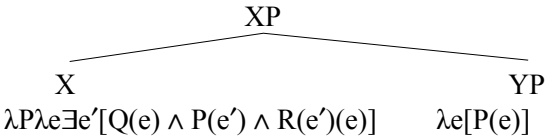
A finer look at predicate decomposition: evidence from causativization

Ekaterina Lyutikova and Sergei Tatevosov*
Moscow State University

1. Introduction: radical predicate decomposition

In this paper, we establish an argument supporting radical predicate decomposition (RPD) whereby subevental components of an event description are represented independently from relations between them. At least since Dowty 1979, much evidence has been discussed in the literature that certain classes of verbs (e.g. accomplishments), be they morphologically simplex or derived, consist of more than one semantic component. The precise content and properties of these components are still a matter of debate. In a family of theories that argue for a syntactically represented predicate decomposition (Pylkkänen 2002, Borer 2005, Zubizarreta & Oh 2007, Ramchand 2008, Travis 2010, Tubino Blanco 2011), the fundamental assumption is that subevent descriptions appear together with their relations to a subordinate subevent, as in (1).

(1) $\lambda e \exists e'[Q(e) \wedge P(e') \wedge R(e')(e)]$



In (1), which is an instance of what we call standard predicate decomposition (SPD), the denotation of XP is a predicate of events that fall under the extension of the predicate Q, introduced by the X head. These events enter the R relation to an event from the extension of P, another predicate of events denoted by YP, the complement of X. On this view, crucially, both Q and R come out as part of the denotation of the X head. Commonly, the R relation is conceived of as CAUSE, and subevents in a complex event description are understood as causally related.

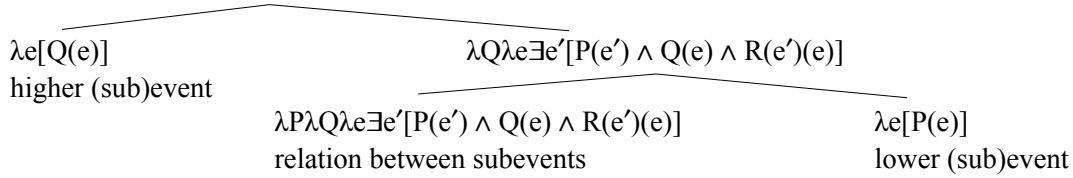
We propose instead that subevents and relations are distinct components of event structure, as in (2). In (2), two components of event structure, event predicates P and Q, are represented independently from the relation R between events from their extensions. Our narrow claim is

*We would like to express our deeply felt gratitude to the Tatar native speakers for their invaluable help and patience. Data have been partly collected during a number of field trips organized by the Department of Theoretical and Applied Linguistics, Moscow State University, in 2010–2011. The paper has benefited a lot from the comments by a CSSP anonymous reviewer. Special thanks to Chris Piñon for encouraging us to make the paper more precise and accurate. The study has been supported in part by Russian Foundation for Basic Research (grant #11-06-00489-a) and in part by Russian Foundation for the Humanities (grant #12-14-16035).

Empirical Issues in Syntax and Semantics 9, ed. Christopher Piñón, pp. 207–224
EISS 9 http://www.cssp.cnrs.fr/eiss9/

that *semantic composition* works along the lines of (2), whereby introducing a 'higher' (sub)event and its relation to a 'lower' (sub)event are distinct steps of derivation.

(2) $\lambda e \exists e'[P(e') \wedge Q(e) \wedge R(e')(e)]$



The wider claim is that subevents and their relations are represented independently *in the syntax*. We argue the heads contributing a subevent (e.g. Folli's (2002) and Ramchand's (2008) *v/init* and V/*proc*) are mediated by a relation-introducing Aktionsart element, as in (3).

(3) $[_{vP} \ldots v \ [_{AktP} \ldots \text{Akt} \ [_{VP} \ldots \text{V} \ldots]]]$

Below, we mostly discuss evidence for RPD that comes from causativization. In §2, we address the semantics of causal relations in Tatar (Altaic, Turkic) and argue that it varies independently from the descriptive content of subevental heads, which supports our narrow claim. In §3, we develop an argument from the semantics and morphology of denominal verbs that supports the wider claim. Finally, in §4, we examine cross-linguistic data from Tundra Nenets, Malagasy, and Hindi (the latter two originally discussed by Travis (2010) and Ramchand (2008)). We argue that properties of the causative in these languages, problematic for previous SPD proposals, receive a principled explanation on the RPD analysis along the lines of (3).

2. Semantic evidence

Our first argument, supporting the narrow claim that the subevental content of event structure and relations between subevents involves distinct steps of derivation, as in (2), runs as follows. Since setting up a relation and introducing an event predicate are distinct operations, (2) predicts that the descriptive content of event predicates corresponding to the higher (sub)event (P in (2)) and properties of the relation (R in (2)) vary independently. Assume that have two classes of predicates, α and β, and two relations, π and ρ. If (2) is correct, we expect that all the four logical possibilities, the Cartesian product of {α, β} and {π, ρ}, should be empirically real. α-type events should enter both π and ρ relations, same for β-type events. If (1) tells us a true story, the default expectation is the opposite: given that characteristics of the relation are always tied to a specific event predicate (thus, in (1) the predicate Q and the R relation form a denotation of the X head), we should only regularly find two options of the four logically possible.

What we need to test this prediction are a set of different types of event descriptions {α, β, …} and a set of different relations {π, ρ, …}. We would then be able to check if every member of the former can occur in combination with every member of the latter. For constructing the first set, one can rely on the semantic distinction independently motivated in the literature starting from Rappaport Hovav & Levin 1998; see a recent discussion in Rappaport 2008, Levin & Rappaport Hovav 2010, and Koontz-Garboden & Beavers 2012. We know that many natural language predicates are specified for the manner of action (these are 'manner verbs' in Rappaport Hovav and Levin's terms). Classical examples are *wipe* and many other verbs of surface contact, whose meaning includes rich information about the activity performed by the external argument. Other verbs, for example, *break* or *kill*, are underspecified for manner:

kill is compatible with wide variety of the agent's activities that bring about the death of the patient: shooting, poisoning, hitting with the hammer, etc. It is only in a context that the exact nature of the activity can be identified (or still left unclear). Therefore, manner specified (or [+ms]) versus manner underspecified ([-ms]) are classes of event descriptions that are suitable for our purposes.

For identifying a set of relations between subevents, we can make use of the observation that the composition of complex event predicates (those consisting of more than one subevental component, as in (1) and (2)) cannot be reduced to a single causal relation. Rothstein (2004) argues convincingly that for predicates like 'read a novel', the reading activity and the subevent of the novel getting read enter what she calls an incremental relation (INCR), not the one of immediate causation. Besides, the causal relation itself comes in at least two varieties, direct, or immediate (I-CAUSE), and not necessarily immediate, or general (G-CAUSE). (I-CAUSE and G-CAUSE will be discussed shortly, and INCR will play a key role in the discussion from §3.) All these options, once proven empirically real, can serve for our experimental purposes, too.

For the reasons of space, below we will examine a small subset of logical possibilities generated by the sets {[+ms], [-ms]} and {INCR, I-CAUSE, G-CAUSE}. We will show that the same [-ms] event predicate is free to combine with both I-CAUSE and G-CAUSE relations. (Other combinations, which would make our argument complete, are dealt with in Lyutikova & Tatevosov 2010.) Given the architecture in (2), this is exactly what we predict. In a world according to (1), this co-occurrence pattern comes out as a mysterious coincidence.[1]

With this general outline of the argument, we take into account causativization data from Tatar (Altaic, Turkic). Causatives give us a good opportunity to observe a complex event structure in which relations between subevents can be different and thus offer a way of telling (1) and (2) apart. The difference is illustrated in (4) and (5):

(4) alim kerim-ne ü-**ter**-de.
Alim Kerim-ACC die-**CAUS**-PST.3SG
1. 'Alim killed Kerim.'
2. *'[Having paid $10,000 to the killer,] Alim organized Kerim's assassination.'

