

CAUSATIVE-INCHOATIVE ALTERNATION:
EVIDENCE FROM COMPLEX PREDICATES IN OSSETIAN

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1. The Puzzle

1.1. The verb *kənin* ‘do, make’ in Ossetian: an overview

Range of uses of *kənin* ‘do, make’:

- LEXICAL VERB
 - CREATION
 - directed motion
 - contact
- LIGHT VERB IN COMPLEX PREDICATES (CmpPs):
 - VERB-BASED (CAUSATIVE)
 - ADJECTIVE-BASED
 - participle-based
 - noun-based
 - noun/adjective based

↗ Uses of *kənin* discussed in the present paper come in SMALL CAPITALS

- (1) LEXICAL VERB: creation
alan *χəzar kən-1*.
A. house make-PSR.3SG
‘Alan is building a/the house.’
- (2) Lexical verb: directed motion
 - a. zalinə *ʃɪwəllon-1* *ʃk’ola-mə* *kən-1*.
Z. child-ACCS school-LAT make-PRS.3SG
‘Zalina brings the child to the school.’
 - b. fid *fətəgen* *awʒ-1* *kən-1*.
father kerosene bottle-LOC make-PRS.3SG
‘The father is pouring the kerosene into the bottle.’
 - c. soslan *χud* *ʃər-1l* *kən-1*.
S. cap head-SUPER make-PRS.3SG
‘Soslan is putting his cap on.’
- (3) Lexical verb: manipulation
e. alan *duar kən-1*.
A. door make-PSR.3SG
‘Alan is opening the door.’
- (4) COMPLEX PREDICATES: *KƏNIN* PLUS VERB (CAUSATIVE CONSTRUCTION)
 - a. *bad-in* → *bad-in* *kən-in*
sit-INF sit-INF make-INF
‘sit’ ‘make sit’
 - b. *χər-in* → *χər-in* *kən-in*
eat-INF eat-INF make-INF
‘eat’ ‘feed, make eat’
 - c. *kən-in* → *kən-in* *kən-in*
make-INF make-INF make-INF
‘make’ ‘cause to make’
- (5) COMPLEX PREDICATES: *KƏNIN* PLUS ADJECTIVE
 - a. *ədas* → *ədas* *kən-in*
safe.ADJ safe.ADJ make-INF
‘safe’ ‘secure’
 - b. *əndər* → *əndər* *kən-in*
other other make-INF
‘other’ ‘change’
- (6) Complex predicates: *kənin* plus participle
 - a. *ʒon-gə* → *ʒon-gə* *kən-in*
know-PRS.PART know-PRS.PART make-INF
‘familiar’ ‘introduce’
 - b. *c’ariʃtɪy-d* → *c’ariʃtɪy-d* *kən-in*
fleece-PST.PART fleece-PST.PART make-INF
‘fleeced’ ‘rob’

- (7) Complex predicates: *kəɲɪn* plus noun
- | | | | | |
|----|--|---|---|---------------------------|
| a. | <i>ʒiwəg</i>
laziness
'laziness' | → | <i>ʒiwəg</i>
laziness
'idle' | <i>kəɲ-in</i>
make-INF |
| b. | <i>kələn</i>
witchcraft
'witchcraft' | → | <i>kələn</i>
witchcraft
'practice witchcraft' | <i>kəɲ-in</i>
make-INF |
| c. | <i>bəz-bəz</i>
buzz
'buzzing sound' | → | <i>bəz-bəz</i>
buzz
'buzz' | <i>kəɲ-in</i>
make-INF |
- (8) Complex predicates: *kəɲɪn* plus noun/adjective
- | | | | | |
|----|--|---|--|---------------------------|
| a. | <i>gom</i>
gap.NOUN/open.ADJ
'gap'/'open' | → | <i>gom</i>
gap.NOUN/open.ADJ
'open vt/vi' | <i>kəɲ-in</i>
make-INF |
| b. | <i>bəzʒɪn</i>
thick.ADJ/NOUN
'thick'/'thicket' | → | <i>bəzʒɪn</i>
thick.ADJ/NOUN
'thicken vt/vi' | <i>kəɲ-in</i>
make-INF |

