Complex predicates, eventivity, and causative-inchoative alternation

Abstract. The paper explores syntax and semantics of complex predicates in Ossetian, an Iranian language spoken in the Central Caucasus. Ossetian, being a language where complex predicates participate in the causative-inchoative alternation, offers us an opportunity to investigate a case where the alternation is blocked by telicizing prefixes if the non-verbal component is not eventive. To account for this effect, an analysis is developed in which eventive and non-eventive non-verbal components are integrated into the event structure in considerably different ways. Eventivity/non-eventivity determines different attachment options for telicizing prefixes, hence constrains the spell-out of the whole structure in different ways. As a consequence of this, for one class of complex predicates, but not for the other, both causative and inchoative prefixed configurations can be spelled out by the same lexical item, and the alternation obtains.

1. Introduction

Investigations into the internal structure of verbal predicates in natural languages have revealed a huge body of empirical evidence about how this structure is grammatically manifested. Subevental content of different classes of predicates has been shown to provide a clue to understanding constraints on argument structure and argument realization (Levin, Rappaport Hovav 1995, 2005, Rappaport Hovav, Levin 1998, Hale, Keyser 1993, 2001, Borer 2005, Ramchand 2008) as well as on operations like causativization (Pylkkänen 2002) and anticausativization (Alexiadou et al. 2006, Schäfer 2008). It has been found out that the internal make-up of verbal predicates has direct consequences for their eventuality type (Dowty 1979, Rothstein 2004, Travis 2010) and for the way they interact with various scopal operators (negation, 'again', 'almost', e.g., Dowty 1979, von Stechow 1996, Rapp, von Stechow 1999 and references therein). Event-structural considerations lie behind many fruitful accounts for resultative constructions (Folli, Ramchand 2005, Rappaport Hovav, Levin 2001, Rothstein 2004), including those where the resultative predication is headed by particles (Ramchand, Svenonius 2002) or verbal prefixes (Svenonius 2004, Žaucer 2009). What notions like "event structure" mean to different authors may vary considerably — from strictly lexicalist view advocated by Beth Levin and Malka Rappaport Hovav to a purely constructionalist position defended by Hagit Borer or Gillian Ramchand. But however huge

the differences are, there seems to be a fundamental insight these approaches share: event structure is what ultimately determines grammatical behavior of verbal predicates.

It is in this perspective that the theory of event structure may be interested in addressing properties of complex predicates (CPrs), whereby "two or more predicational elements (such as nouns, verbs, and adjectives) predicate as a single element, i.e. their arguments map onto a monoclausal syntactic structure" (Butt 2010:49). In languages that lack complex predicates, the whole event structure is commonly spelled out by a single lexical item, that is, by the verb. Looking at characteristics of the verb, we only have indirect evidence of what exactly the structure being spelled out looks like, how many components it consists of, and how these components are related. But if one assumes as a reasonable null hypothesis that languages with complex predicates lexicalize the *same* event structure by *distinct* items (see Svenonius 2008 for an exhaustive overview of existing approaches), then evidence from such languages can provide us with a more direct access to its internal constitution. What appears to be a single verb in languages like English, falls apart: we can investigate characteristics of the components of the complex predicate independently and try to determine a contribution of each of them to the structure and meaning of the whole.

With this general idea in mind, in what follows we will explore syntax and semantics of complex predicates in Ossetian, an Iranian language spoken in the Central Caucasus. Our main focus is to account for the impact of eventivity of the non-verbal component (NVC) of complex predicates on the causative-inchoative alternation. Ossetian, being a language where CPrs participate in the causative-inchoative alternation, offers us an opportunity to investigate a case where the alternation is blocked by telicizing prefixes if the NVC is not eventive. To account for this effect, we develop an analysis in which eventive and non-eventive NVCs are integrated into the event structure in considerably different ways. Eventivity/non-eventivity determines different attachment options for telicizing prefixes, hence constrains the spell-out of the whole structure in different ways. As a consequence of this, for one class of complex predicates, but not for the other, both causative and inchoative configurations can be spelled out by the same lexical item, and the alternation obtains.

The rest of the paper is organized as follows. In Section 2, we introduce two empirical generalizations about Ossetian complex predicates: first, prefixation can undermine the ability of CPrs to alternate, and secondly, this only happens if the non-verbal component is not eventive. The purpose of Section 3 is to come up with a general view of the structure of alternating CPrs, develop a theory of spell-out for simplex, non-prefixed configurations and outline conditions under which the causative-inchoative alternation is blocked. Section 4

focuses on prefixation. We argue that Ossetian prefixes are telicity filters that merge at different levels of event structure depending on whether the NVC is eventive. Having provided example derivations of CPrs under examination, we suggest that our proposal accounts successfully for the puzzles we begin with. Section 5 presents additional arguments from the structure and interpretation of nominalizations for the analysis developed in sections 3-4.

2. Two puzzles about Ossetian complex predicates

Huge literature on complex predicates in general and on Iranian complex predicates in particular (e.g., Folli at al. 2005, Goldberg 2003, Karimi-Doostan 1997, 2001, Megerdoomian 2002, Pantcheva 2008) has addressed a number of empirical issues surrounding the structure and interpretation of CPrs. The list includes (but is not limited to) derivation of argument structure, aspectual properties and eventuality type of the whole CPr out of those of its elements, constraints on CPr formation, internal structure of the non-verbal components, and properties of so called light verbs. Last but not least is a question of whether CPrs are created in the syntax or presyntactically. Data from Ossetian we present in this paper bear directly on a number of these theoretical and empirical issues. In this section, we outline the main puzzles about Ossetian CPrs. Both have to do with how the causative-inchoative alternation interacts with prefixation.

Unlike in many other languages capable to build CPrs, which use wide variety of light verbs (LVs), in Ossetian the only productive type is the one illustrated in (1), where the NVC *wažal* 'cold' is combined with the light verb *kən(-ɪn)* 'do, make' (past stem *kod-*), glossed LV1:

(1)   Alan   don   wažal kod-ta.
       A.   water cold   LV1-PST.3SG
       'Alan was cooling down the water.'

The transitive clause in (1) is not the only configuration where the CPr *wažal kənɪn* can occur. Again unlike in many other languages where CPrs involve a light verb whose lexical counterpart means 'do, make' (for Iranian languages, see, among others, Folli at al. 2005, Karimi 1997, Karimi-Doostan 1997, 2001, Megerdoomian 2002, Mohammad, Karimi 1992, Pantcheva 2008), the same CPr can be found in intransitive (inchoative) clauses:

(2)   don   wažal kod-ta.
       water cold   LV1-PST.3SG
       'The water was cooling down.'

In (2), the DP *don* 'water' is the subject, and the sentence describes a change of state it undergoes. Standard diagnostics for implicit external arguments (e.g., inability to control into purpose adjuncts in (3)) suggests unequivocally that we are dealing with a true inchoative construal (and not, say, with a passive-like configuration):

(3)   #don   wažal   kod-ta   qux-tə   əxš-ɪn-mə.
          water   cold   LV1-PST.3SG   hand-PL   wash-INF-LAT
          'The water was cooling down to wash hands.'

Predicates based on *kənɪn* can embed quite a number of distinct classes of NVCs without losing ability to alternate. A few illustrations come in (4):

(4)   Basic types of NVCs in Ossetian
          a. *Adjectives: lɪg* 'cut', *əgaš* 'alive', *dɪnǯɪr* 'big', *žərong* 'old', *ird* 'light', *ləgwɪn* 'bald', *rox* 'forgotten', *šaw* 'blach', *səttə* 'ready', *səxǯɪn* 'salty', *p.ɪrx* 'wrecked', *məštɪ* 'annoyed'.

          b. *Nouns: əxšitː* 'whistle', *art* 'fire, flame', *diš* 'wonder', *fəždəg* 'smoke', *gəpː* 'jump', *gərax* 'shot', *nɪxaš* 'word', *qišt* 'squeak', *sɪr* 'rustle', *sin* 'joy', *wəj* 'sell',

          c. *Nouns-adjectives*: *mašt* 'bitter, bitterness', *səf* 'wounded, wound', *əvžər* 'bad, evil', *axwɪr* 'educated, study', *gom* 'open, hole', *rɪncɪn* 'sick, sickness', *ruxš* 'bright, light', *finəj* 'sleeping, falling sleep'.

As (4a-c) show, alternating CPrs based on *kənɪn* 'do, make' can contain adectives in (4a) and nouns in (4b). NVCs listed in (4c) function as either nouns or adjectives, cf. *ənk'ərd ləp.ɪu* 'sad boy' or *ləp.ɪu-jɪ ənk'ərd* 'the boy's sadness'. This suggests that the causative-inchoative alternation has little to do with the syntactic category of the NVC (cf. Hale and Keyser 1993, 2002).

It turns out, however, that there is another factor that can affect the alternation, and this is where we face the first puzzle about Ossetian CPrs. The alternation pattern in (1)-(2) disappears if the verbal prefix comes in, as illustrated in (5)-(6):

(5)   Alan   don   nɪ-wːažal   kod-ta.
          A.   water   PRF-cold   LV1-PST.3SG
          'Alan cooled down the water.'

(6)   *don   nɪ-wːažal   kod-ta.
          water   PRF-cold   LV1-PST.3SG
          'The water cooled down.'

(5)-(6) are like (1)-(2) except for two characteristics. First, they contain a prefix *nı-* and differ from (1)-(2) as to their grammatical aspect — imperfective in (1)-(2) and perfective in (5)-(6). (We will discuss the precise semantic content of prefixes in due course.) Secondly, the inchoative clause in (6), unlike its non-prefixed counterpart in (2), is ungrammatical. To obtain a prefixed inchoative variant of (2), another light verb, *iš,* glossed as LV2, is to be used, as illustrated in (7):

(7)   don   nı-wːažal   iš.
       water   PRF-cold   LV2
       'The water cooled down.'

What these examples tell us is that the prefixation, first, can bleed the alternation, and render the transitive construal obligatory for *kənın*. Secondly, we see that the prefixation enables another type of CPr formation, the one based on the LV2 *iš* in (7), which is unavailable otherwise:

(8)   * don wažal iš.
        water cold   LV2
        'The water cooled / was cooling down.'

In inchoative clauses, the LVs *iš* and *kənın* are thus complementarily distributed, the choice being determined by whether the prefix is there. Transitive clauses, on the other hand, do not care about the prefix and make obligatory use of *kənın*.

However, prefixation excludes the alternation with some CPrs but not with others, and this is a second puzzle Ossetian CPrs present. The CPr *qišt kənın* 'squeak, creak', which, when non-prefixed, alternates in the same way as *wažal kənın* (see (9a-b)), can be combined with the prefix without producing an ungrammatical outcome in (10b), a counterpart of (6):

(9)   a. Alan   dwar   qišt   kod-ta.
           A.   door   squeak   LV1-PST.3SG
           'Alan was squeaking the door.'
    b. Dwar   qišt   kod-ta.
           door   squeak   LV1-PST.3SG
           'The door was squeaking.'

(10)   a. Alan   dwar   nı-qːišt   kod-ta.
           A.   door   squeak   LV1-PST.3SG
           'Alan squeaked the door.'
    b. Dwar   nı-qːišt   kod-ta.
           door   squeak   LV1-PST.3SG
           'The door squeaked.'

Therefore, not only are both transitive and inchoative construals available for *qišt kənɪn* (9a-b) in the absence of the prefix, in parallel in (1)-(2). They are also available for the prefixed variants in (10a-b), unlike what happens with (5)-(6). Given the observation drawn from (2) and (6)-(7) that *kənɪn* and *iš* are complementarily distributed in intransitive clauses, one can expect that *nɪ-qːišt* (PRF-NVC) cannot be combined with *iš* to produce an intransitive prefixed CPr, since this is done by means of *kənɪn* in (10b). The expectation is correct, as (11) shows:

(11)   *Dwar   nɪ-qːišt   iš.
       door   PRF-squeak   LV2
       'The door squeaked.'

The only detectable difference between two complex predicates in (1)-(2), (5)-(6) and (9)-(11) is the NVC, *qišt* vs. *važal*. In all other respects including the light verb and the prefix, these two are identical. Therefore, there must be something about these NVCs that determines the way the whole CPrs interact with the prefix. Some NVCs produce CPrs that alternate no matter whether they are prefixed and only take *kənɪn* as their LV. From now on we will call such CPr alternating-under-prefixation, or AP-CPr. Other NVCs produce non-alternating-under-prefixation CPrs (NAP-CPrs): they disallow prefixed inchoative clauses with *kənɪn* and require *iš* be used.