(5) ukıtučı alim-ne jarıš-ta eger-**t**-te.
teacher Alim-ACC competition-LOC run-**CAUS**-PST.3SG
1. 'The teacher made Alim run at the competition (e.g. by pushing him on the lane).'
2. '[Having convinced the coach that Alim is a good runner,] the teacher organized Alim's running at the competition.'

In (4), the unaccusative verb 'die' undergoes causativization. (4) is only compatible with the scenario in which the agent's action is an immediate cause of the patient's death (exactly as what happens to the lexical verb *kill* in English). In contrast, the causative in (5) accepts two

[1]As the anonymous reviewer points out, 'one could still make the case that both <I-CAUSE> and <G-CAUSE> are just variants of a more general cause relation, and in that case the point … that we are dealing with a mysterious coincidence becomes moot.' In fact, an implication of our proposal is that these relations should be taken as primitive rather than derived from something else, e.g. from a more general relation comprising them both. For the reasons of space, we are not able to discuss conceptual and empirical (dis)advantages of the alternatives in any detail and only briefly mention the main reason that motivates our choice. One can observe, language after language, that I-CAUSE/G-CAUSE distinction is in some way or other manifested in the grammar. Grammatical phenomena where (in)directness of causation is revealed range from the morphological shape of causative morphemes to case marking of main arguments of a predicate and (albeit less directly) in scope of adverbials (see below), binding phenomena and constraints on VP-ellipsis. This provides evidence that for natural languages, the two types of causation constitute distinct pieces of conceptual vocabulary, even if this need not be so for logic and philosophy.

scenarios: in (5.1), there still is an immediate causal relation between the teacher's acting and Alim's running, but in (5.2), the causal chain connecting these two events can contain intermediate causes (e.g. convincing the coach, the coach making his decision, etc.).

In the literature, a number of grammatical manifestations of the immediate/non-immediate distinction are cited.[2] One of the most striking ones is that the non-immediate causative allows for adverbials to scope over subevents independently. (6) is three-way ambiguous, but (7) is not:

(6) marat eki minut ečendä alsu-dan täräz-ne ač-**ṫir**-dı̇.
Marat two minute within Alsu-ABL window-ACC open-**CAUS**-PST.3SG
1. 'In two minutes, Marat made Alsu open the window.' (The duration of the total of causing and caused subevents is two minutes.)
2. 'It took two minutes for Marat to make Alsu open the window (in a second).' (The duration of the causing subevent is two minutes.)
3. 'What Marat did (in two hours) was make Alsu open the window in two minutes.' (The duration of the caused subevent is two minutes.)

(7) marat čiläk-ne tul-**ḋir**-dı̇.
Marat bucket-ACC fill.intr-**CAUS**-PST.3SG
1. 'In two minutes, Marat filled the bucket.'
2. *'It took two minutes for Marat to make the bucket fill (in an hour).'
3. *'What Marat did (in a second) was make the bucket fill in two minutes.'

In terms of Kratzer (2005), in (4.1) Alim's activity is *a causing of* Kerim's being dead, while in (4.2), had this interpretation been available, paying $10,000 would have been the event that *causes* Kerim's being dead. The same difference is observed in (5.1) and (5.2). Therefore, the causative in (4), given that (4.2) is inappropriate, is based on the relation of immediate causation. The causative in (5), compatible with both scenarios, introduces a more general relation comprising immediately and non-immediately related events. The semantics of these two relations can be represented as in (8) (quasi-formally, which suffices for our current purposes):

(8) a. || I-CAUSE(e′)(e) || = 1 iff e is the (mereological) sum of all the members of a causal chain with the maximal element e′. (Kratzer 2005)
b. || G-CAUSE(e′)(e) || = 1 iff e is a (mereological) sum of some members of a causal chain with the maximal element e′, provided that the minimal element in that chain is part of e.[3]

Given that (4) and (5) involve the different causal relations in (8a) and (8b), the question is:

[2]This distinction is known under different labels including manipulative versus directive, contactive versus distant (or non-contactive), Saksena 1982), immediate versus mediated (Kulikov 2001), causer-controlled versus causee-controlled (Shibatani 2002). The distinction has been a constant topic in the studies of causativization phenomena since late 1960s and one of the central issues surrounding the debate on lexical and syntactic causatives (Lakoff 1965, Fodor 1970, McCawley 1972, Shibatani 1973, Yang 1976).

[3]Kratzer's (2005) analysis of immediate causation ('causaing of') is based on the following reasoning. Suppose we have an event description of the form λe∃e′[P(e′) ∧ Q(e) ∧ R(e′)(e)]. This property of events is true of any event which falls under P and *is also a completed event of causing some Q-event*. For Kratzer, this means that the whole causal chain leading to the Q-event, including this Q-event itself, must be in the denotation of P. Kratzer's definition in (8a) captures this intuition. (8b), however, is not Kratzer's relation of indirect causation, in which e causes e′ iff e is *the minimal element in a causal chain leading to e′*. Since (5.1) and (5.2) comprise both direct and indirect causation, the desired relation has to include both as a special case. We believe that (8b) does precisely this. It should be emphasized, however, that nothing in what follows hinges on the specifics of (8a-b).

Do these relations correspond to different descriptive properties of the causing subevent or are those properties the same in (4) and (5)? As far as one can tell, there are good reasons to believe that in both (4) and (5) we are dealing with the same event predicate over causing subevents.

In languages like Tatar, causing subevents are underspecified for descriptive content. In much the same way as English lexical result verbs like *break*, (4) is compatible with a wide variety of the agent's activities that bring about the death of the patient. Like result verbs in English, causatives like 'kill' in Tatar accept manner specifying adjuncts, as illustrated in (9) for 'break'. The same holds for 'make run' in (10):

(9) alim ujɨnčɨk-nɨ tašla-p / sug-ɨp sɨn-dɨr-dɨ.
Alim toy-ACC throw-CONV hit-CONV break-CAUS-PST.3SG
'Alim broke the toy by throwing / hitting it.'

(10) ukɨtučɨ alim-ne tert-ep / trener-ne ɨšandɨr-ɨp jarɨš-ta
teacher Alim-ACC push-CONV coach-ACC convince-CONV competition-LOC
eger-t-te.
run-CAUS-PST.3SG
1. 'The teacher made Alim run at the competition by pushing him.'
2. 'Having convinced the coach, the teacher organized Alim's running at the competition.'

Another property indicative of verbs like 'break', not speficied for manner, is that thematic characteristics of the external argument are flexible (e.g. Kratzer 1996, Alexiadou et al. 2006, Koontz-Garboden & Beavers 2012): not only agents, but also natural forces, events and a certain class of instruments are licensed as subjects in sentences like (11)–(12):

(11) ʒil täräz-ne sɨn-dɨr-dɨ.
wind window-ACC break-CAUS-PST.3SG
'The wind broke the window.'

(12) ʒiŋü-e-neŋ teläg-e alim-ne jarɨš-ta eger-t-te.
victory-3-GEN desire-3 Alim-ACC competition-LOC run-CAUS-PST.3SG
'The desire to win made Alim run at the competition.'