1.2. *Kəɲɪn* in complex predicates: causative-inchoative alternation

- (9) *kəɲɪn* as a lexical verb: transitive only
- | | | | |
|----|-----------------|----------------|-----------------------------|
| a. | <i>alan</i> | <i>χəɲɪnag</i> | <i>kəɲ-1.</i> |
| | A. | food | make-PRS.3SG |
| | | | 'Alan is cooking the food.' |
| b. | <i>*χəɲɪnag</i> | <i>kəɲ-1.</i> | |
| | food | make-PRS.3SG | |
| | | | 'The food is cooking.' |
- (10) *kəɲɪn* in verbal (causative) CmPs: transitive only
- | | | | |
|----|----------------|----------------|---|
| a. | <i>maʃɪnə</i> | <i>təlf-1.</i> | |
| | car | move-PRS.3SG | |
| | | | 'The car is moving.' |
| b. | <i>alan</i> | <i>maʃɪnə</i> | <i>təlf-in</i> |
| | A. | car | move-INF |
| | | | make-PRS.3SG |
| | | | 'Alan is moving the car (lit. is making the car move).' |
| c. | <i>*maʃɪnə</i> | <i>təlf-in</i> | <i>kəɲ-1.</i> |
| | car | move-INF | make-PRS.3SG |
| | | | 'The car is moving.' |
- (11) *kəɲɪn* in adjectival CmPs: causative-inchoative alternation (CIA)
- | | | | | |
|----|---------------|---------------|---------------|------------------------------|
| a. | <i>zaur</i> | <i>k'aliu</i> | <i>c'əl</i> | <i>kəɲ-1.</i> |
| | Z. | branch | broken | make-PRS.3SG |
| | | | | 'Zaur is breaking a branch.' |
| b. | <i>k'aliu</i> | <i>c'əl</i> | <i>kəɲ-1.</i> | |
| | branch | broken | make-PRS.3SG | |
| | | | | 'The branch is breaking.' |

1.3. Alternating non-derived verbs

Verb classes in Ossetian:

- Intransitive:
 - unaccusatives*: *ʒajɪn* 'grow', *χwiʃʃɪn* 'go out', *qarɪn* 'leak', *təɲɪn* 'fear'
 - unergatives*: *χɪlm* 'climb', *lizɪn* 'run', *təχɪn* 'fly', *rəjɪn* 'bark'
- Transitive: *χəɲɪn* 'eat', *səwɪn* 'hit', *dawɪn* 'steal', *ʃəttɪn* 'break', *kəɲɪn* 'do, make'
- Alternating: *tajɪn* 'melt', *ʃquɪn* 'tear', *ʒɪlm* 'turn', *tawɪn* 'warm up'

- (12) Alternating verb
- | | | |
|----|------------|--------------------------------|
| a. | <i>mit</i> | <i>taj-1.</i> |
| | snow | melt-PRS.3SG |
| | | 'The snow is melting.' |
| b. | <i>χur</i> | <i>mit</i> |
| | sun | snow |
| | | melt-PRS.3SG |
| | | 'The sun is melting the snow.' |
- (13) Transitive verb
- | | | | |
|----|-----------------|----------------|-------------------------------|
| a. | <i>alan</i> | <i>aguɪwʒə</i> | <i>ʃətt-1.</i> |
| | A. | glass | break-PRS.3SG |
| | | | 'Alan is breaking the glass.' |
| b. | <i>*aguɪwʒə</i> | <i>ʃətt-1.</i> | |
| | glass | break-PRS.3SG | |
| | | | 'The glass is breaking.' |
- (14) Unacusative verb
- | | | | |
|----|--------------|--------------------------|---------------------------------|
| a. | <i>art</i> | <i>χwiʃʃ-1.</i> | |
| | fire | go_out-PRS.3SG | |
| | | 'The fire is going out.' | |
| b. | <i>*alan</i> | <i>art(-1)</i> | <i>χwiʃʃ-1.</i> |
| | A. | fire(-ACC) | go_out-PRS.3SG |
| | | | 'Alan is putting the fire out.' |

1.4. The proposal in brief

QUESTIONS:

- How can a transitive verb 'do, make' yield the causative-inchoative alternation in CmPs (e.g., (11))?
- Why do not all CmPs with 'do, make' exhibit the CIA (cf. (10) and (11))?
- Does CIA in CmPs and in non-derived environments (e.g., (12)) originate from the same source?

ANSWERS:

- 'Do, make' comes in two varieties: a lexical verb of creation *kəɲ_{LEX}* and a light verb *kəɲ_{CAUS}* that denotes the causal relation on events.
- In all cases, CIA is derived by two 'flavors' of *v*: *v_{TR}* and *v_{INCH}*.
- In verbal (causative) CmPs *kəɲ_{CAUS}* merges as the *v* head, hence cannot co-occur with *v_{TR}* and *v_{INCH}*, hence no alternation.
- In adjectival CmPs, *kəɲ_{CAUS}* merges as the *V* head, creating VP that can merge with *v_{TR}* and *v_{INCH}*, hence CIA.