The crucial observation is: *qišt*-type CPrs all involve event-denoting NVCs. NVCs we find in *važal*-type CPrs denote properties of individuals:[1]

(12)   a. *Važal*-type AP-CPrs:
       važal kənɪn 'cool down' ('cold'), *dɪnǯɪr kənɪn* 'magnify, increase' ('big'), *žərong kənɪn* 'make/ get old', *ləgwɪn kənɪn* 'make/get bald', *səttə kənɪn* 'make/get ready', *səxǯɪn kənɪn* 'salt, get salty', *pʌɪrx kənɪn* 'break, wreck' ('wrecked'), *məštɪ kənɪn* 'annoy/ get annoyed' ('annoyed'), *sɪr kənɪn* 'rustle', *sin kənɪn* 'make / get happy' ('joy'), *mašt kənɪn* 'make/get bitter', *səf kənɪn* 'wound/get wounded', *əvžər kənɪn* 'spoil' ('bad, evil'), *gom kənɪn* 'open', *rɪncɪn kənɪn* 'infect/get sick' ('sick, sickness').

       b. *Qišt*-type NAP-CPrs
       qišt kənɪn 'squeak', *diš kənɪn* 'surprise, be surprised' ('wonder'), *gəpː kənɪn* 'make jump/ jump', *gərax kənɪn* 'shoot' ('shot'), *axwɪr kənɪn* 'teach / study' ('study'), *fɪnəj kənɪn* 'put to sleep / fall asleep' ('sleeping, falling asleep'), *c'ɪrtː kənɪn* 'splash, drip' ('splash'), *qellaw kənɪn* 'swing'

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[1] The meaning of NVC is shown in parentheses if not obvious.

If this generalization is correct, what we get is an implicational relation between eventivity of the NVC, and the ability of the prefix to affect the causative-inchaotive alternation. The data we have observed so far are summarized in Table 1 and in (13).

Table 1. Causative-inchoative alternation, prefixation, and type of NVC

Components of complex predicate	Transitivity	NVC	
		non-eventive	eventive
NVC kənın	Tr.	+	+
NVC kənın	Inch.	+	+
PRF-NVC kənın	Tr.	+	+
PRF-NVC kənın	Inch.	-	+
PRF-NVC iš	Inch.	+	-

(13) a. Causative-inchoative alternation is available for non-prefixed CPrs based on *kənın* regardless of the lexical class of NVC

b. The ability of a CPr based on *kənın* to alternate remains intact under prefixation for AP-CPrs, which are based on eventive NVCs

c. NAP-CPrs, which are based on non-eventive NVCs, produce transitive clauses with *kənın* and intransitive clauses with *iš*.

Our task is thus to find out what is going on: why at all prefixation affects the alternation, why this only happens to *važal*-type AP-CPrs, but not to *qišt*-type predicates, why the LVs *kənın* and *iš* are distributed the way they are, and why eventivity of the NVC determines if a CPr retains alternation under prefixation.

In what follows, we will develop an analysis that provides a principled account for the above generalizations. The analysis involves a number of essential components.

One component is a theory of spell-out. Adopting Starke's (2010) 'nanosyntactic' approach relying on Overspecification, we will show that it provides a general and elegant explanation for the distribution of *kənın* and *iš* in intransitive clauses. On this approach, the causative-inchoative alternation obtains if syntactically distinct causative and inchoative configurations can be spelled out by a single lexical item, the LV *kənın*. Only if *kənın* fails to spell-out an intransitive configuration due to independent structural reasons, *iš* takes over.

Since prefixes are central to the whole story about the causative-inchoative alternation, we will propose an analysis that assumes, essentially, a syntactic view of prefixation – much in the spirit of a number of recent proposals about similar data in Slavic languages. Moreover, we will argue that prefixes allow for (relatively) low and (relatively) high attachment, the choice being determined by the properties of the NVC. This will have welcome consequences

for the spell-out of causative and inchoative configurations and, in this way, will account for the whole range of alternation patterns.

Another component is a set of assumptions about the structure and interpretation of NVCs. In a nutshell, we will suggest (and discuss empirical arguments supporting this suggestion) that eventivity of NVCs has radical consequences as to what derivations these NVCs may enter. Eventive NVCs merge with prefixes early; non-eventive ones must project an event structure before prefixation. Ultimately, we will show that the variable behavior of AP-CPrs and NAP-CPrs can be reduced to the eventivity of NVCs, hence accounted for.

We will start the next section by setting out our explanation for the very fact that CPrs based on *kənɪn* 'do, make' can alternate. We establish our basic assumptions about the structure and interpretation of CPr in Ossetian and outline how the spell-out mechanism works. This will suffice to account for the simplest case – prefixless alternating CPrs like those in (1)-(2) and (9a-b). As we move on to more complicated cases in the subsequent sections, other components of the analysis will be unfolded.

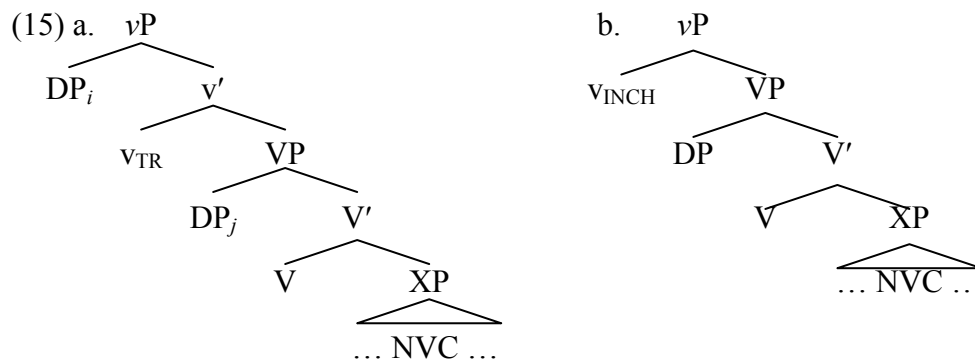## 3. Structure of complex predicates and LV1

3.1. Causative and inchoative configurations

There is a wide variety of theoretical approaches to the causative-inchoative alternation that accommodate various insights about what makes sentences like (14a-b) structurally and semantically different (Lakoff 1965; Fillmore 1970; Nedjalkov & Silnitsky 1973; Perlmutter 1978; Dowty 1979; Jackendoff 1990; Haspelmath 1993; Hale and Keyser 1993, 2002; Levin & Rappaport Hovav 1995; Wunderlich 1997; Rappaport Hovav & Levin 1998; Harley & Noyer 1998; Arad 1999, Travis 2000; Reinhart 2002; Baker 2003; Chierchia 2004; Folli & Harley 2005; Alexiadou et al. 2006; Kallulli 2007, Koontz-Garboden 2007, 2009; Ramchand 2008, Schäfer 2008, to mention only a few):

(14) a. The stick broke.
      b. John broke the stick.

Two most significant parameters of theoretical variation that tell the above-mentioned approaches apart are whether a theory assumes a derivational relation between sentences like (14a) and (14b) and what it says about the semantic structure of inchoative sentences like (14a). The first parameter separates classes of theories suggesting that (14b) is derived from (14a), that (14a) is derived from (14b), and that (14a-b) are derived independently. The second parameter singles out causative theories of the inchoative/unaccusative, which assume that sentences like (14a) involve an implicit causation; see Koontz-Garboden's (2008) survey

for more detail. Space limitations prevent us from addressing important issues surrounding our choice in each case in any detail. Here is what we assume as a structure of alternating CPrs in Ossetian:

(15) a.

vP
- DP$_i$
- v'
  - v_{TR}
  - VP
    - DP$_j$
    - v'
      - V
      - XP
        - … NVC …

b.

vP
- v_{INCH}
- VP
  - DP
  - v'
    - V
    - XP
      - … NVC …

(15a-b) is a version of a theory where causative and inchoative structures are derived independently by different 'flavors' of v (e.g., Folli, Harley 2005, 2007). Syntactically, they differ in that v_{INCH}, unlike v_{TR}, does not project a specifier, where the external argument is located.
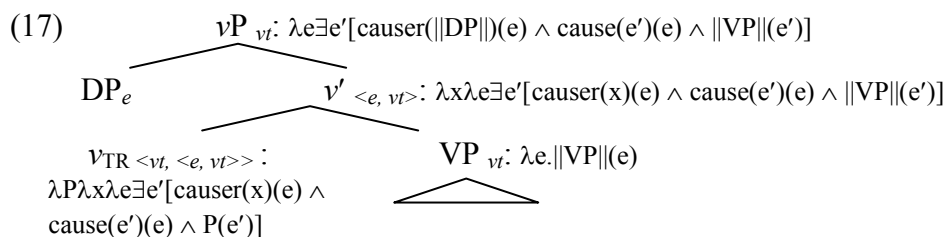
Alexiadou and Anagnostopoulou 2004, Alexiadou et al. 2006, Alexiadou 2010 put forward a number of arguments suggesting that cross-linguistically, the inchoative configuration can come in two varieties in (16a-b).

(16)   a. [v/CAUSE [Root]]
        b. [Voice (-ext. arg. -AG) [v/CAUSE [Root]]]

Within this type of framework, the inchoative structure in (15b) can be thought of as a notational variant of (16b) rather than (16a).

We suggest that the non-verbal component of a CPr merges within the complement of V. Structure of XPs different types of NVCs project will be addressed in Section 4.4.

Semantically, v_{TR} introduces a causing subevent and an individual thematically linked to that subevent, existentially binding the event variable supplied by VP. The v_{INCH} head introduces the causing event existentially bound to begin with, and externalizes a VP-event. No individual argument comes as part of v_{INCH} denotation. With irrelevant details left out, semantics of transitives and inchoatives we assume is shown in (17)-(18).

(17)

vP $_{vt}$: $\lambda e\exists e'[causer(\|DP\|)(e) \wedge cause(e')(e) \wedge \|VP\|(e')]$
- DP$_e$
- v' $_{<e,\,vt>}$: $\lambda x\lambda e\exists e'[causer(x)(e) \wedge cause(e')(e) \wedge \|VP\|(e')]$
  - v_{TR} $_{<vt,\,<e,\,vt>>}$: $\lambda P\lambda x\lambda e\exists e'[causer(x)(e) \wedge cause(e')(e) \wedge P(e')]$
  - VP $_{vt}$: $\lambda e.\|VP\|(e)$

(18)

$$vP_{vt}: \lambda e\exists e'[\ cause(e)(e') \wedge \|VP\|(e)]$$

$$v_{INCH <vt,\ vt>}:$$
$$\lambda P\lambda e\exists e'[\ cause(e)(e') \wedge P(e)]$$

$$VP_{\ vt}: \lambda e.\|VP\|(e)$$

Taking (15)-(16) as our starting point, we turn to the question of how the NVC is integrated into the structure.

3.2. Derivation of CPrs

We hypothesize that when a CPr is created, the NVC gets incorporated into the LV, as shown in (19) (intermediate landing sites and other irrelevant details omitted).

(19) [$_{vP}$ … [$_{v+V+X}$ NVC+LV] [$_{VP}$ ... [$_{XP}$ ... [$_X$ t_{NVC}]]]]

Evidence for this suggestion comes from a number of observations. Crucially, the NVC does not allow displacement from its position immediately preceding LV. Consider (20a-b):

(20) a. Dwar   qišt   kod-ta.
       door   squeak   LV1-PST.3SG
       'The door was squeaking.'

     b. Dwar   kod-ta   qišt.
       door   make-PST.3SG   squeak
       'The door was making a squeak.'

Semantically, (20b) looks similar to (20a). Yet, it is not difficult to show that while (20a) involves an intransitive CPr, (20b) is a transitive sentence where *kǝnın* is a lexical verb and *qišt* is its direct object.

First, the CRr in (20a), as we have already seen, participates in the causative-inchoative alternation and has a transitive counterpart, repeated as (21a). This is no so for (20b), cf. (21b).

(21) a. Alan   dwar   qišt   kod-ta.
       A.   door   squeak   LV1-PST.3SG
       'Alan was squeaking the door.'

     b. *Alan   dwar   kod-ta   qišt.
       A.   door   LV1-PST.3SG   squeak
       *'Alan the door was making a squeak.'

Secondly, (20a) and (20b) select for different telicizing prefixes. It is a general property of Ossetian verbal system that different verbal predicates combine with different prefixes — a characteristic reminiscent of what is going on in Slavic languages (see a more detailed discussion in Section 4.2). Thus, (20a) takes the *nı*- prefix, while (20b) combines with the *š*-prefix. Consider (22a-c):

(22) a. Dwar   nı-qːišt   kod-ta.
          door   squeak   LV1-PST.3SG
          'The door squeaked.'

      b. *Dwar   nı-kːod-ta   qišt.
          door   PRF-LV1-PST.3SG   squeak
          'The door squeaked.'

      c. *Dwar   kod-ta   nı-qːišt.
          door   LV1-PST.3SG   PRF-squeak
          'The door squeaked.'