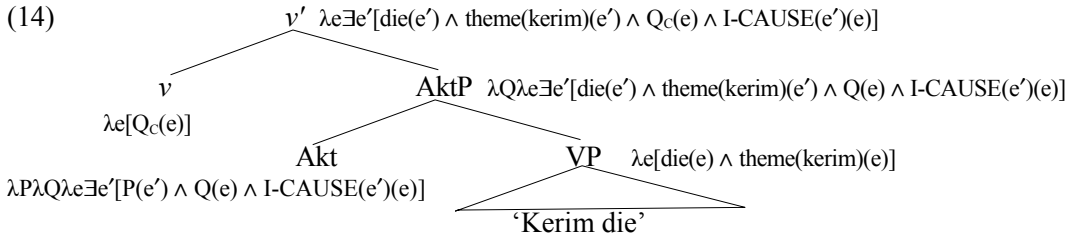
Further diagnostics for the lack of manner specification can be found in Koontz-Garboden & Beavers 2011; (9)–(12) will suffice for our survey. We believe that (9)–(12) point towards a clear conclusion: they involve a causing subevent underspecified for descriptive content. Predicates of causing subevents can have whatever events in their extension that can bring about a subordinate subevent, the causee becoming dead in (4) or running in (5). Furthermore, with no evidence for the opposite, one can make a stronger claim: in (4) and (5), we are dealing with the same [-ms] predicate, not with two distinct ones.

Lyutikova and Tatevosov (2010) argue that the descriptive properties of causing subevents come out as a free variable over event predicates that receives its value from the assignment. This allows those descriptive properties to vary with the context, which seems to be exactly what we need to capture the meaning (4) and (5):

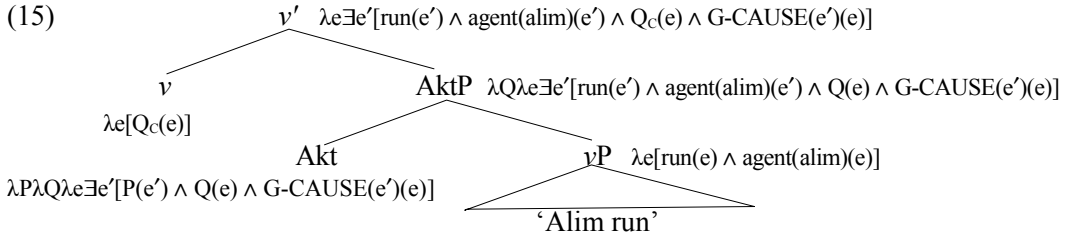
(13) $\lambda e[Q_C(e)]$

In our system, (2), both I-CAUSE and G-CAUSE are introduced independently from Q_C and before Q_C, so when Q_C appears, I-CAUSE or G-CAUSE are already there. The derivation of (4) and (5) would look, leaving out irrelevant details, as in (14) and (15):

(14)



(15)



We follow Harley 2008, Travis 2010, Miyagawa 2012 and much other literature in that the causative of unaccusatives involves is single *v*P, while causativization of unergatives and transitivies results in a double *v*P configuration. In Lyutikova & Tatevosov 2010, we argue that for languages like Turkic the choice between I-CAUSE and G-CAUSE is fully determined by structural considerations. If an unaccusative configuration is causativized, the causative morpheme takes VP as its complement, as in (4), and the causal relation is necessarily I-CAUSE. When a transitive or unergative verb gets causativized, the causative merges with *v*P, not VP, which leads to the G-CAUSE interpretation, as in (5).[4] (14) is a predicate that contains events in its extension that immediately cause an event of Kerim's dying. (15) is a predicate of events that (not necessarily indirectly) bring about an event of Alim's running. All we need to complete the derivation is introduce an external argument (e.g. by Event Identification: Kratzer 1996, Pylkkänen 2002).

To recapitulate, the evidence from Tatar consists of two parts. First, the causal relation comes in two varieties, I-CAUSE and G-CAUSE. Secondly, no matter which of the two causative configurations is built up, it involves the same predicate of causing subevents underspecified for descriptive content. What we get, then, is exactly what we have been looking for: a case where the relation varies independently from the properties of an event predicate that introduces causing subevents. RPD provides a principled explanation for this fact: since relations and subevent descriptions appear in the structure at distinct steps of derivation, the integration of the latter into the event structure is correctly predicted to be blind to the properties of the former.

If the above reasoning is correct, we have an argument that RPD provides a right view of how the event structure is built in terms of semantic composition. This is a narrow claim of this

[4]The anonymous reviewer rises the following question: since whether or not I or G-cause is chosen hinges on whether transitive/unergative or unaccusative verbs are causativized, does this not indicate that the relation and the event description do not vary independently? We believe that this generalization such. reflects a significant fact about syntax of causative configurations, not about their semantics. Our central claim that properties of subevent descriptions vary independently from relations between them would have been undermined if there existed unaccusative or unergative event descriptions. But, as standardly assumed, unaccusativity / unergativity only has to do with the position where the argument is merged and is irrelevant for identifying descriptive properties of (sub)events. The distribution of $Akt_{I\text{-}CAUSE}$ and $AKT_{G\text{-}CAUSE}$ in (14)–(15) is thus to be derived from (language-specific) selectional requirements of these morphemes, not from the semantic environment in which they occur. Moreover, in §3.4 we will see a language where both morphemes are licensed in the same syntactic configuration.

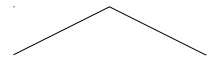
paper. The wider claim is that subevents and their relations are also representationally distinct, as shown in (3). In the next section, we will discuss evidence supporting this wider claim.

3. Morphological evidence

3.1. The two classes

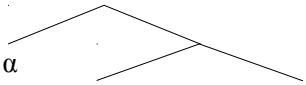
So far we have argued that subevents and their relations involve distinct steps of semantic derivation. However, it does not necessarily follow from this that they correspond to distinct pieces of syntactic structure. For it may be the case that two semantic operations occur when the same syntactic head is interpreted, an example being what Pylkkänen (2002) calls Voice Bundling. In Voice Bundling, causativization and introduction of the external argument, distinct steps of semantic derivation, happen as two subsequent steps of interpretation of the same head. Similarly, one can imagine that introduction of a relation and of a subevent description correspond a single piece of syntactic structure, as in (16a). (16a) is thus to be told apart from (16b), where the two are not only interpretationally, but also representationally distinct:

(16) a.



Step 1: a relation
Step 2: a subevent description

b.



a subevent description
a relation

Our second argument is based on the fact that (16a-b) make different predictions as to the spell-out of the event structure. If (16b), based on (3), is correct, the expectation is: not only are subevents and relations are independent for the interpretation mechanism, they are *spelled out* independently as well. We expect to encounter a situation where properties of the relation hosted by the Akt head in (3) have visible consequences for the morphology. In what follows, we present evidence suggesting that this prediction is borne out, hence alternatives to (3) cannot be correct. Specifically, will examine a class of denominal verbs in Tatar collected in Kirpo & Kudrinskij 2011 and show that their morphological shape is indeed sensitive to the properties of Akt.

Among denominal verbs in Tatar, two classes are especially prominent, which differ as to the morphological make-up of the transitive member of the causative-inchoative pair. Transitive/causative verbs from class 1 are derived by the *-la-* morpheme (LA henceforth), while a corresponding intransitive/inchoative involves an additional piece of morphology, the *-n-* morpheme (N).

