb’ is a grammatical mechanism suited for joining an adjective and a verb into a resultative complex predicate.<sup>24</sup> This is the grammatical causality behind the generalization in section (2). If the language has resultative particle verbs, it will admit resultative adjectives. The resultative particle verbs pave the way, both in terms of the necessary structure as well as the semantic interpretation.

It is easy to provide a paired list of verbs combined either with a resultative particle or a resultative adjective. (27) is sampled from German. For each pair, the first one is the resultative particle verb and the second one the resultative adjective plus verb.<sup>25</sup>

- (27) *ablösen* – *loslösen*, *abwischen* – *sauberwischen*, *anbinden* – *festbinden*, *ausbügeln* – *glattbügeln*, *ausdehnen* – *kaputtdehnen*, *auslaufen* – *leerlaufen*, *austräumen* – *leerräumen*, *austrinken* – *leertrinken*, *auswaschen* – *reinwaschen*, *einpacken* – *vollpacken*, *hinbiegen* – *geradebiegen*, *zufrieren* – *festfrieren*, ...

It is well-known by now (see for instance Boas 2000a, 2000b) that the set of adjectives found in resultative constructions is small and evidently much smaller than the set of adjectives that are used depictively:

- (28) a. He hammered the neighbors awake /??aggressive /??disoriented/??satisfied  
 b. He left the party sober / aggressive / disoriented  
 c. The puppy chewed the new slippers to tatters / ??worthless /??ugly/??unsellable  
 d. Claire painted the door red/?old/ \*invisible/\*broken [Boas (2000b), ex. 3a]

For a small-clause analysis, this is an embarrassment, as Boas (2000b) justly emphasizes. Small clauses are predicted to enter the same semantic relations as their ‘big clause’ variants, which is clearly not the case. The resultative interpretation that is unspectacular in (29) has no parallel in (28). The resultative semantics is not the unconstrained semantics of small clauses but the constrained semantics of complex verbs.

- (29) a. He hammered so that the neighbors became aggressive / disoriented /satisfied  
 b. The puppy chewed the new slippers so that they became worthless /ugly / unsellable  
 c. Claire painted the door so that it became red / invisible / broken

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i. The hunters chase the pack *hungry*

ii. The hunter chases the pack *if / although / therefore* it is hungry

<sup>24</sup> Booij (2002a,b) argues that Dutch particle verbs are lexical items that display a phrasal structure but behave functionally as complex words. In his opinion this is a case of “periphrastic word formation”.

<sup>25</sup> Note that the orthographic conventions of German treat the combination of resultative adjective plus verb as a single item, just like the combination of the verb with a separable particle.

Boas (2000a) counted the frequency of resultative adjectives in the BNC and it turned out that the set of adjectives with a token frequency greater than one contains not more than twenty one adjectives. Taken together, these properties resemble the properties of particle verbs as syntactically complex lexical units.

#### 4.5 Nominalization of verbs in combination with resultative adjectives

In German (and in other Germanic languages as well), the infinitival form of a verb can be used as a noun. In other words, there is a word formation process of conversion that converts the category from V° into N°. This conversion applies to simple (30a) as well as participle verbs (30b) and to whole verbal complexes (30c); see Haider (2010:321, 2013:207-210).

- (30) a. das Nominalisieren eines Verbs / von Verben  
       the [nominalize<sub>Inf</sub>]<sub>N°</sub> a verb<sub>Gen.</sub> / of verbs – ‘the nominalizing of a verb / of verbs’  
       b. das Wegwerfen von Müll / des Mülls  
       the [away-cast<sub>Inf</sub>]<sub>N°</sub> of litter / the litter<sub>Gen.</sub> – ‘the dumping of litter’  
       b. das Einsammelnmüssen von Müll  
       the in-gather<sub>Inf</sub>-must<sub>Inf</sub> of litter – ‘the obligation to collect litter’

Again, adjectival resultatives (31a,b) are structurally parallel to resultative particles (31a,b) also in this respect. They are part of the verbal complex and therefore they end up as parts of the nominalized complex verb or verbal complex.