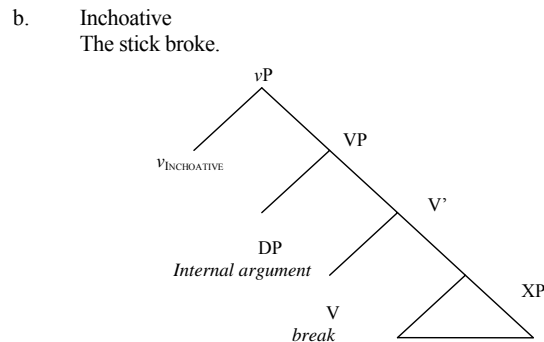
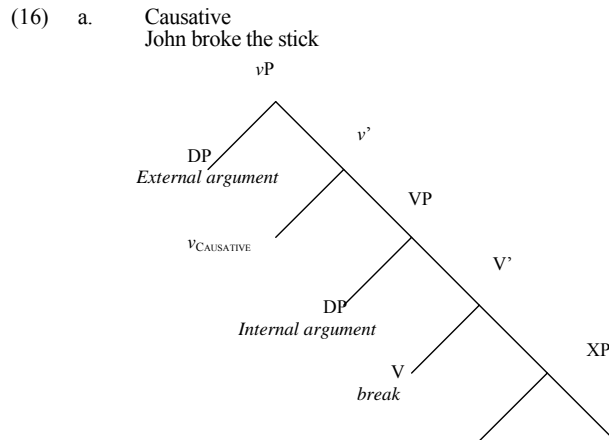
2. Causative-inchoative alternation in non-derived environments

2.1. Theoretical approaches to CIA

- (15) a. The stick broke.
b. John broke the stick.

CIA and surrounding issues: Lakoff 1965; Fillmore 1970; Nedjalkov & Silnitsky 1973; Perlmutter 1978; Dowty 1979; Pinker 1989; Croft 1990; 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; Nichols et al. 2004; Folli & Harley 2005; Alexiadou et al. 2006; Harley 2006; Kallulli 2007; Koontz-Garboden 2007, 2008; Ramchand 2008, a.o.

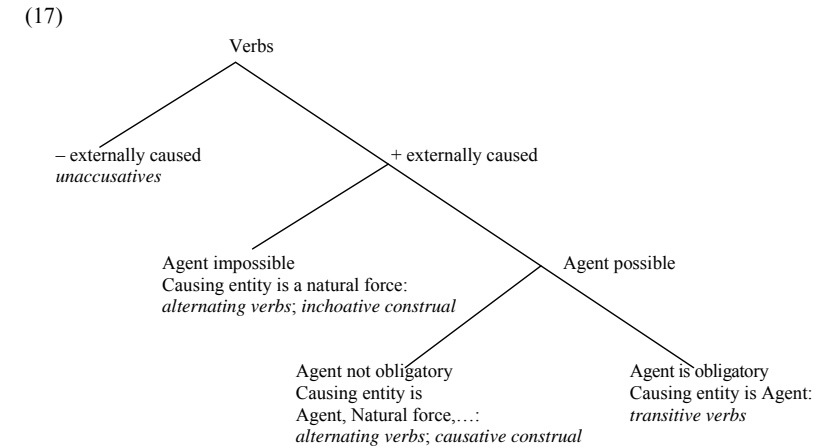
- The causative is syntactically derived from the inchoative
- The inchoative is syntactically derived from the causative
- THE CAUSATIVE AND INCHOATIVE ARE DERIVED INDEPENDENTLY



2.2. Comparing verb classes in Ossetian

Verb classes derive from

- presence of external causation (e.g., Levin & Rappaport Hovav 1995, Rappaport Hovav & Levin 1998)
- thematic properties of causing entity



(18) Alternating verbs; inchoative construal: Agent impossible

- a. mit təwd-əj taj-1.
snow heat-ABL melt-PRS.3SG
'The snow is melting because of the heat.'
- b. ??mit alan-əj taj-1.
snow A.-ABL melt-PRS.3SG
1. ?? 'The snow is melting because of Alan.'
2. *'Alan is melting the snow.'

(19) Alternating verb; causative construal: Agents, Natural Forces, ...

- a. alan mit taj-1. AGENT
A. snow melt-PRS.3SG
'Alan is melting the snow.'
- b. ɣur mit taj-1. →AGENT
sun snow melt-PRS.3SG
'The sun is melting the snow.'

(20) Transitive verb: Agent

- a. alan soslan-1 səw-t-a. AGENT
A. S.-ACC hit-PST-3SG
'Alan hit Soslan.'
- b. *k'aliu soslan-1 səw-t-a. →AGENT
branch S.-ACC hit-PST-3SG
'The branch hit Soslan.'