(17) **Class 1: transitive (causative) verbs in *-la*, inchoative verbs in *-la-n***
jüeš-lä 'wet' / *jüeš-lä-n* 'get wet' (*jüeš* 'wet')
ansat-la 'lighten (tr.)' / *ansat-la-n* 'lighten (intr.) (*ansat* 'light, easy')
jäšel-lä 'make green, paint green' / *jäšel-lä-n* 'acquire green color' (*jäšel* 'green')
maj-la 'oil, lubricate' / *maj-la-n* 'get oiled, soak up oil' (*maj* 'oil')

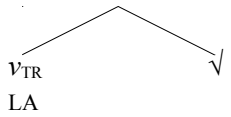
For verbs from class 2, the direction of derivation is apparently the opposite: the transitive member of the pair looks like a product of causativization of a *-la-n-* intransitive verb by the morpheme TYR we have already dealt with:

(18) **Class 2: inchoative verbs in *-la-n*, transitive (causative) verb in *-la-n-dɨr***
jalkaw-la-n 'become lazy' / *jalkaw-la-n-dɨr* 'make lazy' (*jalkaw* 'lazy')
jaxšɨ-la-n 'improve (of a person) (intr.)' / *jaxšɨ-la-n-dɨr* 'improve, make good (of a person) (tr.)' (*jaxšɨ* 'good')

čül-lä-n ‘turn into a desert (intr.)’ / *čül-lä-n-der* ‘turn into a desert (tr.)’ (*čül* ‘desert’)
saz-la-n ‘get waterlogged’ / *saz-la-n-dɨr* ‘make waterlogged, waterlog’ (*saz* ‘swamp’)
mumijä-lä-n ‘get mummified’/ *mumijä-lä-n-der* ‘mummify’ (*mumijä* ‘mummy’)

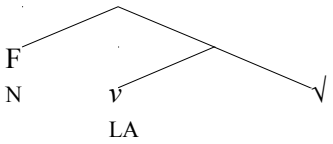
An obvious way of treating class 1 and class 2 verbs would be based on the assumption that morphological asymmetry reflects distinct structures they project. In a Marantz-style framework (Marantz 1997, Alexiadou et al. 2006), one is tempted to analyze class 1 transitive verbs as in (19):

(19)

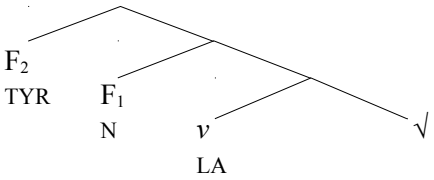


Their anticausative/inchoative variants would then be represented as in (20), where N can be thought of as a spell-out of a functional head that takes *v*P as its complement. Given that class 1 and class 2 inchoatives are morphologically identical, the structure in (20) naturally extends to class 2 inchoatives. Following the same logic, class 2 transitives would involve an extra projection where the causative morpheme is merged, as in (21).

(20)



(21)



(19) and (21) reflect a huge derivational asymmetry between class 1 and 2 transitives, the latter representing more complex event structure, with one more subevent and one more thematic role brought in by the TYR morpheme. Whatever consequences this complexity can have, we expect to observe them when comparing class 2 and class 1 verbs. It should be also noted that (21) is essentially the structure Guasti (2005) and Folli and Harley (2007) assign to Romance analytic causatives with *faire* plus an infinitive. If this parallelism is taken seriously, class 2 Tatar causatives are expected to be indirect, like their Romance counterparts.

The problem is that there is no detectable difference between class 1 and class 2 transitives. They are identical in terms of argument structure, case marking of arguments, and eventuality type: all involve a nominative subject and an accusative object, all license agents, events, and natural forces as external arguments, and most are accomplishments. These characteristics are illustrated in (22).

(22) **Class 1:** External argument: agent, event, or natural force, nominative
Internal argument: theme, accusative; eventuality type: telic
marat / jaŋgɨr külmäg-e-n jüeš-lä-de.
Marat rain shirt-3-ACC wet-LA-PST
‘Marat / the rain wet his shirt.’

(23) **Class 2:** External argument: agent, event, or natural force, nominative
Internal argument: theme, accusative; eventuality type: telic
ukɨtučɨ / universität-tä uku-ɨ marat-nɨ jaklaw-la-n-dɨr-dɨ.
teacher university-LOC study-3 Marat-ACC lazy-LA-N-TYR-PST.3SG
‘The teacher / studying at the university made Marat lazy.’

More significantly, all involve direct causation, as evidenced by the fact that the scope of temporal adverbials must include both subevents (cf. the indirect causative in (6)):

(24) marat eki minut ečendä külmäg-e-n jüeš-lä-de.
Marat two minute within shirt-3SG-ACC wet-LA-PST.3SG
'Marat wet his shirt in two minutes.'
1. *'Marat did something in two minutes so that the shirt got wet (in a second).'
2. *'Marat did something (in a second) so that the shirt got wet in two minutes.'

(25) ukɨtučɨ eki zɨl ečendä marat-nɨ jaklaw-la-n-dɨr-dɨ.
teacher two year within Marat-ACC lazy-LA-N-TYR-PST
'The teacher made Marat lazy in two years.'
1. *'The teacher did something in two years so that Marat become lazy (in a week).'
2. *'The teacher did something (in a month) so that Marat became lazy in two years.'

Finally, no differences in internal complexity between class 1 and class 2 verbal predicates by looking at scopal ambiguities with adverbials like 'almost' and 'again' (von Stechow 1995, Rapp & von Stechow 1999) as well as under negation. (Due to space limitations we are not able to cite corresponding examples here; see Tatevosov and Kirpo 2012.)

One can conclude that two types of transitives, contrary to the initial assumption, are structurally identical and semantically alike. Moreover, everything in (22)–(27) (morphosyntax, scope of temporal adverbials, scope of negation) suggests that both types are derived result verbs like 'break' and project as much as a *v*P. Given that, the very fact that class 2 transitives consist of four pieces of morphology (root – LA – N – TYR) starts being problematic: in an SPD system, the *v*P does not contain enough projections to host all the four.

In what follows, we propose an RPD analysis based on the assumption that class 1 and class 2 transitives are structurally identical, and the difference only emerges when the structure is spelled out. We believe that this analysis, which crucially relies on AktP in between *v*P and VP, as in (3), captures more facts with less stipulations than the alternative outlined in (19)–(21). But to make the analysis work, we need to figure out what exactly the structure being spelled out looks like and what determines the choice between the two spell-out options.

3.2. The two relations

A solution to the puzzle begins to emerge if we take into account a lexical semantic peculiarity that verbs from class 2 share. They all involve what Rothstein (2004) calls an incremental relation between activity and change-of-state subevents.

For Rothstein, events e and e′ are incrementally related, (28), iff there is a contextually salient function that maps every member of the incremental chain of e′, (29), to a cotemporaneous part of e. For instance, for predicates like *read a novel* the relation between activity and change of state is incremental, since for any (contextually relevant) part of the reading activity there must be a corresponding part of the process of the novel getting read and vice versa.

(26) INCR(e′)(e)(C(e′)) (e is incrementally related to e′ with respect to the incremental chain C(e′)) iff there is a contextually available one-one function μ from C(e′) onto PART(e) such that $\forall e \in C(e')[\tau(e) = \tau(\mu(e))]$

(27) C(e), an incremental chain for e, is a set of parts of e such that (i) the smallest event in C(e) is the initial bound of e, (ii) $e \in C(e)$, and (iii) $\forall e', e'' \in C(e), e' \leq e''$ or $e'' \leq e'$.

For verbs from class 1, the relation between the activity and change of state is not incremental (and for some cannot be incremental). Rather, it is a more general relation of immediate causation, I-CAUSE. Take 'wet' as an example again. It is fully compatible with at least two types of scenario. It can be the case that every subevent of the theme getting wet corresponds to some portion of the agent's activity (imagine that the agent spatters water over the theme). But it can also be the case that the whole subevent of getting wet occurs at the very final part of the activity (e.g. the agent takes the object and throws it into the water). The same two options obtain with verbs like 'make green': the agent can accomplish this by gradually laying the green paint on the surface of the patient as easily as by putting it into the dye. In the latter case, the whole subevent of getting green occurs after the agent's activity. Therefore, verbs from class 1 do not meet the crucial criterion of Rothstein's incrementality: the change of state does not require contemporaneous input of the agent's activity.

Verbs from class 2 are minimally different in that the nature of change which the internal argument undergoes is incompatible with scenarios where the change occurs at the final part of the activity. Such verbs refer to temporally stable properties that, under normal circumstances, come into existence gradually. Moreover, they all require this gradual change be brought about by some temporally coextensive causing event. Take *jalkaw-la-n-dɨr* 'make waterlogged (lit. turn into a swamp)' or *čül-lä-n-der* 'turn into a desert' as an example. The result state of events referred to by these verbs are 'be (like) a swamp' or 'be (like) a desert', respectively:

(28) växši-lär šäxär-ne čül-lä-n-der-de-lär.
barbarian-PL city-ACC desert-LA-N-TYR-PST-PL
'Barbarians turned the city into a desert.'