- (31) a. das Aufreißen des Kuverts – \*das Reißen des Kuverts *auf*  
       the *up-rip*<sub>Inf</sub> the envelope – the *rip*<sub>Inf</sub> the envelope up  
       ‘the *tearing open* of the envelope’  
       b. das Auswickeln des Bonbons – \*das Wickeln des Bonbons *aus*  
       the *out-wrap*<sub>Inf</sub> the bonbon<sub>Gen.</sub> – the *wrap* the bonbon out  
       ‘the unwrapping of the bonbon’  
       b. das Geradebiegen des Rohres – das Biegen des Rohres (\**gerade*)  
       the straight-bend<sub>Inf</sub> the pipe<sub>Gen.</sub> – the *bend*<sub>Inf</sub> the pipe  
       ‘the straightening of the pipe’  
       c. das Flachklopfen des Klumpens – das Klopfen des Klumpens (\**flach*)  
       the flat-beat<sub>Inf</sub> the lump<sub>Gen.</sub> – the *beat*<sub>Inf</sub> the lump  
       ‘the beating flat of the lump’

Evidently, if the resultative items were parts of small clauses, the small clause as a phrasal category could not take part in a process that applies to word level categories only. The fully acceptable nominalizations would be predicted to be as unacceptable as the starred examples in (31).

### 5. On the grammatical context of the prediction

#### 5.1. The case of Italian - some particle verbs, but no resultative adjectives

The preceding sections have focused on the structural parallels between particle verbs and verbs combined with resultative adjectives. This section briefly reviews the relevant grammatical features involved and how they interact. Italian is instructive in this respect. Iacobini and Masini (2007:158) show that Italian has developed a number of particle verbs. Nevertheless it

does not admit resultative adjectives. The verbs in (32) appear to be immediate counterparts of resultative particle verbs in Germanic languages. In addition, dictionaries list verbs with a preposition as prefix such as *involtare* (wrap in), *incartare* (wrap in (paper)) in colloquial usage.

(32) *portare via* (take away), *buttare giù* (throw down), *mettere sotto* (put under);

What is crucially missing in Italian, though, is a productive pattern of particle-verb formation with a sizeable set of particles that combine with a large class of verbs, as for instance in English or German:

- (33) a. put *back/down/forward/in/off/on/over/through/up*  
 b. *zurück/hinunter/vor/ein/ab/an/über/durch*-stellen  
 c. cut *down*, kick *down*, push *down*, put *down*, shoot *down*, tear *down*, throw *down*, ...  
 d. *niederschneiden, niedertreten, niederstoßen, niederlegen, niederschießen, niederzerren, niederwerfen*, ...

Italian has not developed such a productive pattern, and it does not tolerate strong resultatives.

## 5.2. The case of Chinese – no particle verbs but serial-verb resultatives

In Table 1, the entry Chinese (cf. Chan 2002) stands for a subset of a large class of languages with resultative adjective constructions, namely the class of languages with serial verb constructions (cf. Aikhenvald & Dixon 2006). Serial verb constructions are widely attested in Southeast Asian languages such as Chinese, Hmong, and others (Aikhenvald 2006:24), and in many other linguistic areas of the world, too.

In his study on the emergence of the resultative constructions in the diachrony of Chinese, Shi (2002:1) characterizes resultative constructions as follows: “In Chinese, the resultative construction is a syntactic pattern consisting of a verb plus adjective or an intransitive verb.” “Syntactically, the pattern is productive, and the two elements form a single constituent like a compound verb.” For Shi (2002:156), the origin of a construction such as (34a,b) is the serial verb construction as illustrated by (34c,d).

- (34) a. 张三骑累了两匹马 (Zhang 2009:135)  
       Zhangsan *qi-lei-le* liang-pi ma  
       Zhangsan *ride-tired*-PERF two-CL horse  
       ‘Zhangsan rode two horses tired.’  
 b. 这件事真气死了张三  
       Zhe-jian shi zhen *qi-si* Zhangsan le  
       this-CL matter really *anger-dead* Zhangsan PERF  
       ‘This matter really angered Zhangsan to death.’  
 c. Ta *he shang* le ziji de wei (Yin 2011:129)  
       he *drink hurt* PERF self of stomach  
       ‘he got his stomach hurt by drinking’  
 d. Ta *he dao* le yizhuo ren  
       he *drink fall* PERF every one  
       ‘He drank everyone under the table’

Shi (2002:31) illustrates the productivity of this construction with resultative complex predicates formed with the verb ‘eat’ as the basis.