As we have already seen in (10b), repeated as (22a) the CPr *qišt kənın* selects for the *nı-* prefix. When inserted into (20b), this prefix yields an ungrammatical sentence, no matter whether the prefix is added on top of *kənın* in (22b) or on top *qišt* in (22c). (20b) only accepts the *š-* prefix, as in (23), — the same as is selected when *kənın* is clearly used as a lexical verb of creation, cf. (24):

(23) Dwar   š-kod-ta   qišt.
      door   PRF-make-PST.3SG   squeak
      'The door made a squeak.'

(24) Alan   š-kod-ta   χəzar.
      A.   PRF-make-PST.3SG   house
      'Alan built a house.'

Note finally that, if the structure like (20b) is built, the prefix must attach to *kənın*, as the ungrammaticality of (25) suggests, while with the true complex predicate in (20a) it shows up attached to the NVC.

(25) *Dwar   kod-ta   š-qišt.
      door   make-PST.3SG   PRF-squeak
      'The door made a squeak.'

Thirdly, in (20b), but not in (20a), *qišt* projects, licensing, e.g., adjectival modifiers and demonstratives:

(26) Dwar   (*ası   šabır)   nı-qːišt   kod-ta.
      door   this   quiet   PRF-squeak   LV1-PST.3SG
      'The door (*this quiet) squeaked.'

(27) Dwar   š-kod-ta   ası   šabır   qišt.
      door   PRF-make-PST.3SG   this   quiet   squeak
      'The door made this quite squeak.'

Fourthly, consider what can be called preverbal phenomena. By this (purely descriptive) term we refer to a peculiar characteristic of Ossetian syntax: complementizers, wh-phrases,

phrasal negation, and negative XPs occur strictly preverbally, as shown in (28), and cannot be separated from the finite verb by whatever other material.

(28)   {complementizers / wh-phrases} – {negation / negative XPs} — verb

For the sake of space, we limit ourselves to illustrating effects of (28) by examples where the complementizer *kəj* 'that' occurs. (29a-c) show that no argument XP can intervene between the complementizer and the verb, despite the fact that otherwise the surface order of those XPs is relatively free, (29d-g).

(29)   Argument XPs in between complementizer and verb
    a. alan   kəj   fedta   madinə-jı
       A.   that   see-PST.3SG   M.-GEN
      '… that Alan saw Madina.'

    b. *(madinə-jı)   kəj   alan   fedta   (madinə-jı)

    c. *(alan)   kəj   madinə-jı   fedta   (alan)

    d. alan   madinə-jı   kəj   fedta

    e. madinə-jı alan   kəj   fedta

    f. madinə-jı kəj   fedta   alan

    g. kəj fedta   alan   madinə-jı

Examples in (30) show that the same restriction holds for adjuncts:

(30)   Adjuntcs in between complementizer and verb
    a. alan   (žnon)   (noʒıdər)   (əvašt)   kəj   fedta   madinə-jı
       A.   yesterday again   suddenly   that   see-PST.3SG   M.-GEN
      '… that (yesterday) Alan (suddenly) saw Madina (again)'

    b.   *alan   kəj   žnon/noʒıdər/əvašt   fedta   madinə-jı

Data in (29)-(30) point towards a simple empirical generalization formulated in (28): there exist a cluster of clausal projections where complementizers/wh-phrases, negation/negative XPs and the finite verb occur in this precise order. Why this cluster is the way it is constitutes a separate (and complicated) puzzle (see These authors 2009 for a possible analysis). Crucially, the solution to this puzzle is irrelevant for the plot of our story. What is relevant is the mere fact that once the "preverbal complex" is empirically real, it can provide us with a significant piece of evidence about the syntactic configuration of complex predicates. The crucial examples are (31a-b):

(31) a. …dwar kəj qišt kod-ta.
    door   that   squeak   LV1-PST.3SG
   '… that the the door was squeaking'

   b. …dwar kəj nı-qːišt kod-ta.
    door   that   PRF-squeak   LV1-PST.3SG
   '… that the the door squeaked.'

The position of the complementizer in (31a-b) suggests that, whatever mechanism is involved in establishing the "preverbal complex" in (29)-(30), for that mechanism *(nı-)qːišt kən-* counts as a single verb. If being a single verb in the relevant sense amounts to being a single head in the syntax, (31a-b) provides one more argument for the incorporation analysis.

The obvious question arises at this point: do not the above data point toward a lexicalist analysis of CPrs, with the LV and NVC combining presyntactically? The answer is: on the lexicalist view it is extremely difficult, if at all possible to explain prefixation facts we started with in Section 2. For if a relevant lexical item is built by combining the LV and NVC first and then attaching the prefix on top of that, it is unclear how prefixation can affect the choice of LV in examples like (5)-(7) (*kənın* vs. *iš*), which has been made before the prefix entered the scene. If, the other way round, NVC first combines with the prefix and then "selects" an appropriate LV, two complications arise. First, the prefix has to apply directly to items listed in (4), which does not look plausible, given that we do no find prefixed adjectives and nouns elsewhere (see, however, the discussion of small nominalizations in Section 5). Secondly, even if "prefix plus adjective/noun" complexes are somehow admitted, the non-prefixed and prefixed configurations will be derived totally independently from each other. The former will be created by merging LV with the NVC, but the latter will require combining the LV with a different lexical item consisting of NVC and prefix. The whole bunch of generalizations from Section 2 will thus come out as a pure coincidence.

Taking these considerations into account, we reject this type of an analysis in favor of the alternative developed in the next section.

3.3. Spell-out of CPrs

We begin by examining in more detail unprefixed CPrs like *važal kənın* 'cool' and *qišt kənın* 'squeak', repeated in (32).

(32) a. Alan dwar qišt kod-ta.
    A.   door   squeak   LV1-PST.3SG
   'Alan was squeaking the door.'

b. Dwar   qišt   kod-ta.
door   squeak   LV1-PST.3SG
'The door was squeaking.'

(32)   a. Alan   don   wažal   kod-ta.
A.   water   cold   LV1-PST.3SG
'Alan was cooling down the water.'

b. don   wažal   kod-ta.
water   cold   LV1-PST.3SG
'The water was cooling down.'

As we have already seen, in a non-prefixes configuration like (32)-(33) both types of CPrs exhibit the causative-inchoative alternation.

We suggest that what this actually means is that the lexical item *kənɪn* is capable of spelling out, or "lexicalizing" both the transitive and inchoative structures in (32)-(33), as represented in (34a-b) (these representations will be refined shortly):
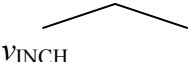
(34)   a. vP$_{TR}$ b. vP$_{INCH}$
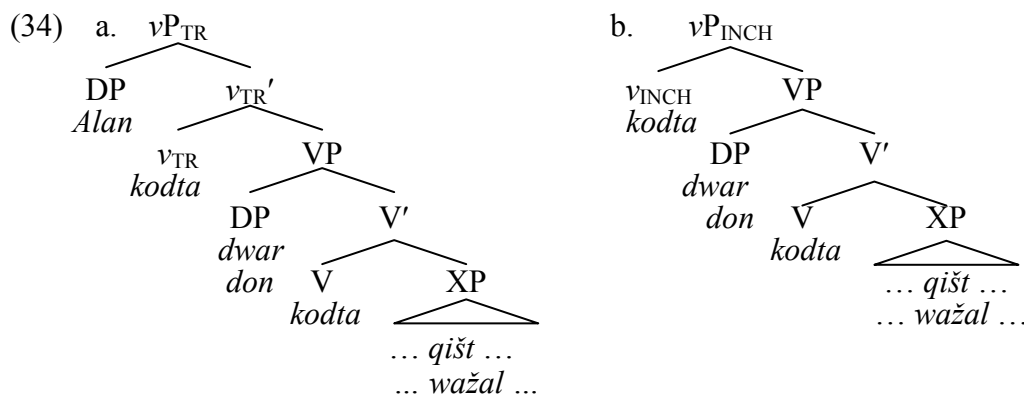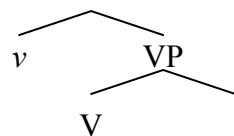
To be specific, we assume a 'nanosyntactic' approach to the spell-out that has recently gained a grown popularity by offering elegant and convincing solutions to a number of complicated issues including case in multiple case systems (Caha 2009), verbal inflection (Caha 2010), argument structure (Jablonska 2007), structure of locative and directional expressions (Pantcheva 2010), and gender and number marking (Taraldsen 2010). Specific applications of nanosyntactic line of inquiry to complex predicates and related phenomena can be found in Ramchand 2008. Three basic principles proponents of this approach share are (35)-(37) (Starke 2010:3-5):

(35)   Superset principle
A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.

(36)   Cyclic override principle
Each successful spell-out overrides previous successful spell-outs. Since merger is bottom-up, the biggest match will always override the smaller matches.

(37)   Elsewhere principle
         At each cycle, if several lexical items match the root node, the candidate with least
           unused nodes wins.

In addition to this, the nanosyntactic theory makes a specific assumption about the organization of lexicon. A lexical item is viewed as a pairing of a phonological representation with a syntactic subtree, this subtree determining what syntactic configuration can be spelled out by the item in question.

To see how this works, let us take (15a-b) as syntactic configurations that need to be spelled out and assume the following lexical entries for the two Ossetian LVs:

(38) /kənın/ ⇔ vP
```
           vP
          /   \
         v    VP
             /  \
            V
```
(39)   /iš/ ⇔ vP$_{\text{INCH}}$
```
         vP_INCH
         /    \
      v_INCH
```

According to (38), *kənın* is a light verb that lexicalizes a subtree consisting of vP and VP. *Iš* is a light verb that only spells out vP, provided that its head bear the feature INCH. INCH can be thought of as a second order feature (Adger, Svenonius 2009) which is responsible, first, for v lacking a specifier, and, secondly, for its specific interpretation, the one presented in (18).

The interaction between categorial (V, v, T, C, etc.) and second order features like INCH in (39) has not been discussed so far in the literature on nanosyntactic spell-out. We propose that second order features, if they participate in the lexicalization, are subject to the elsewhere / subset principle:

(40)   If a node A in a tree being spelled out and a node α in the lexically stored subtree
           match, the set of second order features on α must be a subset of those on A.

Given lexical items in (38)-(39), and principles in (35)-(37) and (40), let us see what happens when the trees in (15a-b) undergo spell-out. Let us assume that the whole XPs containing NVCs are lexicalized by *ważal* and *qišt*; we will propose a more refined analysis of those XPs in a few instants. Our focus at the moment is the spell-out of v and V, represented in (41).
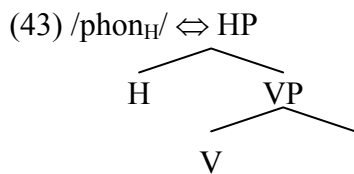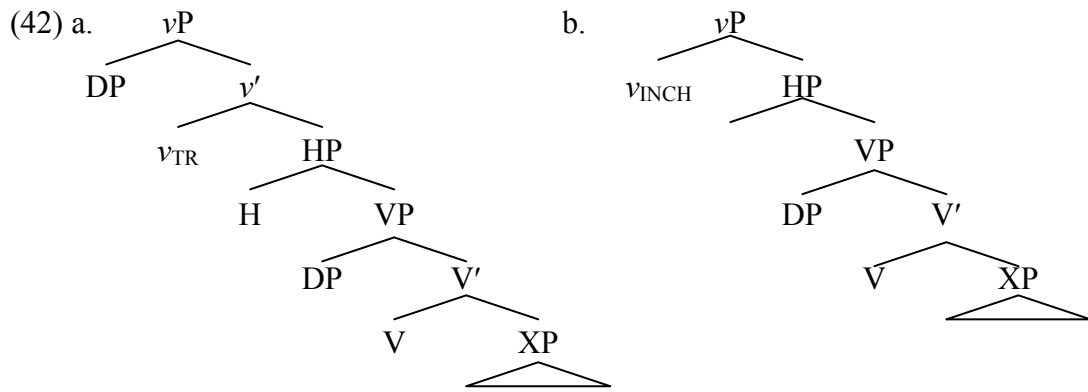
(41) a.
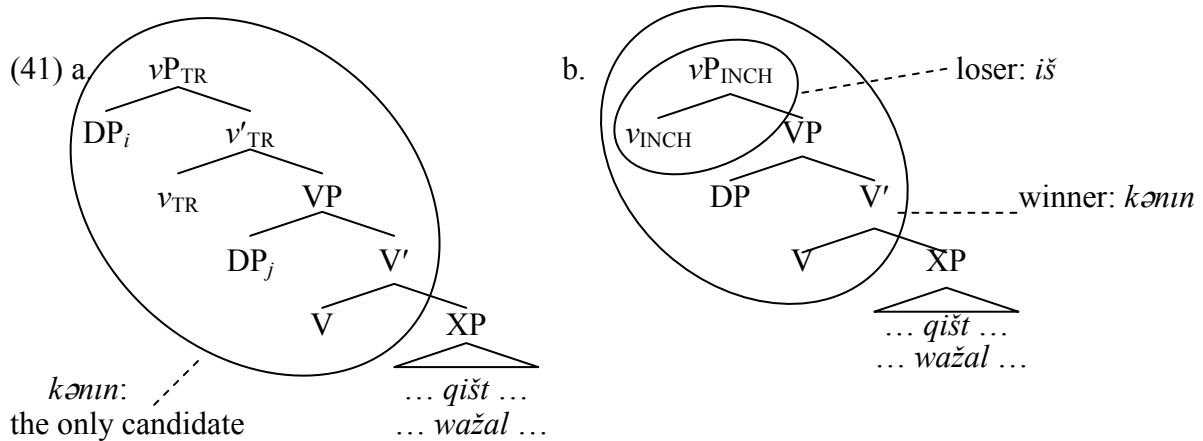
VP in both configurations can only be spelled out by *kənin*, since only *kənin* is specified for the VP (and V) nodes, and *iš* is out of competition. The same is true of vP_{TR} in (41a). In the *kənin* subtree in (38), *v*P has an empty set of second order features. Since $\varnothing \subset \{TR\}$, *kənin* is eligible for lexicalizing vP_{TR}. *Iš*, in contrast, is not, since it is speficied for the feature INCH, and $\{INCH\} \not\subset \{TR\}$.