(29) jaŋgɨr-lɨ ǯäj kɨr-nɨ saz-la-n-dɨr-dɨ.
rain-ATR summer field-ACC swamp-LA-N-TYR-PST
'A rainy summer waterlogged the field.'

In both (28) and (29), the change of state where the city turns into a desert and the field into a swamp is conceived of as happening in a way described by Rothstein: the progress of these changes is dependent on a temporally coextensive causing subevent. The more barbarians act, the more the city looks like a desert, and the more the rainy summer lasts, the more the field resembles the swamp. Setting up a scenario that breaks an incremental relation (e.g. 'The bomb turned the city into a desert') leads to a drastic decrease in acceptability. Therefore, the right generalization about the class membership of a denominal verb seems to be as follows: whenever the relation between the activity and change-of-state subevents is incremental, the verb falls within class 2; otherwise, it is a member of class 1.

We propose that RPD can provide a principled explanation for the distribution of class 1 and class 2 transitives. If the class membership depends on whether the relation is I-CAUSE or INCR, the prediction derivable from RPD is straightforward: the head where the relation is located is expected to be spelled out in different ways depending on the properties of the relation. With this in mind, we are ready to lay the analysis out.

3.3. The two spell-out patterns

Our wider theoretical claim is that the structure of *v*P looks as in (32):

(30) $[_{vP} \ldots v\ [_{AktP} \ldots \text{Akt}\ [_{VP} \ldots V \ldots\ [_{XP} \ldots X \ldots\ ]]]]$

In line with Folli 2002, Ramchand 2008, Travis 2010, Borer 2005, Zubizarreta & Oh 2007 we

assume a syntactic view of event structure. V and *v* correspond to Ramchand's (2008) *init* and *proc*; Akt is what makes (32) an RPD theory. The closest analogue of Akt found in the literature is Travis' (2010) Inner Aspect; for the reasons of space we do not go into further detail, but see Lyutikova & Tatevosov 2010 for discussion. In (32), we are abstracting away from the internal structure of XP where the non-verbal component originates.

To account for the distribution of denominal verbs in Tatar, we only have to make two additional assumptions. One of them is about the syntactic configuration associated with transitive and inchoative verbs from both classes; another has to do with the spell-out of this configuration.

We have seen that an analysis in (19)–(21) that posits a derivational asymmetry between class 1 and class 2 transitives runs into serious complications. We propose instead that class 1 and class 2 verbs project the same structure in both transitive and inchoative configurations, shown in (31). Inchoative clauses only differ from transitives as to the second-order feature (in the sense of Adger & Svenonius 2011) [TR]/[INCH] on *v*, as seen in (31a-b). This assumption puts the analysis in line with the family of approaches where the inchoatives and transitives are derived by different 'flavors' of *v* (e.g. Folli & Harley 2005):

(31) a. Transitive: $[_{vP} \ldots v_{TR} [_{AktP} \ldots]]$
b. Inchoative: $[_{vP} \ldots v_{INCH} [_{AktP} \ldots]]$

The Akt head bears the feature [INCR]/[I-CAUSE], which determines if the relation between the activity and change of state is incremental or a relation of immediate causation, as in (32a-b):

(32) a. Incremental: $[\ldots [_{AktP} \ldots \text{Akt}_{INCR} [_{VP} \ldots]]]$
b. Immediate causation: $[\ldots [_{AktP} \ldots \text{Akt}_{I\text{-}CAUSE} [_{VP} \ldots]]]$

Our second assumption has to do with the spell-out of the structure. We assume a 'nanosyntactic' approach to the spell-out that has recently gained a grown popularity by offering elegant solutions to a number of complicated issues (e.g. Caha 2009, Taraldsen 2009). Three basic principles of this approach are given in (33)–(35) (Starke 2009:3–5):

(33) *Superset principle*: A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.
(34) *The biggest match principle*: The biggest match always overrides the smaller matches.
(35) *Elsewhere principle*: If several lexical items match the root node, the candidate with least unused nodes wins.

From the nanosyntactic point of view, a lexical item is a pairing of phonological representation with a syntactic subtree, the latter determining what syntactic configuration can be spelled out by the item. Finally, we assume the subset principle for second order features:

(36) *Subset principle for second order features*: If a node A in a tree being spelled out and a node α in a lexically stored subtree match, the set of second-order features on α must be a subset of those on A.

Lexical entries for LA, N, and TYR are specified in (37) ('⇔' symbolizes a correspondence between a phonological exponent and a subtree being spelled out).

(37) a. LA ⇔ $[_{vP} v_{TR} [_{AktP} \text{Akt}_{I\text{-}CAUSE} [_{VP} \text{V}]]]$

b. N ⇔ [$_{vP}$ v_{INCH} [$_{AktP}$ Akt]]

c. TYR ⇔ [$_{vP}$ v_{TR} [$_{AktP}$ Akt_{CAUSE}]], where CAUSE ∈ {I-CAUSE, G-CAUSE}

Since out of the three items in (37), only LA is specified for the VP node, it is the only option for spelling out VP. In effect, LA always surfaces in denominal verbs regardless of what features *v* and Akt bear. The spell-out of other components depends on their featural content.

Class 1 verbs are based on the I-CAUSE relation. Depending on the TR/INCH feature on *v*, two configurations are theoretically available. In (48), the whole structure is spelled out by LA. Other competitors (N for $Akt_{I\text{-}CAUSE}$ and TYR for v_{TR} and $Akt_{C\text{-}CAUSE}$) lose to LA according to (34), since LA is the biggest match. In (39), N is the only option for spelling out v_{INCH}. It competes with LA for Akt_{CAUSE}, but loses the competition due to (35): unlike N, LA bears the I-CAUSE feature and is thus more 'specific'.

(38) $\underbrace{[_{vP} \dots v_{TR} \; [_{AktP} \dots Akt_{I\text{-}CAUSE}}_{LA} \; [_{VP} \; V \; [_{XP} \dots X \dots]]]]$ Class 1; transitive

(39) $\underbrace{[_{vP} \dots v_{INCH}}_{N} \; \underbrace{[_{AktP} \dots Akt_{I\text{-}CAUSE}}_{LA} \; [_{VP} \; V \; [_{XP} \dots X \dots]]]]$ Class 1; inchoative

Class 2 verbs differ crucially in that they are based on the INCR relation. This prevents LA, specified as $Akt_{I\text{-}CAUSE}$, from realizing Akt_{INCR} and, due to monotonicity of spell-out, from realizing *v* as well. The role of LA is thus restricted to spelling out VP. Akt_{INCR} is lexicalized by N in both causative and inchoative configurations, as in (40) and (41), respectively. In addition, N spells out v_{INCH} in (41), where it is the only candidate. It cannot lexicalize v_{TR}, however, due to the feature mismatch, and this is where TYR takes over, (40).

(40) $\underbrace{[_{vP} \; v_{TR}}_{TYR} \; \underbrace{[_{AktP} \; Akt_{INCR}}_{N} \; \underbrace{[_{VP} \; V}_{LA} \; [_{XP} \dots X \dots]]]]$ Class 2; transitive

(41) $\underbrace{[_{vP} \; v_{INCH} \; [_{AktP} \; Akt_{INCR}}_{N} \; \underbrace{[_{VP} \; V}_{LA} \; [_{XP} \dots X \dots]]]]$ Class 2; inchoative

We believe that the analysis just outlined has a number of attractive properties. First, it suggests that class 1 and class 2 transitives are reduced to the same syntactic configuration consisting of projections of *v*, Akt and V. Transitives that belong to class 1 and class 2 are then correctly predicted to be identical in all relevant respects, and their similarities exemplified in (22)–(25) follow naturally. Secondly, and crucially, representing the relation between subevents within AktP opens a way of explaining why class 1 and class 2 transitives have different morphological shapes: the analysis allows to relate this difference to the semantic opposition between I-CAUSE and INCR, hence to account for the observations in §3.2. If the Akt head introduces I-CAUSE, it is spelled out by the LA morpheme, as well as V and v_{TR}. If, on the other hand, Akt is specified as [INCR], LA is no longer available, and N is called for; *v* is then realized by TYR, 'the causative morpheme'.

