

## Subevental structure and non-culmination

Sergei Tatevosov

*Moscow State University*

In the literature on predicate decomposition, different proposals can be found about subevental structure of accomplishment event predicates like ‘close’ or ‘break’. Taking a non-decompositional analysis in (1) as a point of departure, in (2)-(5) I represent a few recent proposals articulated within the event semantics framework. (In (1) I use a neo-Davidsonian association of arguments with events via thematic roles, but this choice plays no role in what follows, see Kratzer 2003 for discussion. For simplicity, I represent arguments as individual constants).

- (1) || John close the door || =  $\lambda e[\text{close}(e) \wedge \text{agent}(\text{John})(e) \wedge \text{theme}(\text{door})(e)]$   
 (2)  $\lambda e \exists s [\text{close}(e) \wedge \text{agent}(\text{John})(e) \wedge \text{closed}(\text{the door})(s) \wedge \text{cause}(s)(e)]$  (Kratzer 2000 and elsewhere, von Stechow, Paslawska 2004)  
 (3)  $\lambda e [\text{agent}(\text{John})(e) \wedge \exists e' [\text{closing}(e') \wedge \text{theme}(\text{the door})(e) \wedge \text{cause}(e')(e)]]$  (Pylkkänen 2002)  
 (4)  $\lambda y \lambda e \exists e_1 \exists e_2 [e = {}^s(e_1 \cup e_2) \wedge \text{activity}(e_1) \wedge \text{agent}(e_1) = \text{John} \wedge \text{theme}(e_1) = \text{door} \wedge \text{become-open}(e_2) \wedge \text{arg}(e_2) = \text{theme}(e_1) \wedge \text{INCR}(e_1, e_2, C(e_2))]$ , where  ${}^s(e_1 \cup e_2)$  is a singular entity created out of  $e_1$  and  $e_2$ , INCR is an incremental relation between events w.r.t. to the incremental chain. (Rothstein 2004)  
 (5)  $\lambda e \exists e_2 \exists e_3 \exists e_4 \exists e_5 [\text{close-a}(e_2) \wedge \text{Causing}(e_2) \wedge e = e_2 \oplus e_3 \wedge e_2 \rightarrow e_3 \wedge \text{Subject}(\text{John})(e_2) \wedge \text{close-p}(e_4) \wedge \text{Process}(e_4) \wedge e_3 = e_4 \oplus e_5 \wedge e_4 \rightarrow e_5 \wedge \text{Subject}(\text{the door})(e_4) \wedge \text{close-s}(e_5) \wedge \text{State}(e_5) \wedge \text{Subject}(\text{the door})(e_5)]$  (Ramchand 2003, 2005, with a few adjustments)

These proposals differ in many significant respects. In this paper, I focus on one of these differences, namely, on how many subevents there are. Approaches (2)-(4) assume that the overall eventuality falls into two subevents. In contrast, (5) introduces three subevents, namely, the agent’s activity, a process in the theme, and the result state. Here I will try to construct an empirical argument supporting a rich predicate decomposition along the lines of (5), which is based on evidence from non-culminating readings of accomplishment verbs.

One of the languages in which accomplishments do not entail culmination is Karachay-Balkar (Altaic, Turkic). (6a) accepts a time span adverbial and does therefore entail culmination. In contrast, (6b) is compatible with a measure adverbial; it indicates that the agent performs activity that aims at changing a state of the theme. However, this activity terminates before the culmination.

- (6) a. iſci-le eki kün-ge üj-nü oj-kan-di.  
 worker-PL two day-DAT house-ACC destroy-PFCT-3SG

*The workers took down the house in two days.*

- b. iſci-le eki kün üj-nü oj-kan-di.  
 worker-PL two day house-ACC destroy-PFCT-3SG

*The workers were involved in taking down the house for two days.*

Proposals developed so far to account for cases like (6a-b) (Koenig and Muansuwan 2001, Matthewson et al., to appear, Bar-el 2006) rely on a suggestion that under the non-culminating reading, parts or stages of eventualities in the original denotation of an accomplishment event predicate occur in the actual world. ‘Complete’ eventualities only exist in inertia worlds (Dowty 1979), that is, in all worlds compatible with what it would mean to complete an eventuality without being interrupted. Indeed, non-culminating accomplishments share the Imperfective Paradox with progressives: the proposition in (6b) can be true in the actual world without a corresponding proposition in (6a) being true. This suggests that main arguments for the intensional analysis of the progressive put forward in Dowty 1977, 1979 as well as in later developments of Dowty’s approach (e.g., Landman 1992, Portner 1998) are applicable to non-culminating accomplishments, too. In particular, under Matthewson’s analysis, (6b) will have an event predicate in (7) as a part of its semantic representation. (My aim is not to challenge the analysis in terms of inertia; nothing in my line of reasoning relies on this specific assumption, so whatever our favorite theory solving the imperfective paradox is, it will do the job).

- (7) || iſcile üj oj- ||<sup>w:B</sup> =  $\lambda e [\text{agent}(\text{workers})(e) \wedge \forall w' [w' \text{ is an inertia world w.r.t. } w \rightarrow \exists e' [\text{destroy}(\text{house})(e') \text{ in } w' \wedge \text{cause}(e')(e) \text{ in } w']]]$

A crucial observation about Karachay-Balkar is that accomplishments accepting measure adverbials (i.e., allowing for the non-culminating interpretation) fall into two subclasses. *Oj* ‘destroy, break into pieces, crumble’ under the non-culminating reading is compatible with the ‘partial success’ scenario in (8b). In contrast, the verb *zyrt* ‘tear’, exemplified in (9), accepts the ‘failed attempt’ scenario in (10a).