The competition emerges when vP_{INCH} in (41b) is spelled out, since now both *iš* and *kənin* are suitable candidates — the former by virtue of being specified for the INCH feature, the latter because of being underspecified for the second order features on *v*. The winner is determined by the superset principle in (35) in combination with the cyclic override. Since *kənin* spells out the whole subtree $[_{vP} v_{INCH} [_{VP} V]]$, while *iš* only its proper part $[_{vP} v_{INCH}]$, *kənin* ("the biggest match") wins. The elsewhere principle is irrelevant here, since no nodes associated with *kənin* and *iš* remain unused.
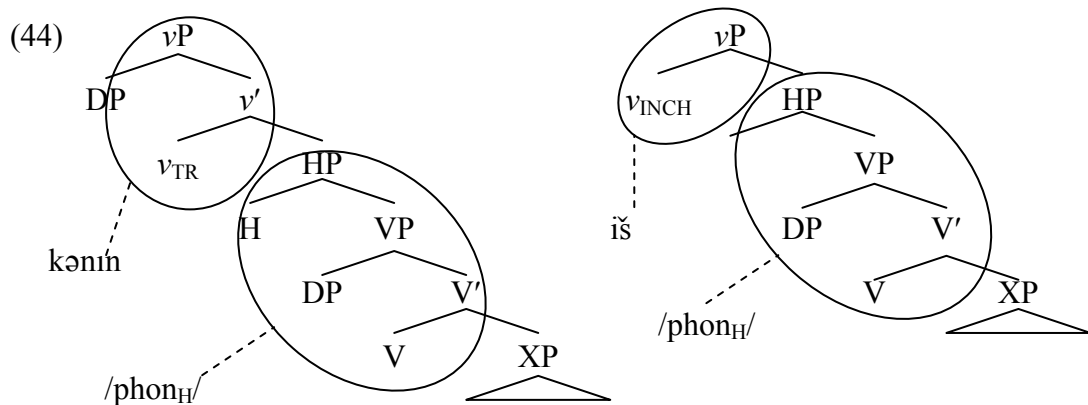
An immediate result of this is: in a prefixless configuration *kənin* is always a better candidate than *iš*, no matter whether this configuration is transitive or inchoative. (Note as well that the NVC does not influence the competition either.) This analysis predicts, correctly, the alternation observed in examples like (1)-(2) and (5)-(6): in the present system being an alternating CPr simply means that the LV *kənin* spells both transitive and inchoative trees like those in (41a-b).

3.4. Separating *v* and V

Let us imagine now that the syntax has produced slightly different configurations than those in (41a-b). (42a-b) minimally differ from (41a-b) in that V and *v* are separated by the projection of the head H. Assume that HP is associated with the lexical entry in (43):

(42) a.

```
           vP
         /    \
       DP      v′
             /    \
           v_TR    HP
                 /    \
                H      VP
                     /    \
                   DP      V′
                         /    \
                        V      XP
                              /▲\
```

b.

```
           vP
         /    \
    v_INCH     HP
             /    \
                   VP
                 /    \
               DP      V′
                     /    \
                    V      XP
                          /▲\
```

(43) $/phon_H/ \Leftrightarrow$

```
       HP
      /   \
     H     VP
         /   \
        V
```

With HP coming in, things change considerably. While lexical entries for NVCs would still spell out XP, lexicalization options available for other players differ radically from what we observed in (41a-b). The subtree lexically associated with *kənɪn* does not match the [*v* [H [V]]] sequence, hence *kənɪn* is unable to spell out this sequence neither in (42a), nor in (42b). Instead, HP and VP would be spelled out by the lexical item in (43), and *kənɪn* would enter the competition with *iš* for the rest of the structure, that is, for *v*P. According to (35), *kənɪn* is still a suitable candidate for spelling out *v*P, since its lexical subtree in (38) stands, in fact, in a superset relation to the [$_{vP}$ *v*] subtree. Moreover, if *v* bears the TR feature, *kənɪn* is the only option. But if we are dealing with v_{INCH}, *kənɪn* is in competition with *iš* again, but now it loses to its rival. *Iš* spells-out *v*P with no parts of its lexical subtree left unassociated. In contrast, *kənɪn* does not make use of the half of its syntactic specification, namely, of the [$_{VP}$ …] part of (38). *Iš*, which does not waste its features, wins in accordance with the elsewhere principle in (37).

(44)

```
           vP
         /    \
       DP      v′
             /    \
           v_TR    HP
                 /    \
                H      VP
                     /    \
                   DP      V′
                         /    \
                        V      XP
```
kənɪn … /phon_H/

```
           vP
         /    \
    v_INCH     HP
             /    \
                   VP
                 /    \
               DP      V′
                     /    \
                    V      XP
```
iš … /phon_H/

17

Therefore, the crucial effect of HP is that VP is no longer a complement of *v,* and *kənın* will never find a subtree that fully matches its lexical specification in (38). This makes *kənın* a weaker competitor than *iš* as far as the spell-out of v_{INCH} is concerned. In the next section we will show that the situation depicted in (44) is empirically real.

4. Prefixation

4.1. Prefixes and their location

Let us suppose that the abstract head H we have been talking about so far is, in effect, the prefix. If this is indeed the case, we have an explanation for why prefixation affects the causative-inchoative alternation in case of *wažal*-type NAP-CPrs. Relevant examples are repeated as (45)-(47).

(45) Alan don nı-wːažal kod-ta.
      A.   water PRF-cold LV1-PST.3SG
    'Alan cooled down the water.'

(46) *don nı-wːažal kod-ta.
     water PRF-cold LV1-PST.3SG
    'The water cooled down.'

(47) don nı-wːažal iš.
     water PRF-cold LV2
    'The water cooled down.'

If for NAP-CPrs the prefix appears in between V and *v,* then the prefixed configuration reduces to two options in (44a-b), and what we get, then, is (48a-b):
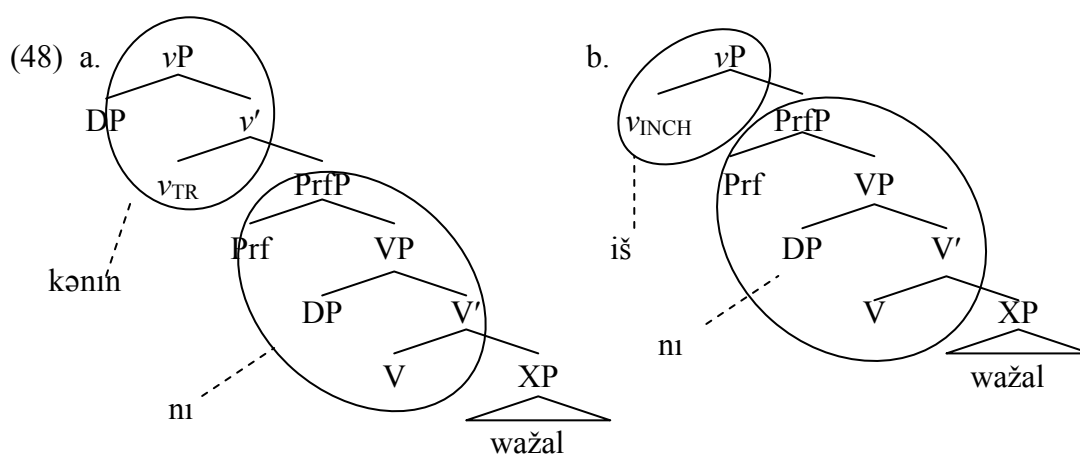
(48) a. / b.

If Ossetian prefixed complex predicates do indeed have underlying structure like (48a-b), then the surface order of CPr components is derived by two subsequent instances of incorporation. The NVC first incorporates into the prefix, passing both V and Prf, and the

resulting complex head subsequently gets incorporated into *v*. Given representations in (48) and lexical items in (38)-(39) and (43), it is clear that incorporation has to occur after spell-out: movement targets heads that have already been lexicalizied. (On this view, incorporation is a PF phenomenon, in accordance with much recent work in the field starting from Chomsky 1995.)
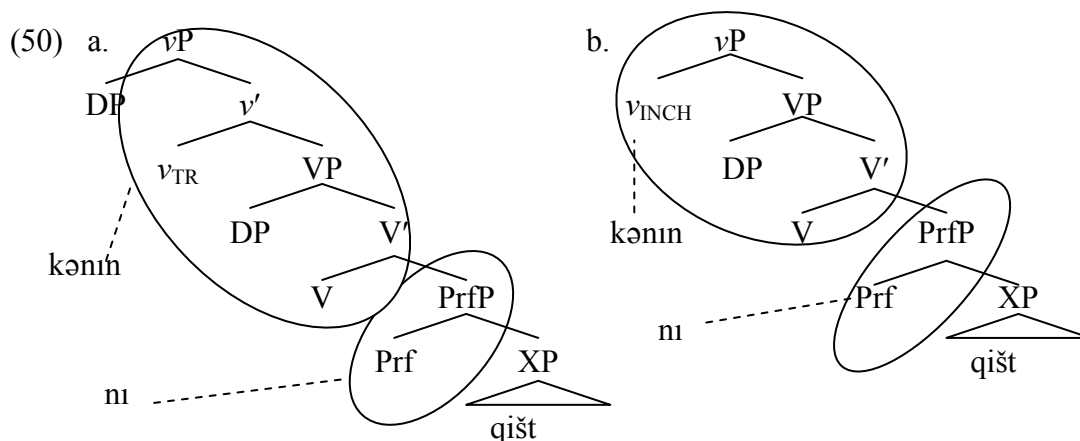
An interesting and complicated issue is what are general principles that determine mutual interaction between incorporation and spell-out. While not being able to address this issue in the present paper, we would like to emphasize that nothing that has been proposed so far in the 'nanosyntactic' literature (e.g., Svenonius et al. (eds.) 2010) rules out the scenario we have just sketched out.

(48a-b) explain immediately the effect of prefixation on the causative-inchoative alternation. Being merged on top of VP, the prefix effectively deprives the LV *kənin* from spelling out VP. As a consequence, *kənin* successfully lexicalizes the transitive *v*, but loses the competion for the inchoative *v* to the LV *iš*. The distribution of LVs in (45)-(47) follows.

What happens, then, to CPrs like *qišt kənin* in (10)-(11), repeated in (49a-c), where *kənin* retains ability to spell out the whole structure even if the prefix is there, and *iš* never shows up?

(49)   a.   Alan   dwar   nı-qːišt   kod-ta.
            A.   door   PRF-squeak   LV1-PST.3SG
            'Alan squeaked the door.'

      b.   Dwar   nı-qːišt   kod-ta.
            door   PRF-squeak   LV1-PST.3SG
            'The door squeaked.'

      c.   *Dwar   nı-qːišt   iš.
            door   PRF-squeak   LV2
            'The door squeaked.'

Given the logic behind (44) and (48) the answer suggests itself: this happens because for CPrs like *qišt kənin* the projection of the prefix is not located in between *v*P and VP, but somewhere else. One possibility is represented in (50a-b):

(50) a. [tree diagram: vP with DP (kənɪn) and v′; v′ contains vTR and VP; VP contains DP and V′; V′ contains V and PrfP; PrfP contains Prf (nɪ) and XP (qišt)]

b. [tree diagram: vP with vINCH (kənɪn) and VP; VP contains DP and V′; V′ contains V and PrfP; PrfP contains Prf (nɪ) and XP (qišt)]

In (50a-b) the prefix merges as a complement of V, and the whole tree contains the same [$_{vP}$ … v [$_{VP}$ … V …]] sequence as the non-prefixed configuration in (41a-b). As we have already seen, in such a configuration *kənɪn* spells out both *v* and V, no matter if *v* is transitive or inchoative. This explains why for CPrs like *qišt kənɪn* prefixation does not change the alternation pattern obtaining in non-prefixed CPrs.