We are in a position of summarizing the argument for RPD based on this material. There are two classes of denominal transitives in Tatar, which only differ as to the properties of the relation between subevents (INCR versus I-CAUSE) and morphological makeup, being identical in all other respects. This suggests that both classes are associated with the same hierarchical structure, and the difference has to do with the way this structure is phonologically realized. Assuming RPD with the Akt head in between *v* and V enables us to account for two facts. First, a transitive verb under relevant circumstances is realized by four, not three, pieces of morphology, whereby the Akt head receives a unique spell-out, distinct from the exponents of

other heads. Secondly, spell-out patterns co-vary with the properties of the relation: Akt realized by a separate piece of morphology only if the relation is INCR. Crucially, RPD, where the relation is represented as a separate head, is a necessary precondition for this type of analysis. In this way, the composition of denominal verbs in Tatar provides us with an argument for RPD.

3.4. Cross-linguistic evidence

Denominal verbs in Tatar only serve one configuration where the Akt head can receive a designated spell-out: the INCR feature on Akt triggers a phonological realization of Akt distinct from *v* and V. In all other configurations where the causative morphology is attested, Akt has no overt realization. This is illustrated in (42a-b), where (42a) exemplifies the causative of an unaccusative verb, and (42b) is a product of further causativization of (42a):

(42) a. marat čiläk-ne tul-**dı̈r**-dı̈.
Marat bucket-ACC fill.intr-**CAUS**-PST.3SG
'Marat filled the bucket.'

b. alim marat-tan čiläk-ne tul-**dı̈r-t**-tı̈.
Alim Marat-ABL bucket-ACC fill.intr-**CAUS-CAUS**-PST.3SG
'Alim made Marat fill the bucket.'

(43) $[_{vP}\ v_{TR}\ [_{AktP}\ \underbrace{Akt_{I\text{-}CAUSE}}_{TYR}\ \underbrace{[_{VP}\ V\ \dots}_{TUL}\ ]]]$ tul-**dı̈r**

(44) $[_{vP}\ \underbrace{v_{TR}\ [_{AktP}\ Akt_{G\text{-}CAUSE}}_{TYR}\ \underbrace{[_{vP}\ v_{TR}\ [_{AktP}\ Akt_{I\text{-}CAUSE}}_{TYR}\ \underbrace{[_{VP}\ V\ \dots}_{TUL}\ ]]]]]$ tul-**dı̈r-t**

Given lexical entries in (33), this is exactly what one expects. For v_{TR} in (43) and (44), TYR is the only suitable candidate. For Akt, TYR is a better choice than N for two reasons. First, N is underspecified for the CAUSE feature on Akt, which makes it an elsewhere candidate according to (36). Secondly, TYR can spell out both v_{TR} and Akt nodes with no part of its lexically stored tree being unused. For N, its lexically stored v_{INCH} node is wasted, and N loses to TYR according to (34). LA has no chances to spell-out *v* and Akt either. In case of lexical verbs like 'fill' in (42), V is lexicalized by the verb root, hence the V node in the lexical tree of LA is necessarily unassociated. The immediate effect of this is: LA loses the competition for *v* and Akt to TYR in any verbal environment; it is denominal configurations only where LA can surface.

Therefore, the crucial lexical property of the morpheme TYR is that it is able to lexicalize both $Akt_{I\text{-}CAUSE}$ and $Akt_{G\text{-}CAUSE}$ nodes, which is reflected in its specification CAUSE in (37c) comprising both I-CAUSE and G-CAUSE.[5] If our RPD account for Tatar causativization is correct, we can derive a number of further predictions about cross-linguistic variation.

On the view advocated above, whether Akt receives an overt morphological realization depends on featural specifications of lexical items competing for realizing *v* and Akt. We expect that languages can vary along two dimensions: what information is lexically stored in the subtree associated with the causative morpheme and what are properties of other competitors. Specifically, we can expect to find a language minimally different from Tatar in a way represented in (45):

(45) a. $PHON_1 \Leftrightarrow [_{vP} \dots v_{INCH} [_{AktP} \dots Akt\ ]]$ ('inchoative morpheme')

b. $PHON_2 \Leftrightarrow [[_{vP} \dots v_{TR} [_{AktP} \dots Akt_{I\text{-}CAUSE}\ ]]$ ('causative morpheme')

[5]To make this part of the analysis fully explicit one would need a reasonable feature geometry where I-CAUSE and G-CAUSE are dependent on the CAUSE node, to which TYR in Tatar makes reference. We leave a full elaboration of this idea for a future occasion.

(45a) is exactly like its Tatar counterpart in (35b). PHON_2 in (45b), 'the causative morpheme', however, differs from TYR in that it is specified for the $\text{Akt}_{\text{I-CAUSE}}$ node rather than for both $\text{Akt}_{\text{I-CAUSE}}$ and $\text{Akt}_{\text{G-CAUSE}}$. We predict, then, that in such a language, direct causatives would look exactly like in Tatar, but in indirect causatives, the inchoative morpheme would show up inside the causative morphology, as shown in (46)–(49):

(46) $\underbrace{[_{v\text{P}} \dots v_{\text{INCH}} [_{\text{AktP}} \dots \text{Akt}_{\text{I-CAUSE}}}_{\text{PHON}_1} [_{\text{VP}} \dots]]]$ I-CAUSE; inchoative

(47) $\underbrace{[_{v\text{P}} \dots v_{\text{TR}} [_{\text{AktP}} \dots \text{Akt}_{\text{I-CAUSE}}}_{\text{PHON}_2} [_{\text{VP}} \dots]]]$ I-CAUSE; transitive

(48) $\underbrace{[_{v\text{P}} \dots v_{\text{INCH}} [_{\text{AktP}} \dots \text{Akt}_{\text{G-CAUSE}}}_{\text{PHON}_1} [_{\text{VP}} \dots]]]$ G-CAUSE; inchoative

(49) $\underbrace{[_{v\text{P}} \dots v_{\text{TR}}}_{\text{PHON}_2} \underbrace{[_{\text{AktP}} \dots \text{Akt}_{\text{G-CAUSE}}}_{\text{PHON}_1} [_{\text{VP}} \dots]]]$ G-CAUSE; transitive

As far as we can tell, this is exactly what happens in Tundra Nenets (Uralic, Samoyedic), illustrated in (50)–(51):

(50) a. man$^{\text{j}}$ pet$^{\text{j}}$a-nɔ mal$^{\text{j}}$ca-mɔ tira-**bta-*l*-pta**-w.
I Peter-DAT shirt-ACC dry.intr-**PTA-*L*-PTA**-1SG
'I made Peter dry his shirt.'

b. *man$^{\text{j}}$ pet$^{\text{j}}$a-nɔ mal$^{\text{j}}$ca-mɔ tira-**bta-bta**-w.
I Peter-DAT shirt-ACC dry.intr-**PTA-PTA**-1SG

c. *man$^{\text{j}}$ pet$^{\text{j}}$a-nɔ mal$^{\text{j}}$ca-mɔ tira-***l*-bta-bta**-w.
I Peter-DAT shirt-ACC dry.intr-***L*-PTA-PTA**-1SG

d. *man$^{\text{j}}$ pet$^{\text{j}}$a-nɔ mal$^{\text{j}}$ca-mɔ tira-***l*-pta-*l*-pta**-w.
I Peter-DAT shirt-ACC dry.intr-***L*-PTA-*L*-PTA**-1SG

(51) pet$^{\text{j}}$a mal$^{\text{j}}$ca-mɔ tira-**bta-*l*-ŋa**.
Peter shirt-ACC dry.intr-**PTA-*L*-3SG**
'Peter started drying his shirt.'