Theoretical assumptions:

EXTERNAL CAUSATION → vP:

- true unaccusatives: no v
- alternating verbs:
 - causative construal: transitive v
 - inchoative construal: inchoative v
- transitives: transitive v

- (21) a. $\| [v \emptyset_{TR}] \| = \lambda R_{\langle e, \langle s, t \rangle \rangle} \lambda x \lambda e [R(x)(e)]$
 b. $\| [v \emptyset_{INCH}] \| = \lambda R_{\langle e, \langle s, t \rangle \rangle} \lambda e \exists x [R(x)(e) \wedge \neg Agent(x)(e)]$

where e is a type of individuals, s is a type of events, and t is a type of truth values

EXTERNAL ARGUMENT ∈ {AGENT, CAUSER, NATURAL FORCE}

NB: for simplicity, we ignore events, instruments... This simplification does not affect the overall line of argument, however.

- (22) a. Causers: $\{ \langle x', e' \rangle \mid Causer(x', e') \}$ (cf. Koontz-Garboden's 2008 Effector)
 b. Agents: $\{ \langle x, e \rangle \mid Agent(x, e) \} \subset \{ \langle x', e' \rangle \mid Causer(x', e') \}$
 c. Natural forces: $\{ \langle x', e' \rangle \mid Causer(x', e') \wedge \neg Agent(x, e) \}$.

- true unaccusatives: no causing entity
- alternating verbs:
 - causative construal: Causer
 - inchoative construal: Natural Force; not Agent
- transitives: Agent

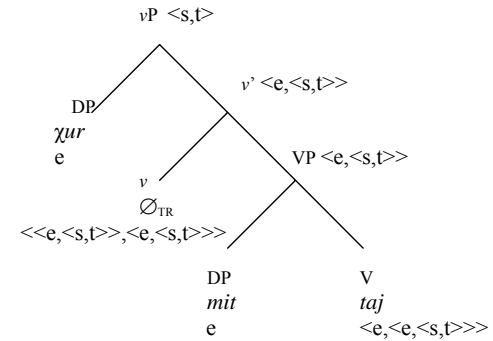
2.3. The analysis

2.3.1. Alternating verbs

- the verb stem specifies two arguments: internal (Theme) and external (Causer);
- causative construal: transitive v (equivalence function) (21a)
- inchoative construal: inchoative v (21b)
 - ✓ existential binding of the external argument
 - ✓ eliminating agents from the set of causers

CAUSATIVE CONSTRUAL

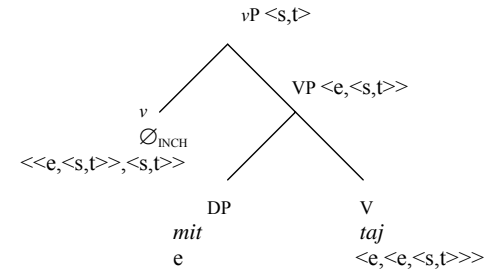
- (23) a. χ_{ur} mit taj-1.
 sun snow melt-PRS.3SG
 'The sun is melting the snow.'
 b.



- (24) a. $\| [v \text{ taj}] \| = \lambda y \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(y)(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(y)(s)]$
 b. $\| [_{VP} \text{ mit taj}] \| = \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$
 c. $\| [v' \emptyset_{TR} [_{VP} \text{ mit taj}]] \| = \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$
 d. $\| [_{vP} \chi_{ur} \emptyset_{TR} [_{VP} \text{ mit taj}]] \| = \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(\text{sun})(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$

INCHOATIVE CONSTRUAL

- (25) a. mit taj-1.
 snow melt-PRS.3SG
 'The snow is melting.'
 b.

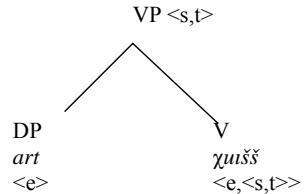


- (26) a. $\| [v \text{ taj}] \| = \lambda y \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(y)(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(y)(s)]$
 b. $\| [_{VP} \text{ mit taj}] \| = \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$
 c. $\| [_{vP} \emptyset_{INCH} [_{VP} \text{ mit taj}]] \| = \lambda e \exists x \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \neg Agent(x)(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$

2.3.2. Unaccusatives

- Unaccusatives lack vP altogether;
- The verb stem specifies only one (internal) argument.

- (27) a. art χυϊσ̣̣̣-ι.
fire go_out-PRS.3SG
'The fire is going out.'
- b.