However, to make this analysis work, much more is to be said. First of all, we have to present independent arguments that the prefix does, in fact, merge in between *v* and V in case of *wažal*-type NAP-CPrs, but not in case of *qišt*-type AP-CPrs. Secondly, we have to identify the semantic contribution of the prefix compatible with these attachment options. Finally, we have to make explicit the structure and interpretation of what we have been loosely referring to as 'XP' so far, since it is NVC that ultimately determines differences between CPrs like *wažal kənɪn* and *qišt kənɪn*.

4.2. Prefixes in Slavic and Ossetian

At first appearance, Ossetian prefixation reminds what is going on in Slavic languages like Russian, where syntax and semantics of prefixes have been studied most thoroughly (e.g., Babko-Malaya 1999, Svenonius 2004, 2008b; Ramchand 2004, Romanova 2006, DiScuillo, Slabakova 2005, Arsenijević 2006, Žaucer 2009). Let us briefly mention a few of the most striking similarities.

First, like in Slavic languages, prefixes in Ossetian have spatial uses, indicating location and / or direction of motion, as in (a) examples (51)-(52). Corresponding (b) examples come from Russian:

(51) a. čɪžg   ərba-sɪd-i.   b. devočka   pri-š-l-a.
         girl   to-go-PST.3SG   girl   to-go-PST-F
       'The girl came.'

(52) a. čɪžg   a-sɪd-i   b. devočka   u-š-l-a.

girl   out-go-PST.3SG   girl   out-go-PST-F

'The girl went away.'

(53) a. čɪžg nɪ-sːɪd-i   xox-əj.

girl   down-go-PST.3SG   mountain-ABL

b. devočka   so-š-l-a   s   gor-y.

girl   down-go-PST-F   from   mountain-GEN

'The girl came down from the mountain.'

Secondly, like in Slavic languages, prefixed verbal predicates in Ossetian are obligatorily telic, as illustrated in (54)-(55):

(54) a. čɪžg   iu   šahat-mə   ra-dɪxd-ta   qug.

girl   one   hour-ALL   PRF-milk.PST-3SG   cow

'The girl milked the cow in an hour.'

b. *čɪžg   iu   šahat-ɪ   ra-dɪxd-ta   qug.

girl   one   hour-GEN   PRF-milk.PST-3SG   cow

'The girl milked the cow for an hour.'

(55) a. čɪžg   iu   šaxat-mə   a/ər-las-ta   zonɪʁ.

girl   one   hour-ALL   PRF-pull.PST-3SG   sleigh

'The girl pulled the sleigh away/in in an hour.'

b. *čɪžg   iu   šaxat-ɪ   a/ər-las-ta   zonɪʁ.

girl   one   hour-GEN   PRF-pull.PST-3SG   sleigh

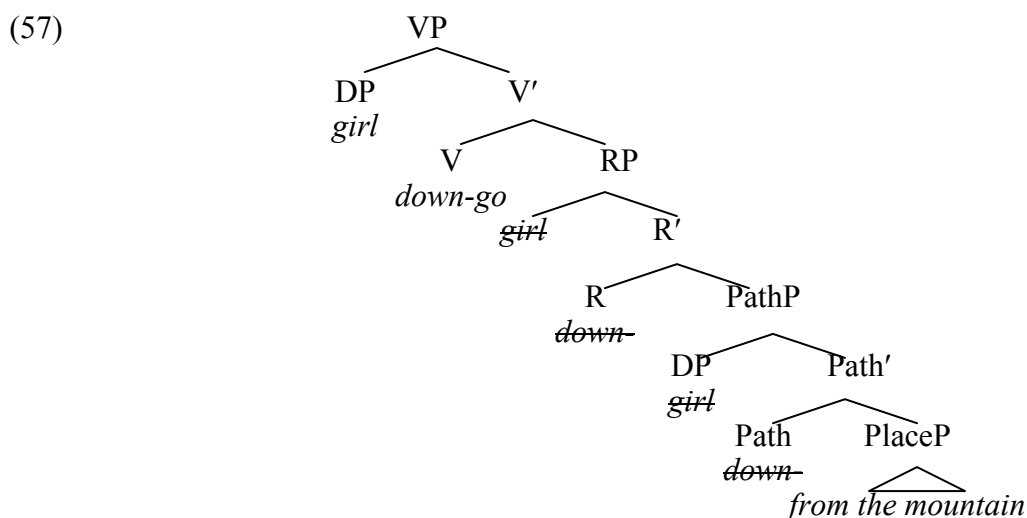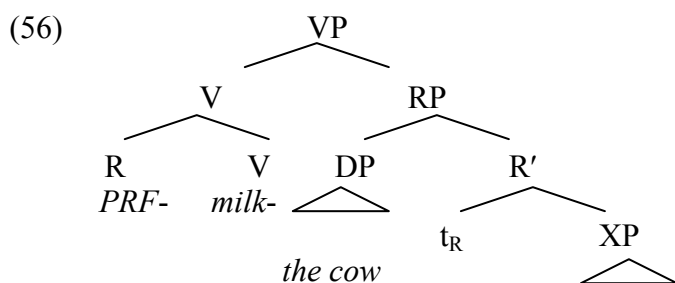'The girl pulled the sleigh away/in for an hour.'

Whatever type of event description we take, in prefixed clauses it can only yield a telic interpretation. In this respect Ossetian differs drastically from languages like English, where predicates like 'milk the cow' create telic perfective clauses (cf. *She milked the cow in ten minutes*), while 'pull the sleigh' occurs in atelic perfective clauses (cf. *She pulled the sleigh for an hour*). In Ossetian, like in Slavic languages, prefixation destroys the potential for an atelic interpretation. Specifically, in (55a), a prefix introduces either a source or goal of motion that measure out the progress of the event and leads to telicity.

It should be pointed out that the spatial/directional meaning of the prefixes, especially prominent if they are combined with verbs of motion, is lacking in examples like (54)-(55), where the semantic contribution of the prefix is limited to telicization of the predicate.

Note as well that both Russian and Ossetian are instances of what Bohnemeyer and Swift (2004) call default aspect languages. In such languages, grammatical aspect in episodic sentences (perfective or imperfective/progressive) is dependent on telicity/quantization of a verbal predicate. Quantized predicates come out perfective. Lack of quantization leads to imperfectivity. In both Russian and Ossetian, prefixation leads to telicity, hence to perfectivity, while non-prefixed verb stems create imperfective clauses. Examples like (1)

(non-prefixed) and (5) (prefixed) illustrate this point. Since grammatical aspect is irrelevant for the plot of our story, we do not go into further detail.

In the literature, one can find quite a number of analyses of the prefixation phenomena in Slavic languages. An influential line of inquiry (Svenonius 2004, 2008, Ramchand 2004, Arsenijević 2006, Romanova 2006, Žaucer 2009, mentioning only a few) is to analyze telicizing prefixes as exponents of the Resultative head (or even as maximal projections sitting in the specifier of that head). (56) is a syntactic representation of (54a) along the lines of Svenonius 2004. Spatial/directional prefixes, then, are assumed to spell-out the Path head within the split-P configuration, as in (57), which is a structure for (53b) that follows Romanova's (2006) treatment of similar examples.

(56)

```
                VP
          ┌─────┴─────┐
          V           RP
       ┌──┴──┐    ┌────┴────┐
       R     V    DP        R′
     PRF-  milk- (the cow) ┌─┴──┐
                          t_R   XP
```

(57)

```
                    VP
               ┌────┴────┐
              DP         V′
             girl   ┌────┴────┐
                    V         RP
                 down-go  ┌───┴───┐
                         girl     R′
                              ┌───┴───┐
                              R      PathP
                            down-  ┌───┴───┐
                                  DP       Path′
                                 girl  ┌────┴────┐
                                      Path      PlaceP
                                     down- (from the mountain)
```

We have little to say about spatial/directional prefixes in Ossetian here. We seldom find them combining with CPrs. Rather, in the next section we focus on telicizing prefixes like *nɪ-* in (45)-(47) and (49) or *ra-* in (54).

4.3. Prefixes and telicization

Given striking parallelism between Ossetian and Russian prefixation, it is tempting to analyze telicizing prefixes in both languages along similar lines, e.g., as instances of the R head, as in (56). However, this type of analysis is not tenable. Here are the reasons why.

Prefixes in Russian and other Slavic languages introduce the result state into the semantic representation. The crucial evidence supporting this claim comes from the interpretation of the participial passive in which the perfective passive participle (PPP) occurs. (59) refers to a result state of the event described in (58), in which the water has been warmed. The result state in (59) holds at the reference time.

(58)   Volodja   na-gre-l   vod-u.
           V.   PRF-warm-PST.M   water-ACC
           'Volodja warmed the water.'

(59)   Voda   na-gre-t-a.
           water   PRF-warm-PPP-F
           'Water is (in a state of having been) warmed.'

The non-prefixed counterpart of (59) lacks the stative interpretation. For many speakers (60) is merely ungrammatical. Those who marginally accept (60) can only assign it an eventive interpretation, whereby the warming event occurs prior to the reference time:

(60)   ??Voda   gre-t-a.
           water   warm-PPP-F
           'Water has been warmed.'

Semantically, PPPs externalize the result state (Paslawska, von Stechow 2003), if there is one.[2] Therefore, (59)-(60) show that the result state is only a component of semantic representation of prefixed verbs in Russian. If the prefix is there, so is the result state. In this respect, the analysis along the lines of (56) is fully justified, since introducing the result state is precisely what the R head does (Ramchand 2008 and elsewhere).

From this perspective, let us look at corresponding Ossetian examples. In much the same way as in Russian, the result state is referred to by the perfective participle in -*d*, presumably a cognate of the Slavic PPP and similar participles in a few other Indo-European languages. Compare Russian participial passive in (59)-(60) with the resultative construction in Ossetian, exemplified in (61):

---

[2] Technically, PPP formation forces the application of the stativizing operator $\lambda R_{<v, vt>}\lambda s \exists e[R(e)(s)]$ (Kratzer 2000), which applies to a relation between events and states denoted by VP and yields a property of states.

(61) Don   təw-d   u.
     water   warm-PART   COP
     'Water is (in a state of having been) warmed.'

Unlike in Russian, the result state description in (61) does not require a prefix. In fact, it does not allow a prefix:

(62) *Don   š-təw-d   u.
     water   PRF-warm-PART   COP
     'Water is (in a state of having been) warmed.'

(61)-(62) together suggest that when the participle is built, the result state is already there, but the prefix is not. Therefore, if we are dealing with a predicate that arguably lacks the result state (e.g., with an activity predicate), we expect that it should fail to occur in a resultative configuration like (61), and adding a prefix would not repair its ungrammaticality. The expectation is fulfilled:

(63) Alan   nıx-ta   jə   šər.
     Alan   scratch-PST.3SG   his   head
     'Alan was scratching his head.'

(64) Alan   a-nıx-ta   jə   šər.
     Alan   PRF-scratch-PST.3SG   his   head
     'Alan scratched his head.'

(65) *šər   (a-)nıx-t   u.
     head   PRF-scratch-PART   COP
     'The head is (in a state of having been) scratched.'

Therefore, despite superficial similarity, prefixes in Ossetian and in Slavic are integrated into the structure in considerably different ways. The telicizing effect of Slavic prefixes has to do with the result state they introduce: the result state, being a component of the semantics of a verbal predicate, enables it to produce a telic interpretation.[3] We see from examples like (61)-(65) that Ossetian verbs are capable of introducing the result state by themselves, hence the function of prefixes must be different from that of their Slavic counterparts.