(50) shows a double causative configuration derived from the unaccusative verb stem 'dry (intr.)', which allows us to observe the morphological realization of both Akt-*v* sequences. The first instance of the causative creates the direct causative 'dry', and the second one derives the indirect causative 'make dry'. The resulting configuration and its spell-out are shown in (52):

(52) $\underbrace{[_{v\text{P}}\ v_{\text{TR}}}_{\text{PTA}} \underbrace{[_{\text{AktP}}\ \text{Akt}_{\text{G-CAUSE}}}_{\text{L}} \underbrace{[_{v\text{P}}\ v_{\text{TR}}\ [_{\text{AktP}}\ \text{Akt}_{\text{I-CAUSE}}}_{\text{PTA}}\ [_{\text{VP}} \dots \text{'dry'} \dots]]]]]$

Our focus here is the spell-out of the Akt heads. The PTA morpheme is associated, by hypothesis, with the subtree in (45b). It lexicalizes the lower $\text{Akt}_{\text{I-CAUSE}}$ for the same reason that TYR does in Tatar in (43): the inchoative L in (45a) is a weaker competitor, since, first, it is underspecified for the second-order features on Akt and, secondly, it does not make use of the v_{INCH} part of its subtree. This is evidenced by ungrammaticality of (52c-d), where L shows up in between the causative morphology and the verb stem. Things are different for the higher $\text{Akt}_{\text{G-CAUSE}}$: PTA is not suitable for lexicalizing $\text{Akt}_{\text{G-CAUSE}}$, due to the feature mismatch, and L is the only candidate. Attaching PTA on top of another PTA morpheme with no L occurring in between is correctly predicted to yield an ungrammatical sentence in (52b).

Finally, (53) shows the inchoative configuration corresponding to (51), where L spells out both higher Akt and higher v_{INCH}:

(53) $\underbrace{[_{vP}\ v_{INCH}\ [_{AktP}\ Akt_{G\text{-}CAUSE}}_{L}\ \underbrace{[_{vP}\ v_{TR}\ [_{AktP}\ Akt_{I\text{-}CAUSE}}_{PTA}\ [_{VP}$ … 'dry' …]]]]]

Once again, RPD coupled with minimal additional assumptions about the structure of lexical items involved in the derivation correctly predicts the appearance of a certain piece of morphology in between two instances of the causative. The cross-linguistic variation is thus reduced to a simple lexical parameter.

We have argued that the difference between Tatar and Tundra Nenets comes from the feature specification on the 'causative morpheme'. These languages, however, are fundamentally similar in that whenever Akt is realized by an item distinct from the causative morpheme, the same item shows up in the inchoative configuration: N in Tatar and L in Tundra Nenets are both specified for the v_{INCH} node in addition to the Akt node. However, properties of such morphemes can be subject to cross-linguistic variation, too. A natural expectation is to find a lexical item which is only associated with the Akt node, possibly with an additional G-CAUSE/I-CAUSE/INCR specification:

(54) PHON ⇔ $[_{AktP}\ Akt_{(G\text{-}CAUSE/\ldots)}\ ]$

We suggest that causativization data from Malagasy and Tagalog, discussed extensively in Travis 2010, can be analyzed as involving a morpheme like (54). These languages exhibit a pattern similar to (50) from Tundra Nenets: the two instances of the causative element are separated by a piece of morphology (*-f-* (F) in (55b), derived from (55a)). For Travis, F is an exponent of the Event head. On her view, it delimits a complete event structure built in the lexicon, which the higher *-an-* morpheme takes as a complement.

However, we believe that reanalyzing F in terms of Akt gains clear empirical advantages. Problematic for the Event Phrase analysis is the very fact that F can only appear in between two instances of the causative. If it marks completeness of the event structure, it is unclear why it is not free to occur in a configuration where no higher causative has been merged. This is not an option, however: Travis' discussion suggests that nothing of the form in (55c) exists in Malagasy.

(55) a. m-**an**-sitrika
AT-**AN**-hide.intr
'Y hides X.'

b. m-**an**-***f***-**an**-sitrika
AT-**AN-F-AN**-hide.intr
'Z makes Y hide X.'

c. *m-***_f_**-an-sitrika
AT-***F-AN***-hide.intr

Within our system, on the other hand, F would be analyzed as a realization of Aktionsart, not of Event, as in (56). Moreover, if its lexical subtree looks like (54), the fact that it can only occur in between two *v*-heads falls out with no additional assumptions:

(56) $\underbrace{[_{EP}\ E_{[\text{-}CASE]}}_{M}\ \underbrace{[_{vP}\ v_{TR}}_{AN}\ \underbrace{[_{AktP}\ Akt_{G\text{-}CAUSE}}_{F}\ \underbrace{[_{vP}\ v_{TR}\ [_{AktP}\ Akt_{I\text{-}CAUSE}}_{AN}\ [\ldots$ 'hide.intr' …]]]]]

Furthermore, the inchoative clause, parallel to (51) from Tundra Nenets, would never be derived, since F is not a legitimate candidate for spelling out v_{INCH}.

If the RPD analysis of Tatar, Tundra Nenets, and Malagasy is correct, it can shed a new light on the structure of Hindi causatives discussed by Ramchand (2008). Hindi presents a slightly different case as compared to what we have dealt with so far. In both Tatar and Tundra Nenets, G-CAUSE only appears when a transitive or unergative configuration is causativized, that is, when the causative structure merges on top of *v*P. Causatives of unaccusatives are always immediate. In Hindi, unaccusatives license both direct and indirect causation, the difference being reflected in morphological marking, *-aa-* (AA) versus *-vaa-* (VAA) in (57a-b):

(57) a. Anjum-ne makaan ban-**aa**-yaa.
Anjum-ERG house make-**AA**-PERF.M.SG
'Anjum built a house.'

b. anjum-ne (mazdurx-se) makaan ban-**vaa**-yaa.
Anjum-ERG labourers-INSTR house make-**VAA**-PERF.M.SG
'Anjum had a house built by the labourers.'

Ramchand argues that both types of causative are to be represented within the same *v*P, not by means of a double *v*P configuration, and proposes to analyze (57a-b) as (58a-b), respectively. (We couple her *init*/*proc* notation with the *v*/V notation used throughout this paper.)

(58) a. [$_{init\text{P}/v\text{P}}$ Anjum [$_{init/v}$ **-aa-**] [$_{proc\text{P}/\text{VP}}$ makaan [$_{proc/\text{V}}$ ban] [$_{res\text{P}}$ <makaan> [$_{res}$ <ban>]]]]

b. [$_{init\text{P}/v\text{P}}$ Anjum [$_{init/v}$ **-aa-**] [$_{proc\text{P}/\text{VP}}$ <Anjun> [$_{proc/\text{V}}$ **-v-**] [$_{res\text{P}}$ makaan [$_{res}$ ban]]]]

Ramchand suggests that VAA is to be decomposed into V and AA. In both (58a-b), AA spells out the *v* head; the *res(ultative)* head is realized by the verb root 'get built'. The difference has to do with the spell-out of V. Ramchand argues that if the direct AA causative is built, as in (60a), V is taken care of by the root. In case of the indirect causative in (60b), V is realized by the V element of the decomposed VAA morpheme. On Ramchand's (2008:182) view, indirectness of causation is an epiphenomenon of two subevents corresponding to V and *res* not being identified by the *same* lexical content.