- (28) a. $\llbracket [V \chi u i \dot{s} \dot{s}] \rrbracket = \lambda y \lambda e [go_out(e) \wedge Theme(y)(e)]$
 b. $\llbracket [VP \text{ art } \chi u i \dot{s} \dot{s}] \rrbracket = \lambda e [go_out(e) \wedge Theme(\text{fire})(e)]$

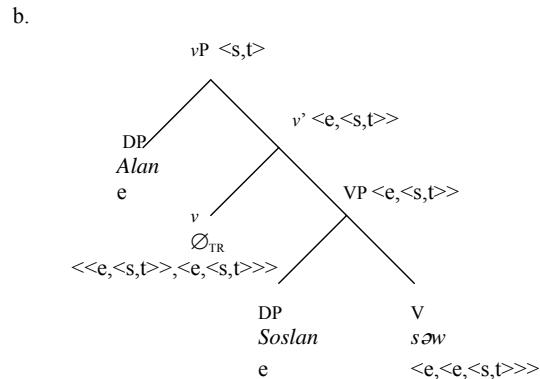
NB: true unaccusatives are not compatible with either v_{TR} or v_{INCH} because of type mismatch:

- (29) a. $[VP \text{ art } \chi u i \dot{s} \dot{s}] : \langle s, t \rangle$
 b. $[V \emptyset_{TR}] : \langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle \rangle$
 c. $[V \emptyset_{INCH}] : \langle \langle e, \langle s, t \rangle \rangle, \langle s, t \rangle \rangle$
 hence only intransitive unaccusative construal.

2.3.3. Transitives

- the verb stem specifies two arguments: internal (Theme) and external (Agent);
- transitive construal: transitive v (equivalence function) (21a)

- (30) a. alan soslan-ι ṣ̣̣w-ι.
A. S.-ACC hit-PRS.3SG
'Alan is hitting Soslan.'



- (31) a. $\llbracket [V \text{ ṣ̣̣}w] \rrbracket = \lambda y \lambda x \lambda e [hit(e) \wedge Agent(x)(e) \wedge Theme(y)(e)]$
 b. $\llbracket [VP \text{ soslan ṣ̣̣}w] \rrbracket = \lambda x \lambda e [hit(e) \wedge Agent(x)(e) \wedge Theme(\text{Soslan})(e)]$
 c. $\llbracket [V \emptyset_{TR} [VP \text{ soslan ṣ̣̣}w]] \rrbracket = \lambda x \lambda e [hit(e) \wedge Agent(x)(e) \wedge Theme(\text{Soslan})(e)]$
 d. $\llbracket [VP \text{ alan } \emptyset_{TR} [VP \text{ soslan ṣ̣̣}w]] \rrbracket = \lambda e [hit(e) \wedge Agent(\text{Alan})(e) \wedge Theme(\text{Soslan})(e)]$

NB: transitives are not compatible with v_{INCH} because of the mutually exclusive specifications of the θ -role of the causing entity:

- (32) a. $\llbracket [VP \text{ soslan ṣ̣̣}w] \rrbracket = \lambda x \lambda e [hit(e) \wedge Agent(x)(e) \wedge Theme(\text{Soslan})(e)]$
 b. $\llbracket [V \emptyset_{INCH}] \rrbracket = \lambda R \langle e, \langle s, t \rangle \rangle \lambda e \exists x [R(x)(e) \wedge \neg Agent(x)(e)]$
 c. $\llbracket [V \emptyset_{INCH} [VP \text{ soslan ṣ̣̣}w]] \rrbracket = \lambda e \exists x [hit(e) \wedge \underline{Agent(x)(e)} \wedge \underline{\neg Agent(x)(e)} \wedge Theme(\text{Soslan})(e)]$

(32c) denotes an empty set of events since $Agent(x)(e) \wedge \neg Agent(x)(e)$ is a contradiction, hence only transitive construal.

2.3.4. ḳ̣̣ṇ̣̣ṇ̣̣ 'do, make' as a lexical verb

As a lexical verb, ḳ̣̣ṇ̣̣ṇ̣̣ 'do, make' falls under the class of transitives:

- (33) $\llbracket [V \text{ ḳ̣̣ṇ̣̣ṇ̣̣}] \rrbracket = \lambda y \lambda x \lambda e [make(e) \wedge Agent(x)(e) \wedge Theme(y)(e)]$
- (34) a. $[VP \text{ alan } \emptyset_{TR} [VP \chị̣̣ṛ̣̣ṇ̣̣aḡ \text{ ḳ̣̣ṇ̣̣ṇ̣̣}]]$ -ι.
A. food make-PRS.3SG
'Alan is cooking the food.'
- b. $\llbracket [V \text{ ḳ̣̣ṇ̣̣ṇ̣̣}] \rrbracket = \lambda y \lambda x \lambda e [make(e) \wedge Agent(x)(e) \wedge Theme(y)(e)]$
 c. $\llbracket [VP \chị̣̣ṛ̣̣ṇ̣̣aḡ \text{ ḳ̣̣ṇ̣̣ṇ̣̣}] \rrbracket = \lambda x \lambda e [make(e) \wedge Agent(x)(e) \wedge Theme(\text{food})(e)]$
 d. $\llbracket [V \emptyset_{TR} [VP \chị̣̣ṛ̣̣ṇ̣̣aḡ \text{ ḳ̣̣ṇ̣̣ṇ̣̣}]] \rrbracket = \lambda x \lambda e [make(e) \wedge Agent(x)(e) \wedge Theme(\text{food})(e)]$
 e. $\llbracket [VP \text{ alan } \emptyset_{TR} [VP \chị̣̣ṛ̣̣ṇ̣̣aḡ \text{ ḳ̣̣ṇ̣̣ṇ̣̣}]] \rrbracket = \lambda x \lambda e [make(e) \wedge Agent(\text{Alan})(e) \wedge Theme(\text{food})(e)]$

Since the lexical verb ḳ̣̣ṇ̣̣ṇ̣̣ 'do, make' is a transitive verb, it cannot occur in inchoative clauses.

THE STORY SO FAR:

- Causative-inchoative alternation obtains iff a verb
 - ✓ projects VPs of type $\langle e, \langle s, t \rangle \rangle$ (that is, VPs that have an unsaturated argument position);
 - ✓ specifies its external argument as Causer.
- Causative and inchoative variants are produced by v_{TR} and v_{INCH} , respectively.
- Two reasons not to alternate:
 - ✓ wrong logical type of VP ($\langle s, t \rangle$ instead of $\langle e, \langle s, t \rangle \rangle$): unaccusatives do not have a transitive counterpart
 - ✓ the external argument is lexically specified as Agent: transitives do not have an intransitive counterpart

3. Causative-inchoative alternation in CmPs

3.1. Adjectival and verbal CmPs

(35) *kənnin* in adjectival CmPs: causative-inchoative alternation

- a. *zaur k'aliu c'əl kən-1.*
 Z. branch broken make-PRS.3SG
 'Zaur is breaking a branch.'
- b. *k'aliu c'əl kən-1.*
 branch broken make-PRS.3SG
 'The branch is breaking.'

(36) *kənnin* in verbal (causative) CmPs: transitive only

- a. *mašinə təlf-1.*
 car move-PRS.3SG
 'The car is moving.'
- b. *alan mašinə təlf-in kən-1.*
 A. car move-INF make-PRS.3SG
 'Alan is moving the car (lit. is making the car move).'
- c. **mašinə təlf-in kən-1.*
 car move-INF make-PRS.3SG
 'The car is moving.'

PROBLEMS TO BE SOLVED:

- *kənnin* in verbal and adjectival CmPs: same or different?
- derivation of adjectival CmPs
- derivation of verbal CmPs

THE HYPOTHESIS:

- The same causative light verb *kən_{CAUS}* is involved in derivation of both verbal and adjectival CmPs;
- In adjectival CmPs, causative-inchoative alternation is derived in exactly the same way as in non-derived configurations discussed in section 2, that is, through *v_{TR}* and *v_{INCH}*;
- In verbal CmPs (causative constructions), VP is semantically incompatible with *v_{INCH}*, hence no intransitive construal.

3.2. The light verb

- Thematic properties of the external argument
- Semantics of causation

The external argument in CmPs is Causer, not Agent. Adjectival and verbal CmPs do not differ in this respect.

(37) *kənnin* in adjectival CmPs: external argument is Causer

- a. *alan duar gom kən-1.*
 A. door open make-PRS.3SG
 'Alan is opening the door.'

- b. *dimgə duar gom kən-1.*
 wind door open make-PRS.3SG
 'The wind is opening the door.'

(38) *kənnin* in verbal CmPs: external argument is Causer

- a. *alan art çuişş-in kən-1.*
 A. fire go_out-INF make-PRS.3SG
 'Alan is extinguishing the fire.'
- b. *qəwda art çuişş-in kən-1.*
 rain fire go_out-INF make-PRS.3SG
 'The rain is extinguishing the fire.'

The light verb *kənnin* in CmPs differs from *kənnin_{LEX}* in that the latter requires Agent:

(39) lexical verb *kənnin* 'do, make': external argument is Agent

- a. *alan duar kən-1.*
 A. door make-PRS.3SG
 'Alan is opening the door.'
- b. **dimgə duar kən-1.*
 wind door make-PRS.3SG
 'The wind is opening the door.'