At this juncture, it is in principle possible to come up with quite a number of hypotheses about what this function is. In what follows, we take up a very simple and straightforward

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[3] Contrary to what is assumed in many studies of aspect and telicity, the result state does not guarantee that a clause in which a result state predicate occurs is necessarily telic. One example where this is not the case are so called non-culminating accomplishments (e.g., Bar-el et al. 2005). In a number of languages, paradigmatic instances of accomplishments like 'open the door' or 'break the vase' are compatible with an atelic construal, literally 'open the door for two hours'. In that case, the sentence refers to the agent's attempts to bring about a change in the theme that last for two hours without any result. Arguably, in such a case, the result state (e.g., 'the door is open') is still a component of the meaning of the accomplishment, but it is not attained in our world.

idea briefly mentioned by Krifka (1992: 50) and independently elaborated in Piñon (2001) in their discussion of Slavic verbal system. The idea, as we understand it, is to treat telicization as a filter. On Krifka's account, the telicizing operator applies to the event predicate denoted by VP. If this event predicate is quantized (Krifka 1989, 1992, 1998) the operator does not do anything.[4] If it fails to be quantized, the application results in an empty set of events. In this way, telicization prevents non-quantized predicates generated at the VP level from participating in the further semantic derivation.[5]

We will not discuss adequacy of this type of approach for the analysis of Slavic material. For Ossetian, it opens a way of treating prefixes as telicizers without being committed to analyzing them as result state descriptions. In view of the evidence from resultative constructions in (61)-(65), this seems to be a good empirical consequence. To be more specific, we propose to analyze telicizing prefixes as partial equivalence functions with a presupposition, as in (66):

(66) $\|$ PRF.TEL $\|$(P)(e) is only defined if P is quantized
        When defined, $\|$PRF.TEL$\|$(P)(e) = 1 iff (P)(e) = 1

This analysis departs from Krifka's and Piñon's original proposal in that the result of the application of the prefix to a non-quantized predicate is undefined rather than yields an empty set of events. However, this brings Ossetian-like telicity in line with grammatical features like gender and person on English pronouns (Heim and Kratzer 1998). The pronominal gender feature, a partial identify function, guarantees that if the assignment function maps a pronominal index (e.g., 1 in *she1*) to a male, then the DP [DP feminine [DP she1]] will fail to have a denotation. In much the same way, we hypothesize, telicization works (except that the complement of the prefix, VP, does not, of course, receive its denotation by assignment, but is built by the functional application from denotations of the verb and its argument(s)). If the complement of the prefix is a non-quantized, atelic predicate, the PrfP does not have a denotation. It should be noted, however, that nothing in what has been said so far forces us inevitably to adopt the analysis in (66) and nothing in what follows relies crucially on this specific implementation. We believe that the proposal we are developing here could be compatible with quite a number of alternative treatments of quantizing prefixes, and the overall structure of our argument will not be affected.

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[4] Quantization is a property of predicates, such that a predicate P is quantized iff whenever it applies to an entity, it does not apply to its proper parts: $\forall P[QUA(P) \leftrightarrow \forall x \forall y[P(x) \wedge y < x \rightarrow \neg P(y)]]$

[5] To be more accurate, Piñon (2001) formulates his proposal in terms of non-cumulativity rather than quantization. This detail, however, does not affect anything we will say in what follows.

Our hypothesis that prefixes can instantiate telicity in different ways — by introducing the result state in languages like Slavic and by filtering out non-quantized event predicates in languages like Osserian — makes a number of predictions about the prefix placement. Here eventivity of the NVC, discussed in Section 2, starts to play an essential role.

4.4. Prefixes and the meaning of NVCs

If a prefix is a result state-denoting expression, it is located in RP. Where should a prefix be located if it works as an atelicity filter? A natural suggestion is that the prefix enters the derivation at that particular point where it can non-vacuously apply to its complement, that is, as soon as the complement denotes a predicate of events. Predicates of events can be born either quantized or not, and this is what guarantees that the application of the prefix is not vacuous. Having checked a quantization status of a predicate, the prefix either issues license for further derivation or not. An immediate consequence of this is that the prefix does not apply to properties of states: given (66) and given that predicates of states are necessarily non-quantized, the combination of the prefix with a state description will never have an interpretation.

If this reasoning is correct, we immediately derive further predictions as to where the prefix is merged with different types of complex predicates. This is where eventivity of the NVC enters the scene. Recall from (12a-b) that *qišt*-type AP-CPrs all involve an event denoting NVCs, whereas NVCs we find in *wažal*-type NAP-CPrs are all non-eventive.

This means that in *qišt*-type CPrs, the NVC can serve a suitable input to the prefix by itself, and this opens a way for the prefix to merge low, as in (50), repeated as (67).
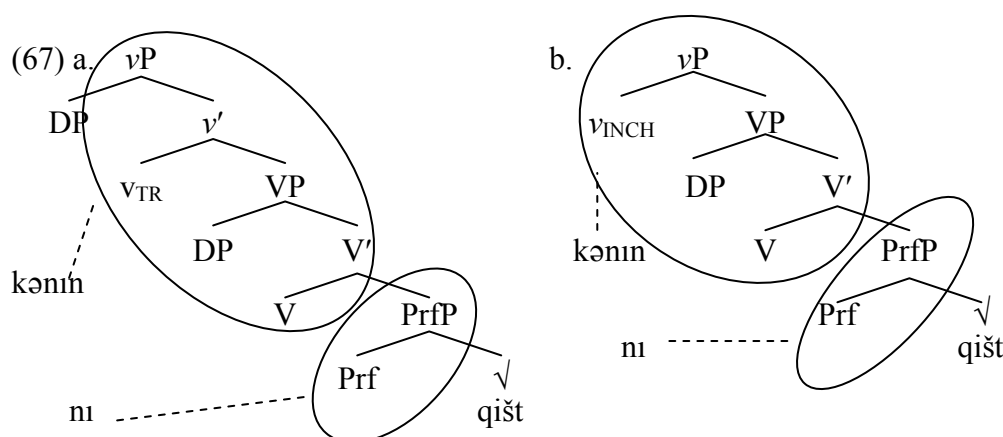
At this point, we already have everything we need to develop a compositional analysis of the AP-CPrs like *qišt kənɪn*. Let us assume the denotation for *qišt* in (68), that of predicate of events.

(68) $\| [\sqrt{\text{qišt}}] \| = \lambda e.\textbf{squeak}(e)$

In the literature, one can find a number of suggestions about how predicates like *squeak* (as well as 'cough', 'drip', 'wink', etc.) should be analyzed. Such predicates allow both achievement and activity uses, where they refer to atomic events of squeaking and sums of those events, respectively. Many semanticists (e.g., Moens 1987, Smith 1997) tend to suggest that the achievement use is basic, that is, that *squeak* only has atoms in its extension. Activity uses are then viewed as a product of semantic shift/coercion triggered by adverbials, aspectual operators, or by the context (see e.g., Smith 1997:53). Rothstein (2004:183–187) assumes the opposite view: in her system, verbs like *cough* are basically activities, and their semelfactive uses are derived by what she calls a natural atomic function.

On the first approach, the predicate in (68) is quantized to begin with: no proper part of a squeaking atomic event is a squeaking atomic event. On the second, Rothstein's (2004), approach, the predicate is cumulative, since summing two sequences of squeaking events results in another sequence of squeaking events. The result of the application of the natural atomic function (which, as Rothstein suggests, applies freely) is, however, again a predicate of atomic squeaking events. Whatever view proves ultimately to be correct, it is clear that the predicate in (68) can provide the quantizing operator denoted by the prefix with a suitable input — either by itself or with the help of the natural atomic function. What we get, then, is a predicate in (69) that has atomic squeaking events in its extension.

(69) $\| [_{\text{PrfP}} \text{nı-} [\sqrt{\text{qišt}}]] \| = \lambda e.\text{QUA}(\textbf{squeak})(e)$

To complete this semantic derivation, let us assume, with Ramchand 2008, a causative semantics for the V and *v* heads.

(70)   a. $\| V \| = \lambda P \lambda x \lambda e \exists e'[\textbf{V}(e) \wedge \text{theme}(x)(e) \wedge \text{cause}(e')(e) \wedge P(e')$
          b. $\| v_{\text{TR}} \| = \lambda P \lambda x \lambda e \exists e' [\textbf{\textit{v}} (e) \wedge \text{causer}(x)(e) \wedge \text{cause}(e')(e) \wedge P(e')]$

Essentially, both *v* and V introduce a causing subevent that brings about an eventuality from the extension of *v*'s or V's complement; the corresponding event variable gets existentially bound. Besides, Encyclopedia assigns descriptive content to both heads by supplying event predicates **V** and **v**. *v* and V restrict sets of causing subevents to those that fall under their extensions. In case of complex predicates, where descriptive properties of the overall event predicate are arguably determined by the semantic content of NVC, we can safely assume that *v* and V are equal to a very general sortal predicate like $\lambda e.\text{process}(e)$.

As was mentioned in Section 3.1, we depart from Ramchand's (2008) first phase syntax architecture in assuming that the derivation of inchoative clauses involves v_{INCH}. Its semantics from (18) is repeated as (71).

(71) $\| v_{INCH} \| = \lambda P \lambda e \exists e' [\text{cause}(e)(e') \wedge P(e)]$

In (71), v_{INCH} introduces a causing event, existentially bound to begin with, and externalizes a VP-event. (For arguments in favor of the causative analysis of anticausatives / unaccusatives see Chierchia 2004; cf. the discussion in Koontz-Garboden 2009.) No individual argument comes as part of v_{INCH} denotation.

Given (70)-(71), interpretation of examples like (49a) with the structure in (67a) is obtained combining subeventual heads V and v with event predicates denoted by their complements via functional application and saturating individual argument positions. The VP denotation is shown in (72a), and the final result in (72b):

(72)   a. $\| [_{VP} \text{ dwar kodta } [_{PrfP} \text{ nı- } [\sqrt{\text{qišt}}]]] \| = \lambda e \exists e' [\text{ theme(door)}(e) \wedge \text{cause}(e')(e) \wedge$ QUA(**squeak**)$(e')]$

b. $\| [_{vP} \text{ alan kodta } [_{VP} \text{ dwar kodta } [_{PrfP} \text{ nı- } [\sqrt{\text{qišt}}]]] \| = \lambda e \exists e' \exists e'' [\text{ agent(alan)}(e) \wedge$ cause$(e')(e) \wedge$ theme(door)$(e') \wedge$ cause$(e'')(e') \wedge$ QUA(**squeak**)$(e'')]$

The predicate in (72b) denotes events in which Alan is the agent. These events cause a process in the door that brings about a squeak, as required.

Semantic derivation of (49b) represented as (67b) proceeds in precisely the same way, except that its final step is the application of the denotation of v_{INCH} head in (71) to the VP denotation in (72a). The result is an event predicate in (73) that has events in its extension in which the door produces a squeak due to some external cause.

(73) $\| [_{vP} \text{ kodta } [_{VP} \text{ dwar kodta } [_{PrfP} \text{ nı- } [\sqrt{\text{qišt}}] \| =$
$\lambda e \exists e' \exists e'' [\text{cause}(e)(e') \wedge \text{theme(door)}(e) \wedge \text{cause}(e'')(e) \wedge$ QUA(**squeak**)$(e'')]$

One immediate advantage of this analysis is that it explains in a principled way the correlation between eventivity of the NVC and the pattern of the causative-inchoative alternation available for a CPr based on this NVC. Eventivity enables the prefix to attach low, without intervening in between v and V. Since, by hypothesis, the LV *kənın* spells out both transitive and inchoative configurations iff v and *V* are adjacent, the analysis correctly predicts that CPrs like *qišt kənın* retain the ability to alternate in both prefixless and prefixed configurations.

It becomes clear now what predictions the analysis makes with respect to the *važal*-type NAP-CPrs. The crucial fact about these predicates is that their NVCs are not event-denoting.

Being cold is by no means a property of events, but a property of individuals.[6] For this reason, it is not a suitable argument of the prefix. A reasonable suggestion would be that properties of individuals are integrated into the event structure by combining with the R head, that creates a relation between individuals and states out of it. This is evidenced by the fact that predicates of this type are licensed in the resultative construction, exactly as lexical verbs like 'warm (up)' in (61) above:

(74)   don   wažal   kon-d   u.
        water   cold   LV1-PART   COP
        'The water is (in a state of having been) cooled.'

