Manner-result dichotomy and light verb constrictions in Karachay-Balkar

Problem. Turkic languages are famous for their light verb constructions (LVCs). In this paper, I address the puzzle exemplified in (1)-(2) from Karachay-Balkar:

(1) fatima qofta eš-ip tur-a-dɨ.
F. jacket knit-CONV LV-IPFV-3SG
'Fatima is knitting a jacket.'

(2) alim ešik-ni ac-ɨp tur-a-dɨ.
A. door-ACC open-CONV LV-IPFV-3SG
'The door is in a state of having been open by Alim.'

Both (1) and (2) show the LVC based on the LV *tur-* 'lit. stand' in combination with the deverbal adverb in *-Yp*. Most aspects of (1) and (2) are identical: both are transitive, both involve nominative-accusative case marking, both contain the LV in the present imperfective form. However, the interpretation is radically different: while (1) describes an ongoing process, (2) refers to a poststate of an event occurring prior to the reference time. (See Shluinsky 2006 for a list of diagnostics telling sentences like (1) and (2) apart.)

According to Shluinsky (2006), **manner verbs** in terms of Rapaport Hovav and Levin 1998 and elsewhere, RH&L henceforth, all pattern with (1), while **result verbs** behave like (2). (See Rappaport Hovav 2008, Levin & Rappaport Hovav 2010, and Koontz-Garboden & Beavers 2012 for a recent discussion of manner/result complementarity.) The questions I want to answer in this paper are: what makes the LVC in question sensitive to semantic class membership of the lexical verb and how does the mechanism assigning the stative interpretation to (2) but the process interpretation to (1) works?

Analysis of LVCs. In answering these questions I take the following steps. First, following RH&L and huge further literature, I assume that the semantic representation of result verbs consists of two subevents, causally related, where the causing activity is underspecified for descriptive content. Unlike in RH&L, I assume that manner verbs have complex event structure, too; for this class of verbs, underspecified for descriptive properties is a result subevent. Crucially, I propose that semantic representations of manner and result verbs contain a generalized quantifier of type <<v,t>,t>, which quantifies over an underspecified component of event structure. (3) and (4) are semantic representations for uninflected vPs based on manner and result verbs respectively.

(3) || fatima kofta eš- || = $\lambda \underline{P}_{<<v,t>,t>} \lambda e$ [knit(e) ∧ process(e) ∧ agent(Fatima)(e) ∧ theme(jacket)(e) ∧ $\underline{P}(\lambda e'$[state(e′) ∧ holer(jacket)(e′) ∧ cause(e′)(e)])] **type <<<v,t>,t>,<v,t>>**
where *v* is the logical type of eventualities comprising both events and states; P has the logical type <<v,t>,t>, the one of generalized quantifiers over events

(4) || alim ešik ac- || = $\lambda \underline{P}_{<<v,t>,t>} \lambda e$ [open(e) ∧ state(e) ∧ holder(door)(e) ∧ $\underline{P}(\lambda e'$[process(e′) ∧ agent(Alim)(e′) ∧ theme(door)(e′) ∧ cause(e)(e′)])] **type <<<v,t>,t>,<v,t>>**

As a descriptive generalization, I assume (5), remaining agnostic at the moment as to whether (5) is derivable from more basic principles of event composition:

(5) Descriptive properties of (sub)events in the event structure are either specified lexically or determined through quantification.

The rationale behind this proposal is this: when a subevent is underspecified for descriptive properties, this means that it can fall under an extension of different event predicates. Therefore, a set of event predicates is required to characterize this subevent. A set of event predicates has the logical type <<v,t>, t>, that of generalized quantifiers over events.

Secondly, I propose that *tur* is analyzed as an operator on event structure that binds existentially a generalized quantifier variable:

(6) || tur || = $\lambda S_{<<<v,t>,t>, <v,t>>} \lambda e \exists \underline{P}$[S($\underline{P}$)(e)] **type <<<<v,t>,t>,<v,t>>,<v,t>>**

Applying the denotation of *tur* in (6) to (3) and (4) yields (7) and (8) respectively:

(7) || [tur [fatima kofta eš-]] || = $\lambda e \exists \underline{P}$ [knit(e) ∧ process(e) ∧ agent(Fatima)(e) ∧ theme(jacket)(e) ∧ $\underline{P}(\lambda e'$[state(e′) ∧ holer(jacket)(e′) ∧ cause(e′)(e)])] **type <v,t>**

(8) || [tur [alim ešik ac-]] || = $\lambda e \exists \underline{P}$ [open(e) ∧ state(e) ∧ holder(door)(e) ∧ P($\lambda e'$[process(e′) ∧ agent(Alim)(e′) ∧ theme(door)(e′) ∧ cause(e)(e′)])] **type <v,t>**

(7) is a property of knitting processes that result in a state characterized by some set of eventuality descriptions $\underline{P}$. In contrast, (8) is a property of states of being open that are brought

about by processes whose content is similarly determined by some P. The process interpretation for (1) and stative interpretation of (2) now follow. To complete the derivation, one has to combine (7)-(8) with an aspectual operator; noting depends on the choice of analysis of aspectual operators.