(35)

吃飽	<i>chi-bao</i>	“eat-full”
吃膩	<i>chi-ni</i>	“eat-bored”
吃病	<i>chi-bing</i>	“eat-sick”
吃胖	<i>chi-pang</i>	“eat-fat”
吃窮	<i>chi-qiong</i>	“eat-poor”
吃暈	<i>chi-yun</i>	“eat-dizzy”
吃瘦	<i>chi-shou</i>	“eat-thin”
吃累	<i>chi-lei</i>	“eat-tired”
吃吐	<i>chi-tu</i>	“eat-vomit”

The following examples from languages sampled from independent language families are to demonstrate that Chinese is not an exception in this respect. Ingram (2006: 218) provides pertinent information<sup>26</sup> on Dumo, and François (2006: 232) on Mwotlap.<sup>27</sup>

- (36) dehgho ye`ng [ghla pe] (Dumo, Papua New Guinea)  
 3NSG.CT banana 3NSGSU.roast done/cooked/’well-done’  
 ‘They roasted bananas well-done’
- (37) nēk [mi-tig mēlēmlēg] na-lo den kemem (Mwotlap, (Oceanic, Vanuatu)  
 2SG [PER-stand black] ART-sun from 1EXC:PL  
 (lit. You’re standing dark the sun from us)

Serial verb resultatives differ in an interesting way from the resultatives based on particle verb constructions, as has been noted in the literature (cf. Yin 2011). They are not subject to Simpson’s Object Constraint (see section 4.3). They may also relate to a transitive subject.

- (38) a. Ta (xi yifu) xi lei le (Yin 2011: 130)  
 he (wash clothes) wash tired PERF  
 ‘He got tired by washing clothes’
- b. Ta zou lei le  
 he walk tired PERF  
 ‘he got tired by washing clothes’

The grammatical causality of this property is easy to understand. In the serial verb construction, the verbs typically share the subject, and so the two predicates in the complex predicate of a resultative construction may share it as well. Thus, in these languages, the resultative adjective construction exhibits a feature that is typical of the construction that the resultative adjective construction is based on, namely the serial verb construction.

## 6. Summary

<sup>26</sup> “V2 can also be one of the stative, adjective-like predicates [...]” (Ingram 2006: 218).

<sup>27</sup> “[...] most of the time, the second verb V2 is a stative verb or an adjective, [...]” (François 2006:235).

1. A resultative adjective is part of a complex predicate, together with a verb. In structural terms, it is a verbal cluster in which an adjective is adjoined to the verb in a head-to-head adjunction structure:  $[A^\circ V^\circ]_{V^\circ}$ .
2. The resultative verbal cluster is a variant of the verbal cluster with a resultative particle:  $[P^\circ V^\circ]_{V^\circ}$ . This fact is the basis for the typological prediction that languages with resultative particle verbs are languages with resultative adjectives.
3. In OV languages, the cluster is verb final, that is, the resultative particle or adjective precedes the verb. It may be stranded by  $V^\circ$ -fronting. In V2-languages it is stranded when the finite verb is fronted.
4. In VO languages, the resultative particle or adjective follows the verb. In a complex VP with a VP-shell structure, the particle or adjective may be pied-piped or stranded, depending on the grammatical option in the given language. In languages like English, both options are available.
  - i.  $[V^\circ + A^\circ]_{V^\circ} DP$  e.g. cut *open* the chillis (cf. cut *up* the chillis)
  - ii.  $V^\circ_i DP [e_i + A^\circ]_{V^\circ}$  e.g. cut the chillis *open* (cf. cut the chillis *up*)
5. The resultative semantics of A+V predicates is parallel to, and facilitated by, the resultative semantics of particle+V predicates, that is, the semantics of a complex verbal predicate.
6. Cross-linguistically, there are at least two grammatical options for integrating adjectives into complex resultative predicates. One option is the structure provided by resultative *particle* verbs. The other option is provided by resultative *serial* verb constructions. In each case, the adjective enters a relation that is originally reserved for a particle or a dependent verb, respectively.
7. Languages that do not provide complex predicate structures, that is, resultative particle verbs or serial verbs, do not admit resultative adjectives.

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