The resultative construction provides us with a reliable diagnostic for result states. And if result states are introduced by the R head (Ramchand 2008), then examples like (74) confirm the existence of RP in the structure of CPrs like *wažal kənɪn*. Therefore, a more refined structure for such CPrs would be (75) rather than (48).
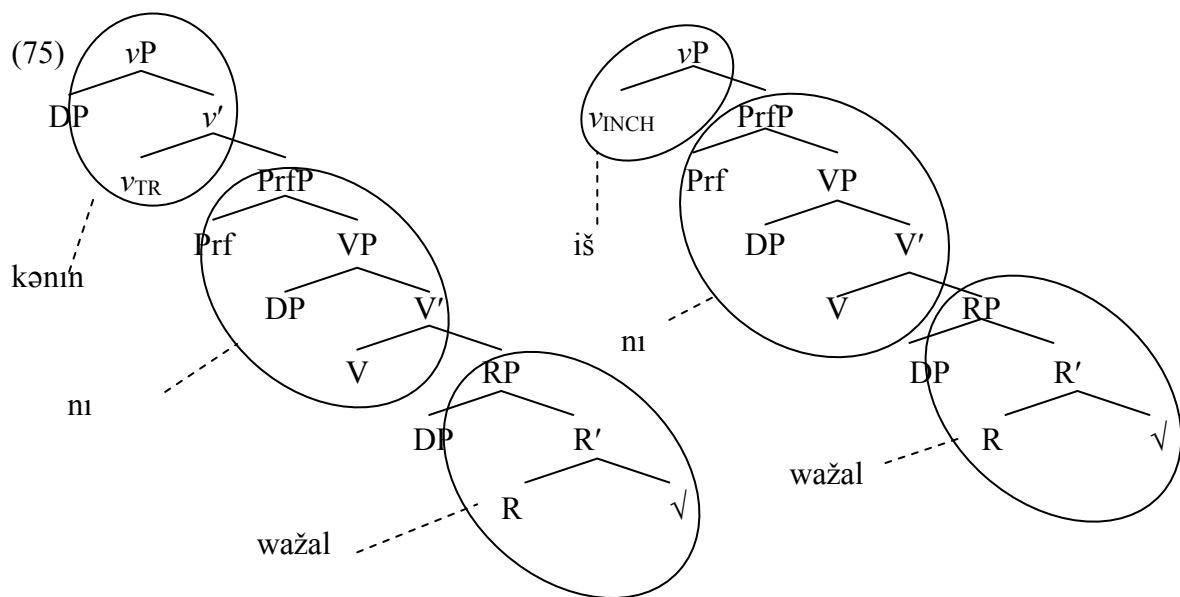
The RP denotation is shown in (76):

(76) || [RP don wažal] || = λs[cold(water)(s)]

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[6] Many current approaches to gradable adjectives like *cold* (e.g., Kennedy, McNally 2005 and literature therein) suggest that their characteristics are best accounted for if they are analyzed as functions from individuals to degrees, not as predicates of individuals. Verbs based on such adjectives (*cool, widen, lengthen*, etc.), traditionally referred to as degree achievements, will then have a degree argument in addition to individual and event arguments (e.g., Kennedy, Levin 2008). Nothing in our proposal relies on any specific assumptions about gradable predicates like *cold*, however. To keep things as simple as possible, we will ignore this issue and treat *cold* as an ordinary property of individuals of (extensional) type <e,t>.

(76) is a property of states of the cold water. As was argued above, state descriptions are not appropriate arguments for quantizing prefixes because of vacuity considerations. The combination of a state predicate with the quantizing operator is trivially undefined, since stative predicates are never quantized. As a result, RP in (76) must first become a part of the predicate of events and only after that submit itself to the prefix for quantization check. Therefore, RP embeds under VP yielding an event predicate in (77) as a VP denotation:

(77)　　$\| [_{VP}$ don V $[[_{RP}$ don wažal$]] \| = \lambda e \exists s[\text{theme(water)}(e) \wedge \text{cause(s)}(e) \wedge \text{cold(water)}(s)]$

What we have now is no longer a state but a change of state. The event predicate in (77), then, combines with the prefix, which ensures that (77) is quantized. (77) indeed is: no proper part of any event that causes the water to enter a state in which it is cold is an event that causes the water to attain such a state. The PrfP denotation is shown in (78):

(78)　　$\| [_{PrfP}$ nɪ- $[_{VP}$ don V $[_{RP}$ don wažal$]]] \| = \lambda e[\text{QUA}(\lambda e' \exists s[\text{theme(water)}(e') \wedge$
　　　　$\text{cause(s)}(e') \wedge \text{cold(water)}(s)])](e)$

Applying denotations of v_{TR} in (70b) and v_{INCH} in (71) completes the derivation, yielding event predicates in (79) and (80) respectively:

(79)　　$\| [_{vP}$ alan kodta $[_{PrfP}$ nɪ- $[_{VP}$ don V $[_{RP}$ don wažal$]]] \| = \lambda e \exists e' [\text{ agent(alan)}(e) \wedge$
　　　　$\text{cause}(e')(e) \wedge \text{QUA}(\lambda e'' \exists s[\text{theme(water)}(e'') \wedge \text{cause(s)}(e'') \wedge$
　　　　$\text{cold(water)}(s)])(e')]$

(80)　　$\| [_{vP}$ iš $[_{PrfP}$ nɪ- $[_{VP}$ don V $[_{RP}$ don wažal$]]] \| = \lambda e \exists e' [\text{ cause}(e)(e') \wedge$
　　　　$\text{QUA}(\lambda e'' \exists s[\text{theme(water)}(e'') \wedge \text{cause(s)}(e'') \wedge \text{cold(water)}(s)])(e)]$

(79) is a (characteristic function of) set of events *e* such that Alan is the agent in *e*, and *e* causes a process *e*′ that leads its theme, the water, into a state in which it is cold. (80) differs from (79) in the same way as, by hypothesis, all inchoative clauses differ from their transitive counterparts. The predicate in (80) denotes events, externally caused, in which the water becomes cold. We believe that this semantics is exactly what we need to capture the relevant part of the meaning of sentences in (45) and (47).

To sum up, our explanation of the alternation patterns associated with *qišt*-type and *wažal*-type predicates relies on the idea that ultimately these patterns are reducible to the eventivity of the NVC. Eventive nominals combine with the prefixes early, before the VP and *v*P are projected. As a result, CPrs based on eventive NVCs show the alternation regardless of the presence of the prefix: both V and *v* are spelled out by the LV *kənɪn* in a way represented in (67a-b). Non-eventive nominals, on the other hand, have to merge with R and V first to yield a property of events, a suitable input for the prefix. As a consequence, the prefix merges on
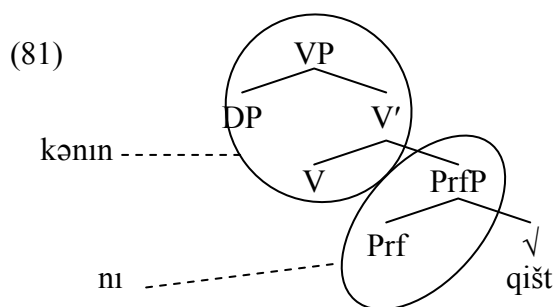
top of VP, with the effect that the spell-out of the whole structure works as represented in (75a-b). The V head is spelled-out by the prefix itself, whereas *v* is lexicalized by different LVs depending on what second order feature, TR or INCH, it bears.
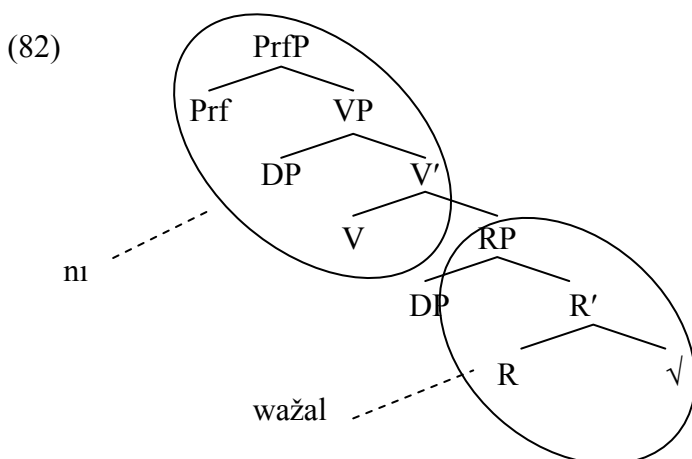
We have tried to show that there are good reasons to believe that the scenario just outlined is plausible. We presented evidence that unlike in Slavic languages, verbal prefixes cannot be analyzed as instances of the result state-introducing structure, hence their telicizing effect must be found elsewhere. Hypothesizing that prefixes function as filters preventing non-quantized event predicates from participating in further semantic derivation, we found that this hypothesis makes correct predictions for both types of CPrs we have been investigating. Specifically, we predict that prefixes enter the derivation as soon as a predicate of events appears: the Prf head merges with eventive NVCs directly and takes a VP as its complement if the NVC is non-eventive. Given this derivational asymmetry, differences with respect to the spell-out follow.

So far, the derivational asymmetry has only been motivated by the semantic considerations: the way prefixes are integrated into the event structure of the verbal predicate depends on eventivity of the NVC. It is thus crucial to find an independent evidence supporting the structures in (67) and (75). To developing an additional argument in favor of (67) and (75) we now turn.

5. Argument from nominalizations

One of the consequences of the analysis we have been developing so far is that it introduces an asymmetry as to what *v* takes as its complement: for AP-CPrs like *qišt kənın* 'squeak', the complement of *v* is VP, while for NAP-CPrs like *wažal kənın,* it is PrfP. Now we can try to derive further predictions from this asymmetry. Let us imagine that we somehow managed to remove the *v*P layer and all of the clausal functional structure dominating it. Then what we get is a PrfP in (81) and VP in (82):

(81)

(82)

```
              PrfP
           /        \
        Prf          VP
                   /    \
                 DP      V′
                       /    \
                     V       RP
                            /    \
                          DP      R′
                                /    \
                              R       √
```

nı

wažal

If the analysis we have been developing so far is correct, we get a number of very specific expectations about semantic and syntactic characteristics objects in (81) and (82) should have.[7]

First and foremost, in terms of spell-out, we derive different predictions for NAP-CPrs and AP-CPrs. If we take a vP-less part of a NAP-predicate in (82), it is predicted to contain no LV, since the LV only spells out vP, see (75). In (82) we only get an NVC plus prefix combination. If, on the other hand, we are dealing with an AP-predicate, as in (81), the LV will still be there: even if vP is gone, the LV spells out VP. This would provide us with a strong piece of evidence for different spell-out possibilities associate with LVs in these two cases, hence for different attachment options available for the prefix, hence for the whole proposal.

A number of further predictions have to do with the semantics of PrfP in (82). First, since the PrfP includes VP, the combination of the prefix and NVC has to be eventive, not stative. More precisely, for (82), it must denote an event predicate in (78) containing events in which the water cools down. If this is indeed the case, we get an independent evidence that the prefix does not attach to the NVC directly ([Prf √]), nor to the RP merged on top of the NVC [Prf [$_{RP}$ R √], but takes the whole VP as its complement. Secondly, events in the extension of the Prefix plus NVC combination must be descriptively similar to events referred to by the inchoative vP in (80). This follows from the fact that the set of events in the extension of v_{INCH}P in (80) is a subset of those in the extension of PrfP in (78). Thirdly, the event predicate in (78) does not say anything about whether events in its extension are brought about by some external force, e.g., by the agent. Therefore, we expect the prefix plus NVC combination to be compatible with scenarios

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[7] Note that in (82), *kənın* does compete for lexicalizing VP, given that VP is part of its lexical subtree in (38). However, in (82) *kənın* inevitably loses to the prefix, since the prefix better matches the subtree consisting of PrfP and VP. For expository purposes, the competition between the prefix and *kənın* is not reflected in (82).

involving volitional causation as well as scenarios implying that this is not the case. (82) is thus expected to differ crucially from corresponding fully inflected clauses in (45) and (47), which, depending on the LV, only allow one of the readings. Fourthly, since the prefix is there, the Prefix plus NVC combination must be quantized, given that the predicate in (78) is.

How can we know that some configuration provides us with what we want, with a constituent that does not contain *v*P and higher layers of functional structure? A reasonable suggestion is that in such a configuration the internal argument, due to the absence of *v*, would fail to be assigned a structural case. If this indeed happens, the configuration is suitable for our experimental purposes.

We propose that the relevant structure, only containing a deficient syntactic object like (81)-(82) is served by nominalizations.

Let us examine two types of nominalizations the NAP-CPrs like *wažal kənɪn* license. One of them is illustrated in (83). This is not the one we are interested in, but it introduces a general idea of what nominalizations look like:

(83) don   nɪ-wːažal kon-d-ɪ   fəštə   Alan   a-sɪd-i.
      water   PRF-cool   LV1-NMN-GEN   after   A.   PRF-go-PST.3SG
      'After cooling down the water, Alan went away.'

(83) involves the same case marking of the object DP as the one assigned in a fully inflected clause (e.g., (45)). In terms of argument structure, (83) is also identical to the corresponding clause: it can be associated with the causative construal ('Alan cooled down the water (and went away)'), but not with the inchoative one ('The water cooled down (and Alan went away).') Note, finally, that the nominalization does contain the LV.

Given these facts — the direct object case marking and causative construal — we can conclude that the nominalization in (83) includes the transitive *v*P, hence is larger than PrfP in (82) we are looking for.

But (83) is not the only way the CPr *wažal kənɪn* can be nominalized. Consider (84):

(84) don-ɪ   nɪ-wːažal-ɪ   fəštə   Alan   a-sɪd-i.
      water-GEN   PRF-cool-GEN   after   A.   PRF-go-PST.3SG
      'After the cooling down of the water, Alan went away.'