Wider implications. The analysis has a number of further implications. For one, it offers a straightforward way of integrating manner/result modification into the picture. For instance, manner verbs normally license result state XPs that specify descriptive content of the result state, as in (9), where the PP *üjden* introduces the final location of the theme.

(9) marat kitap-ni üjden taš-ti.
M. book-ACC room-ABL carry-PST.3SG
'Marat carried the book out of the room.'

If result state descriptions are analyzed as existential quantifiers over eventualities, (11), the compositional interpretation of sentences like (9) obtains in one step, by applying (10) to (11), which yields (12).

(10) || Marat carry the book || = λPλe[carry(e) ∧ process(e) ∧ agent(e)=Marat ∧ theme(e)=book ∧ P(λe′. state(e′) ∧ holder(book)(e′) ∧ cause(e′)(e))] **type <<<v,t>,t>,<v,t>>**

(11) || out of the room || = $\lambda P_{<v,t>}\exists e[P(e) \wedge$ out.of.the.room(e)] **type <<v,t>,t>**

(12) || [out of the room [M. carry the book]] || = λe[carry(e) ∧ process(e) ∧ agent(e)=Marat ∧ theme(e)=book ∧ ∃e′[state(e′) ∧ holder(book)(e′) ∧ cause(e′)(e)) ∧ out.of.the.room(e′)]]

If no overt modifier is merged, I assume that a silent existential quantifier, (13), merges in the same position, yielding a property of events in (14):

(13) $|| \exists_v || = \lambda P_{<v,t>}\exists e[P(e)]$ **type <<v,t>,t>**

(14) $|| [\exists_v$ [Marat carry the book]] || = λe[carry(e) ∧ process(e) ∧ agent(e)=Marat ∧ theme(e)=book ∧ ∃e′[state(e′) ∧ holder(book)(e′) ∧ cause(e′)(e))]] **type <v,t>**

Result verbs require some further reflection. In a non-modified finite clause, their interpretation is eventive, not stative:

(15) alim ešik-ni ac-ti.
A. door-ACC open-PST.3SG
'Alim opened the door.'

I argue that the derivation of (15) proceeds in two steps. First, the Eventizer (independently motivated in, e.g. Paslawska, von Stechow 2003) in (16) existentially binds the state argument of (4) yielding a function from generalized quantifiers to truth values in (17).

(16) $|| \text{Event} || = \lambda S_{<<<v,t>,t>, <v,t>>}\lambda P_{<<v,t>,t>}\exists e[S(P)(e)]$ **type <<<v,t>,t>, <v,t>>, <<<v,t>,t>,t>**

(17) λP ∃e[open(e) ∧ state(e) ∧ holder(door)(e) ∧ P(λe′[process(e′) ∧ agent(Alim)(e′) ∧ theme(door)(e′) ∧ cause(e)(e′)])] **type <<<v,t>,t>,t>**

Secondly, a type-shifting operator in (18) applies to (17) lowering the type of argument of the function in (17) and yielding a property of events. The driving force for this type-shift can be a the type mismatch between (17) and aspectual operators merged on top of (17): the latter require an event predicate, and not a set of generalized quantifiers.

(18) $|| \text{Shift}_{<<<v,t>,t>,t> \rightarrow <v,t>} || = \lambda T_{<<<v,t>,t>,t>}\lambda e[T(\lambda P_{<v,t>}\exists e'[P(e') \wedge e' = e])]$ **type <<<<v,t>,t>,t>,t>, <v,t>>**

The type-shifting operator in (18) consists of two ingredients: the existential quantifier over events similar to $\exists_v$ in (13), and the type-shifting mechanism proper. The latter is comparable with the BE type-shifter of Partee 1987, whereby *x′* occurring in the "x′ = x" part of the translation is existentially bound, and *x* is abstracted over. Application of (18) to (17) results, after a series of λ-conversions, in an event predicated in (19), which correctly represents the meaning of (15).

(19) λe∃e′[open(e′) ∧ state(e′) ∧ holder(door)(e′) ∧ ∃e″[process(e″) ∧ agent(Alim)(e″) ∧ theme(door)(e″) ∧ cause(e)(e″) ∧ e″ = e]] **type <v,t>**

References. **Koontz-Garboden A. & J. Beavers.** 2012. Manner and Result in the roots of verbal meaning. *LI* 43. **Levin B. & M. Rappaport Hovav.** 2010. *Lexicalized meaning and Manner/Result complementarity*. Ms. **Shluinsky A.** 2006. Actional modification in Balkar. In *Struktura sobytija i semantika glagola v Karachajevo-Balkarskom jazyke*. **Partee B.** 1987. Noun phrase interpretation and type-shifting principles. In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers.* **Paslawska A. & A. von Stechow.** 2003. Perfect Readings in Russian. In *Perfect Explorations*. **Rappaport Hovav M. & B. Levin.** 1998. Building verb meanings. In *The projection of arguments*