- (8) Scenarios for (6b):  
 a. <Failed attempt>: ?For two days, the workers were trying to took down the house, but the house was so firm that they gave up, not being able to remove a single brick.  
 b. <Partial success>: For two days, the worker were taking down the house; they removed the roof and one of the walls, but then were asked to stop.

(9) fatima eki minut xali-ni zirt-xan-di.  
 F. two minute thread-ACC tear-PFCT-3SG  
*Fatima was involved in tearing the thread for two minutes.*

- (10) Scenarios for (9):  
 a. <Failed attempt>: For two minutes, Fatima was trying to tear a thread, but the thread was so firm that she was unable to tear it.  
 b. <Partial success>: \*For two minutes, Fatima was tearing a thread, so that when she stopped, the thread was somewhat (but not completely) torn.

As summarized in the table below, both scenarios in (8) and (10) imply that the theme only reaches a result state (of being destroyed and of being torn, respectively) in inertia worlds. They differ, however, as to whether change in the theme occurs in inertia worlds, too: this is what happens with failed attempts, but not with partially successful actions. Crucially, availability of the partial success interpretation is what distinguishes between *oj* and *zirt*.

	Telic		Atelic (non-culminating)	
		partial success		failed attempt
<b>Agent's activity</b>	Actual world	Actual world		Actual world
<b>Change of state of the theme</b>	Actual world	Actual world		Inertia worlds
<b>Result state</b>	Actual world	Inertia wrolds		Inertia worlds

This difference, however, cannot be captured by the semantic representation like (2b), since it does not provide enough subevental structure, only making distinction between the agent's activity and the rest of the overall eventuality. We need a more articulated event structure, making explicit a three-way distinction between activity, change of state and result state. With such a distinction, difference between non-culminating readings of *oj* and *zirt* can be captured as in (11a-b) (here I use a slightly modified Ramchand's notation, where «→» reads as 'cause' or 'lead to'):

(11) || (6b) ||<sup>w,g</sup> =  $\lambda e \exists e_1 [\text{destroy-a}(e) \text{ in } w \wedge \text{agent}(\text{workers})(e) \text{ in } w \wedge e \rightarrow e_1 \text{ in } w \wedge \text{destroy-p}(e_1) \text{ in } w \wedge \text{theme}(\text{house})(e_1) \text{ in } w \wedge \forall w' [w' \text{ is an inertia world for } w \rightarrow \exists s [e_1 \rightarrow s \text{ in } w' \wedge \text{destroy-r}(s) \text{ in } w' \wedge \text{Resultee}(\text{house})(s) \text{ in } w']]]$

(12) || (9) ||<sup>w,g</sup> =  $\lambda e [\text{tear-a}(e) \text{ in } w \wedge \text{agent}(\text{fatima})(e) \text{ in } w \wedge \forall w' [w' \text{ is an inertia world for } w \rightarrow \exists e_1 \exists s [e \rightarrow e_1 \text{ in } w' \wedge \text{tear-p}(e) \text{ in } w' \wedge \text{theme}(\text{thread})(e) \text{ in } w' \wedge e_1 \rightarrow s \text{ in } w' \wedge \text{tear-r}(s) \text{ in } w' \wedge \text{Resultee}(\text{thread})(s) \text{ in } w']]]$

Therefore, for *oj* and *zirt* non-culmination is introduced at different levels of subevental structure. For *zirt*, it is a level of agent's activity, with all the rest being removed to inertia. For *oj*, it is a level of the process that the theme undergoes, while the result state as well as entry into that state are forced out from the actual world.

Implementation of the analysis in (11)-(12) may vary. Specifically, with Ramchand (2003, 2005) I assume that event structures are built syntactically, with different subevents being tied to *v*, *V* and *R*(esult) heads. Individual lexical entries specify what heads verbs project in the syntax. In such a system, *oj* and *zirt* will differ as to the vocabulary of available verbal heads: *oj* will have a 'non-culminating *V*' (||  $V_{\text{non-culm}} ||^{\text{w,g}} = \lambda P \lambda x \lambda e [V'(e) \text{ in } w \wedge \text{theme}(x)(e) \text{ in } w \wedge \forall w' [w' \text{ is an inertia world for } w \rightarrow \exists e_1 [e \rightarrow e_1 \text{ in } w' \wedge P(e_1) \text{ in } w']]]$ ), while *zirt* will be associated with the 'non-culminating *v*' (||  $v_{\text{non-culm}} ||^{\text{w,g}} = \lambda P \lambda x \lambda e [v'(e) \text{ in } w \wedge \text{agent}(x)(e) \text{ in } w \wedge \forall w' [w' \text{ is an inertia world for } w \rightarrow \exists e_1 [e \rightarrow e_1 \text{ in } w' \wedge P(e_1) \text{ in } w']]]$ ). Whatever implementation turns out to be correct, the three-way predicate decomposition in itself seems to be necessary, at least for accomplishments in a language like Karachay-Balkar.

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