Here the LV is absent, and the object receives the genitive case. Marking the object DP in the same way as in the fully inflected clause, (45), (and as in the nominalization in (83)), induces ungrammaticality:

(85) * don   nɪ-wːažal-ɪ   fəštə   Alan   a-sɪd-i.
     water   PRF-cool-GEN   after   A.   PRF-go-PST.3SG
     'After cooling down of the water (in five minutes ‖ for five minutes), Alan went away.'

The nominalization in (84) starts looking like a promising candidate for manifesting the structure in (82). But before we move on discussing its characteristics in more detail, a brief note on the source of the genitive in (84) is in order.

Ossetian is a language with the differential object marking, animacy of the object DP being the most prominent factor that determines the choice. In fully inflected clauses, inanimate direct objects receive the case morphologically identical to the nominative (phonologically null), see, e.g., (45). Case marking of animate objects is identical to the genitive:

(86) Alan   ruslan-ɪ   nɪ-wːažal   kod-ta.
     A.   R.-GEN   PRF-cold   LV1-PST.3SG
     'Alan made Ruslan calm down.'

The genitive marking on inanimate objects is ungrammatical for most speakers and extremely marked for others in fully inflected clauses (as is the null marking for animates; we leave out a corresponding example for the sake of space):

(87) */$^{??}$Alan   don-ɪ   nɪ-wːažal   kod-ta.
     A.   water-GEN   PRF-cold   LV1-PST.3SG
     'Alan cooled down the water.'

(87) together with (86) tell us that the genitive in (84) cannot be a genitive of the direct object. It should thus be a property of the nominal environment where the DP *don-ɪ* occurs. Specifically, as the huge literature on nominalizations starting from Abney 1987 suggests, the DP *don-ɪ* in (84) can naturally receive the genitive from D (or from whatever other source our favorite theory of nominalization can tell us), as in (88):

(88) [$_{DP}$ DP$_i$ D [$_{NP}$ t$_i$ NMN [$_{PrfP}$ t$_i$ PRF-NVC]]]

Therefore, if it is the transitive *v* that is responsible for assigning the structural case to the direct object, the lack of this structural case is indicative of configurations with no *v*P. In (84), we are thus dealing with a piece of structure which is smaller than *v*P. On the other hand, it is at least as large as PrfP, given that the prefix is there.

Now let us discuss the crucial characteristic of (84), namely, the absence of the LV. The very fact that it is possible for the prefix and NVC to occur within the nominalization not accompanied by LV suggests that LV dominates the prefix and LVE. Most significantly, this

confirms our hypothesis that prefixes in Ossetian attach relatively low — inside the *v*P, not outside. Otherwise, any prefixed nominalization would inevitably include LV. However, as we have already seen, the analysis in (81)-(82) makes a stronger prediction. (82) predicts for NAP-CPrs like *wažal kənın* 'cool down' that removing *v*P amounts to getting rid of the LV, since the LV only lexicalizes *v*P. As is now clear, this is exactly what happens in nominalizations like the one in (84).

As far as the *v*P-less piece of structure of AP-CPrs like *qišt kənın* in (81) is concerned, the prediction is that such configurations do contain the LV, since the LV not only lexicalizes *v*P, but also VP. For AP-CPrs like *qišt kənın* 'squeak', we expect, then, that even if the genitive case marking of the object obtains (which signals that *v* is absent), the LV would still be there, which would indicate that it lexicalizes VP indeed. The prediction is borne out again:

(89) dwar-ı   qišt   kon-d-ı   fəštə Alan asıdi.
door-GEN   squeak LV1-NMN-GEN after   A.   PRF-go-PST.3SG
'After squeaking of the door, Alan went away.'

Therefore, examples like (84) and (89) lend strong support to our hypothesis that the structure of NAP-CPrs and AP-CPrs involve different complements of *v*. This is fully revealed in nominalizations that lack *v*P: the LV is lost in the former, but not in the latter case. This exactly what the analysis developed in the preceding sections predicts, since for the two types of CPrs the LV lexicalizes different amount of structure.

Besides, (84) shows that we do not need a light verb to spell-out VP in prefixed configurations. Our analysis offers a natural account for this: subject to general constraints on lexicalization (see (35)-(37)), VP can be spelled out by the prefix, given the lexical entry in (43).

A significant implication of this line of reasoning is: we always get the LV in nominalizations of prefixless configurations, as there is no candidate for spelling out VP other than the LV. Consider (90)-(91):

(90) don-ı   wažal   kon-d-ı   fəštə   Alan   a-sıd-i.
water-GEN   cool   LV1-NMN-GEN   after   A.   PRF-go-PST.3SG
'After cooling down of the water, Alan went away.'

(91) * don-ı   wažal-ı   fəštə Alan a-sıd-i.
water-GEN   cool-GEN   after A.   PRF-go-PST.3SG
'After cooling down of the water, Alan went away.'

The genitive case marking of the internal argument indicates that in (90), we are dealing with the *v*P-less nominalization, strictly parallel to the one in (84). However, unlike in (84), the LV is obligatory in (90), cf. (91). The spell-out of the VP in (90) is shown in (92):

(92)
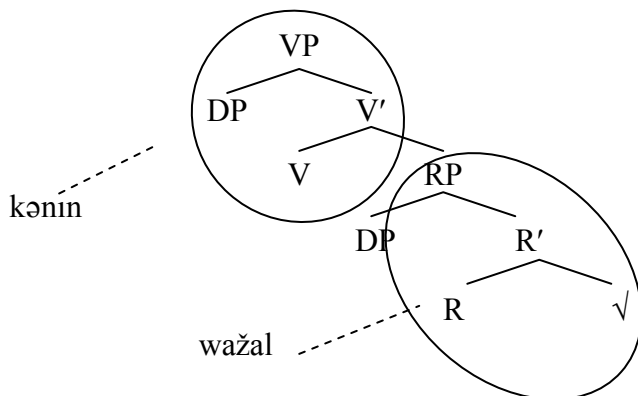
In our system, the difference between (84) and (92) falls out naturally. In (84), the prefix prevents the LV from spelling out VP, VP being lexicalized by the prefix itself. In (92), VP can and, in fact, must be lexicalized by the LV, since otherwise VP will remain unpronounced and the derivation will crash.

Let us finally discuss the predictions about the interpretation of deficient structures like (81)-(82). Since *v*P is not there, VP in (81) and PrfP in (82) would denote event predicates in (72a) and (78). For the sake of space we only repeat the latter in (93); the below reasoning applies to both, however.

(93) $\| [_{\text{PrfP}}\ \text{nı-}\ [_{\text{VP}}\ \text{don V}\ [_{\text{RP}}\ \text{don wažal}]]]\ \| = \lambda e[\text{QUA}(\lambda e'\exists s[\text{theme}(\text{water})(e') \wedge$
$\text{cause}(s)(e') \wedge \text{cold}(\text{water})(s)])](e)$

(93) is a quantized set of the processes in the theme that bring about its state of being cold. As far as we can tell, the meaning of the nominalization in (84) is precisely this. The nominalization is eventive, not stative. If (82) is correct, eventivity of (84) is expected. It is V that first introduces an event predicate into the event structure of the whole CPr. We can therefore exclude any alternative structure for (84) that does not contain V. Also, we get an additional evidence for our hypothesis that the prefix only applies to predicates of events and is not compatible to predicates of states.

Another property of the nominalization in (84) is quantization, which is again predicted, since this is what happens when the prefix applies to a predicate supplied by the VP:

(94) | don-ı | fonz | minut-mə | ‖ | *fonz | minut-ı | nı-wːažal-ı | fəštə |
|-------|------|----------|---|-------|---------|------------|------|
| water-GEN | five | minute-LAT | | five | minute-GEN | PRF-cool-GEN | after |

Alan a-sıd-i.
A.   PRF-go-PST.3SG
‘After cooling down of the water in five minutes ‖ *for five minutes, Alan went away.’

The last prediction is that events in the extension of (93) are compatible with scenarios involving volitional causation as well as scenarios implying that this is not the case. Indeed, if *v* is gone, the remaining PrfP is, strictly speaking, neither transitive nor inchoative: nothing in (93) can exclude either of these two options.[8] Consider (95):

(95) don-ı   nı-wːažal-ı   fəštə   Alan   a-sıd-i.
      water-GEN   PRF-cool-GEN   after   A.   PRF-go-PST.3SG
      'After the cooling down of the water, Alan went away.'
      Scenario 1: When the water had been brought to boil, Alan turned the heat off. It was enourmously cold in the kitchen, and soon the water started cooling down. And after the water cooled down, he went away.
      Scenario 2: Alan took the bowl with hot water and cooled it down by adding a few ice cubes. And after he cooled down the water, he went away.

As expected, the prefix plus NVC combination in (95) is felicitous on both the "inchoative" Scenario 1 and "causative" Scenario 2. In this respect, prefixed nominalizations of *wažal kənın* and similar predicates differs radically from corresponding fully inflected clauses: the latter are either unambiguously transitive (if *kənın* is chosen) or inchoative (with *iš*). This falls out straightforwardly from the above analysis: for CPrs of this type, no LV means no *v*P, and no *v*P means no restrictions on the transitive/inchoative construal.

To summarize, nominalization facts, taken together, provide significant evidence in support of the analysis in developed in Sections 3-4. Most importantly, they confirm our proposal about the ordering of syntactic heads that participate in the derivation. For NAP-CPrs like *wažal kənın*, it is *v* — Prf — V, and for AP-CPrs like *qišt kənın* it is *v* — V — Prf. This completes our story about complex predicate formation, causative-inchoative alternation, and prefixation in Ossetian. We believe that the proposed analysis has made different pieces of the puzzle fit together.

6. Summary and conclusion

Ossetian offers a rare opportunity to observe an interaction between three types of phenomena each of which has recently attracted much attention in the literature. The first is a complex predication proper. The second is argument structure alternations, specifically, the causative-inchoative alternation whereby the same verbal predicate can appear in both

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[8] Note, crucially, that it is not the case that (93) only contains agentless events of the water cooling down. For this to be the case, we need a predicate like the one in (i):

(i) $\lambda e \neg \exists x[$ Agent$(x)(e) \wedge$ QUA$(\lambda e' \exists s[$theme$(water)(e') \wedge$ cause$(s)(e') \wedge$ cold$(water)(s)])](e)$

intransitive and transitive configurations. CPrs allow us to investigate a case where an alternating element is not a single lexical item (which has mostly been subject to examination), but a combination of the two, each of which makes its own contribution to the structure of the whole. The third phenomenon, normally conceived of as unrelated to the former two, is verbal prefixation. Prefixation systems that look superficially similar to Ossetian (e.g., those we find in Slavic languages), is a huge source of empirical puzzles and theoretical complications. In Ossetian, prefixes enter into intricate relations with causative-inchoative alternation, prefixation blocking the alternation in some cases but not in others.

In this article, we started with the observation that the alternation is always available in the prefixless configuration. Then we established a generalization that CPrs fall into two types depending on the eventivity of the non-verbal component. Eventive NVCs produce CPrs that retain alternation after prefixation. If a CPr is based on a non-eventive NVC, the alternation is lost.

The basic idea on which our account for this pattern relies is: the prefix, which we analyze as a quantization filter, enters the derivation as soon as it can find a piece of structure that denotes a predicate of events. For this reason, differences in eventivity of the NVC are reflected in different attachment options available for the prefix. With eventive NVCs, the prefix attaches lower that with non-eventive NVCs. In the latter case, the prefix ends up in between v and V, in the former, it merges below V. This has huge consequences for the way the structure is spelled out. We hypothesized that the LV *kənɪn* spells out the whole subtree consisting of VP and vP, while the lexicalization potential of another LV, *iš*, is restricted to the inchoative v. In this sense, *kənɪn* is a default LV available in both transitive and inchoative configurations, unless some special circumstances obtain, where *kənɪn* loses the competition to *iš*. These circumstances include any syntactic head merging in between v and V. Since this is precisely what happens with the prefix in CPrs with non-eventive NVCs, its effect on the alternation for this class of CPrs is accounted for. Also accounted for is the lack of such an effect in case of CPrs with eventive NVCs: the prefixes merge low, and are thus unable to prevent the default LV *kənɪn* to show up in both transitive and inchoative clauses.

Concluding this discussion, we would like to go back to the general issue we started with in the Introduction: what complex predicates can tell about the event structure. In case of Ossetian, the answer seems to be straightforward: they provide us with significant information about how telicity, rendered by the verbal prefixes, is integrated into the overall structure of the verbal predicate. We have shown that the mechanism which is at work here makes crucial reference to the type of the denotation of the most deeply embedded element of

the event structure. For the whole configuration to be interpretable, this element (which surfaces as the NVC), if it denotes a property of individuals, has to become a part of a predicate of events. This analysis has allowed us to capture in a uniform fashion the otherwise surprising properties of Ossetian complex predicates.

Acknowledgments

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