In both verbal and adjectival CmPs, *kənnin* introduces a causing event and a corresponding causing argument.

(40) $\| \text{kənnin}_{\text{CAUS}} \| = \lambda P_{\langle s, t \rangle} \lambda x \lambda e \exists e' [\text{Causer}(x)(e) \wedge \text{cause}(e')(e) \wedge P(e')]$

where the variable of type *s* ranges over eventualities, both events and states

- When combined with a verbal predicate that denotes events by itself, *kənnin_{CAUS}* creates a new event predicate that denotes causing events existentially binding the initial event variable.
- When combined with an adjectival predicate that denotes states, *kənnin_{CAUS}* creates an event predicate that denotes causing events existentially binding the initial state variable.

3.3. Derivation of adjectival CmPs

- *kənnin_{CAUS}* merges as the V head.
- Its complement is AP headed by the adjective, with the argument of that adjective sited in Spec, AP
- Adjectives are of logical type $\langle e, \langle s, t \rangle \rangle$, that is, denote relations between individuals and states

- (41) a. $[_{VP} \text{zaur } \emptyset_{TR} [_{VP} [_{AP} \text{k'aliu c'əl}] [_{V} \text{kən}_{\text{CAUS}}]]]_{-1}$.
 Z. branch broken make-PRS.3SG
 'Zaur is breaking a branch.'
- b. $[_{VP} \emptyset_{\text{INCH}} [_{VP} [_{AP} \text{k'aliu c'əl}] [_{V} \text{kən}_{\text{CAUS}}]]]_{-1}$.
 branch broken make-PRS.3SG
 'The branch is breaking.'

(42) Derivation of VP:

- a. $\| [A \text{ c}'\text{əl}] \| = \lambda x \lambda s [\text{broken}(s) \wedge \text{Holder}(x)(s)]$
 b. $\| [AP \text{ k}'\text{aliu} \text{ c}'\text{əl}] \| = \lambda s [\text{broken}(s) \wedge \text{Holder}(\text{branch})(s)]$
 c. $\| [V \text{ k}\text{ən}_{\text{CAUS}}] \| = \lambda P_{\langle s, t \rangle} \lambda x \lambda e \exists e' [\text{Causer}(x)(e) \wedge \text{cause}(e')(e) \wedge P(e')]$
 d. $\| [VP [AP \text{ k}'\text{aliu} \text{ c}'\text{əl}] \text{ k}\text{ən}_{\text{CAUS}}] \| = \lambda x \lambda e \exists s [\text{Causer}(x)(e) \wedge \text{cause}(s)(e) \wedge \text{broken}(s) \wedge \text{Holder}(\text{branch})(s)]$

Recall from section 2 that of VP wants to produce both causative and inchoative clauses it must satisfy two conditions:

- ✓ be of type $\langle e, \langle s, t \rangle \rangle$;
- ✓ specify its external argument as Causer.

In (42d) exactly this type of VP obtains. Compare VP projected by the non-derived alternating verb *tajin* ‘melt’ and by the adjectival CmP in (42d):

- (43) a. $\| [V \text{ taj}] \| = \lambda y \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(y)(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(y)(s)]$
 b. $\| [VP \text{ mit} \text{ taj}] \| = \lambda x \lambda e \exists s [\text{melt}(e) \wedge \text{Causer}(x)(e) \wedge \text{Theme}(\text{snow})(e) \wedge \text{cause}(s)(e) \wedge \text{melted}(s) \wedge \text{Holder}(\text{snow})(s)]$

Exactly as what happens to alternating verbs like *tajin* ‘melt’ in (43), VP in (42d) merges with v_{TR} or with v_{INCH} , yielding causative (44) and inchoative (45) construals, respectively:

- (44) a. $\| [v' \emptyset_{\text{TR}} [VP [AP \text{ k}'\text{aliu} \text{ c}'\text{əl}] \text{ k}\text{ən}_{\text{CAUS}}]] \| = \lambda x \lambda e \exists s [\text{Causer}(x)(e) \wedge \text{cause}(s)(e) \wedge \text{broken}(s) \wedge \text{Holder}(\text{branch})(s)]$
 b. $\| [VP \text{ zaur} \emptyset_{\text{TR}} [VP [AP \text{ k}'\text{aliu} \text{ c}'\text{əl}] \text{ k}\text{ən}_{\text{CAUS}}]] \| = \lambda e \exists s [\text{Causer}(\text{Zaur})(e) \wedge \text{cause}(s)(e) \wedge \text{broken}(s) \wedge \text{Holder}(\text{branch})(s)]$
 (45) $\| [VP \emptyset_{\text{INCH}} [VP [AP \text{ k}'\text{aliu} \text{ c}'\text{əl}] \text{ k}\text{ən}_{\text{CAUS}}]] \| = \lambda e \exists x \exists s [\text{Causer}(x)(e) \wedge \neg \text{Agent}(x)(e) \wedge \text{cause}(s)(e) \wedge \text{broken}(s) \wedge \text{Holder}(\text{branch})(s)]$

Causative-inchoative alternation in adjectival CmPs is thus accounted for.

3.4. Derivation of verbal CmPs

- (46) a. alan art χ uišš-in kən-1.
 A. fire go_out-INF make-PRS.3SG
 ‘Alan is extinguishing the fire.’
 b. *art χ uišš-in kən-1.
 fire go_out-INF make-PRS.3SG
 ‘The fire is going out.’

QUESTION:

Given that adjectival CmPs allow for CIA and that verbal CmPs are based on the same light verb $\text{k}\text{ən}_{\text{CAUS}}$, why don’t verbal CmPs exhibit CIA?

Recall from section 2 that if VP is not going to participate in CIA, it must either

- ✓ have a wrong logical type OR
- ✓ specify its external argument as Agent.

As we saw in section 3.2, the external argument of verbal CmPs need not be Agent, hence inappropriateness of (46b) must have to do with the logical type of VP, not with agentivity. As derivations repeated in (47) suggest, this is indeed the case:

- (47) a. $\| [V \chi$ uišš] $\| = \lambda y \lambda e [\text{go_out}(e) \wedge \text{Theme}(y)(e)]$
 b. $\| [VP \text{ art} \chi$ uišš] $\| = \lambda e [\text{go_out}(e) \wedge \text{Theme}(\text{fire})(e)]$

As we have shown in 2.3.2, VP in (47b) cannot be combined with v_{TR} or with v_{INCH} because of the type mismatch: both v_{TR} and v_{INCH} require their complement be of type $\langle e, \langle s, t \rangle \rangle$, while (47b) is a property of events of type $\langle s, t \rangle$. However, VPs like (47b) can combine with $\text{k}\text{ən}_{\text{CAUS}}$, because logical types of VP and $\text{k}\text{ən}_{\text{CAUS}}$ do match: the former is of type $\langle s, t \rangle$, the latter requires an argument of type $\langle s, t \rangle$. Hence, $\text{k}\text{ən}_{\text{CAUS}}$ merges with VP as the v head, yielding a relation between individuals and events in (48b):

- (48) a. $\| \text{k}\text{ən}_{\text{CAUS}} \| = \lambda P_{\langle s, t \rangle} \lambda x \lambda e \exists e' [\text{Causer}(x)(e) \wedge \text{cause}(e')(e) \wedge P(e')]$
 b. $\| [v' [VP \text{ art} \chi$ uišš] $[v \text{ k}\text{ən}_{\text{CAUS}}]] \| = \lambda x \lambda e \exists e' [\text{Causer}(x)(e) \wedge \text{cause}(e')(e) \wedge \text{go_out}(e') \wedge \text{Theme}(\text{fire})(e')]$

(48b) is of type $\langle e, \langle s, t \rangle \rangle$, hence semantically can be an argument of both v_{TR} and v_{INCH} . However, syntactically, the derivation cannot go this way, since v_{TR} and v_{INCH} are complementarily distributed with $\text{k}\text{ən}_{\text{CAUS}}$: all of them are instances of v . Therefore, the only way of getting the intransitive construal – by merging with v_{INCH} – is ruled out. The derivation proceeds by merging the external argument in Spec- v P, yielding a transitive configuration:

- (49) $\| [VP \text{ alan} [VP \text{ art} \chi$ uišš] $[v \text{ k}\text{ən}_{\text{CAUS}}]] \| = \lambda e \exists e' [\text{Causer}(\text{Alan})(e) \wedge \text{cause}(e')(e) \wedge \text{go_out}(e') \wedge \text{Theme}(\text{fire})(e')]$

4. Conclusions

Contrary to what examples like (9a-b) might suggest, there is no intransitive ‘make’ in Ossetian. In our system, the range of interpretations of *kənin* ‘do, make’ mostly derives from more general assumptions, required independently, about syntax of basic verb classes in Ossetian — alternating transitives, non-alternating transitives, and unaccusatives. Two specific assumptions about *kənin* ‘do, make’ we need are:

- (a) there are two lexical items, the verb of creation $\text{k}\text{ən}_{\text{LEX}}$ and the causative morpheme $\text{k}\text{ən}_{\text{CAUS}}$, and
 (b) the latter can merge either as V or v , provided that its complement possesses a matching logical type.

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