Whether indirectness is epiphenomenal or should be recognized in its own right is addressed in Lyutikova & Tatevosov 2010. The analysis in (58) suffers from another complication, as Ramchand herself (2008: 168) acknowledges: 'the *-v-* of the indirect causative is actually closer to the root than the *-aa-* piece of the morphology that the direct and indirect causatives share'. We believe that an RPD alternative to (58b) effectively solves the problem with no additional effort. We already have everything we need, namely, lexical entries for the causative morpheme and for the Aktionsart element:

(59) a. *aa* ⇔ [[$_{v\text{P}}$ v_{TR} [$_{\text{Akt}\text{P}}$ $\text{Akt}_{\text{I-CAUSE}}$]] (cf. (47b), Tundra Nenets)

b. *v* ⇔ [$_{\text{Akt}\text{P}}$ Akt] (cf. (56), Malagasy)

Following Ramchand in that direct and indirect causatives are both projected within a single *v*P, and turning her SPD structures into RPD structures, we assign (60) and (61) to (57a) and (57b), respectively.

(60) $\underbrace{[_{v\text{P}} \ldots v_{\text{TR}} \ [_{\text{Akt}\text{P}} \ldots \text{Akt}_{\text{I-CAUSE}}}_{\text{AA}}$ [$_{\text{VP}}$ … 'be.built' …]]]

(61) $\underbrace{[_{vP} \ldots v_{TR}}_{AA} \underbrace{[_{AktP} \ldots \text{Akt}_{G\text{-CAUSE}}}_{V} [_{VP} \ldots \text{'be.built'} \ldots]]]$

As (60) and (61) show, Hindi causativization reduces to what we have independently observed in Tundra Nenets and Malagasy. The AA morpheme realizes both v_{TR} and $\text{Akt}_{I\text{-CAUSE}}$ in (60), defeating V in the competition for $\text{Akt}_{I\text{-CAUSE}}$ due to the biggest match principle in (34). However, it fails to realize $\text{Akt}_{G\text{-CAUSE}}$ in (61), and this is where V shows up. If (61) is on the right track, the required ordering falls out with no effort at all: if V is an instance of Akt, the position in between the root and AA is just the right place for it to appear.

5. Summary and conclusion

We have argued for radical predicate decomposition, which assumes, unlike standard decomposition, that relations between subevents in the event structure are represented independently both semantically and syntactically. We have presented three sets of causativization facts – semantic, morphological, and cross-linguistic – that support this claim. Subevents and their relations are independent, since, first, their semantic properties vary independently, secondly, they can be spelled out by distinct morphological exponents, and thirdly, because the independence predicts correctly the cross-linguistic variation. To the extent that our arguments are solid, we believe that RPD offers a more appealing view of event structure than the SPD alternative. Conceptually, it allows to eliminate a problematic assumption that descriptive properties of subevent descriptions must be tightly connected to characteristics of relations between subevents. Empirically, it enables a simple and elegant explanation for the otherwise mysterious connection between the type of causation and pieces of morphology that appear inside the causative morpheme in languages like Tatar, Tundra-Nenets, Malagasy, and Hindi.

References

Adger, David, and Peter Svenonius. 2011. Features in minimalist syntax. *The handbook of linguistic minimalism,* ed. by Cedric Boeckx, 27–51. Blackwell.

Alexiadou, Artemis; Elena Anagnostopoulou; and Florian Schäfer. 2006. The properties of anticausatives crosslinguistically. *Phases of interpretation,* ed. by Mara Frascarelli, 187–211. Berlin: Mouton.

Borer, Hagit. 2005. *Structuring sense: An exo-skeletal trilogy.* Oxford University Press.

Caha, Pavel. 2009. *The nanosyntax of Case*. Ph.D. dissertation, University of Tromsø.

Chierchia, Gennaro. 2004. A semantics for unaccusatives and its syntactic consequences. *The unaccusativity puzzle*, ed. by Artemis Alexiadou, Elena Anagnostopoulou, and Martin Everaert, 22–59. Oxford University Press.

Dowty, David R. 1979. *Word meaning and Montague grammar.* Dordrecht: Reidel.

Fodor, Jerry. 1970. Three reasons for not deriving 'kill' from 'cause to die'. *Linguistic Inquiry* 1.429–438.

Folli, Rafaella. 2002. *Constructing telicity in English and Italian.* PhD dissertation, University of Oxford.

Folli, Rafaella, and Heidi Harley. 2005. Flavours of *v*: Consuming results in Italian and English. *Aspectual inquiries*, ed. by Paula Kempchinsky and Roumyana Slabakova, 95–120. Dordrecht: Springer.

Folli, Rafaella, and Heidi Harley. 2007. Causation, obligation and argument structure: on the nature of little *v*. *Linguistic Inquiry* 38.197–238.

Guasti, Maria T. 2005. Analytic causatives. *The Blackwell Companion to Syntax,* ed. by Martin

Everaert and Henk van Riemsdijk. Vol. 1, 142–172. Malden: Blackwell Publishing.
Harley, Heidi. 2008. On the causative construction. *Oxford handbook of Japanese linguistics*, ed. by Shigeru Miyagawa and Mamoru Saito, 20–53. Oxford: Oxford University Press.
Kirpo, Lidija, and Maxim Kudrinskij. 2011. Tatar derivational morphology database. Technical report 12-04. Moscow State University.
Koontz-Garboden, Andrew. 2009. Anticausativization. *Natural Language and Linguistic Theory* 27.77–138.
Koontz-Garboden, Andrew, and John Beavers. 2012. Manner and Result in the roots of verbal meaning. *Linguistic Inquiry* 43.331–369.
Kratzer, Angelika. 1996. Severing the external argument from its verb. *Phrase structure and the lexicon,* ed. by Johan Rooryck and Laurie A. Zaring, 109–137. Dordrecht: Kluwer.
Kratzer, Angelika. 2005. Building resultatives. *Event arguments in syntax, semantics, and discourse*, ed. by Claudia Maienborn and Angelika Wöllstein-Leisen, 177–212. Tubingen: Niemeyer.
Kulikov, Leonid. 2001. Causatives. *Language typology and language universals: an international handbook*, ed. by Martin Haspelmath, Ekkehard König, Wulf Oesterreicher; and Wolfgang Raible. Vol. 2, 886–898. Berlin: Walter de Gruyter.
Lakoff, George. 1965. *On the nature of syntactic irregularity.* PhD dissertation, Indiana University.
Levin, Beth, and Malka Rappaport Hovav. 2010. *Lexicalized meaning and Manner/Result complementarity*. Ms., Stanford University and The Hebrew University of Jerusalem.
Lyutikova, Ekaterina, and Sergei Tatevosov. 2010. Causativization and event structure. Ms., Moscow State University.
Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. *University of Pennsylvania Working Papers in Linguistics* 4.201–225.
McCawley, James D. 1972. *Syntactic and logical arguments for semantic structures*. Bloomington, Indiana: Indiana University Linguistics Club Edition.
Miyagawa, Shigeru. 2012. Blocking and causatives: Unexpected competition across derivations. *Case, argument structure, and word order*, Chapter 8, 202–223. Routledge.
Pylkkänen, Liina. 2002. *Introducing arguments*. PhD dissertation, MIT.
Ramchand, Gillian. 2008. *Verb meaning and the lexicon: A first phase syntax*. Cambridge University Press.
Rapp, Irene, and Arnim von Stechow. 1999. *Fast* 'almost' and the visibility parameter for functional adverbs. *Journal of Semantics* 16.149–204.
Rappaport Hovav, Malka, and Beth Levin. 1998. Building verb meanings. *The projection of arguments: lexical and compositional factors*, ed. by Miriam Butt and Wilhelm Geuder, 97–134. Stanford, CA: CSLI Publications.
Rothstein, Susanne. 2004. *Structuring events: A study in the semantics of lexical aspect*. Malden, MA: Blackwell Publishing.
Saksena, Anuradha. 1982. Contact in causation. *Language* 58.820–831.
Shibatani, Masayoshi. 1973. Semantics of Japanese causatives. *Foundations of Language* 9.327–373.
Shibatani, Masayoshi (ed.) 2002. *The grammar of causation and interpersonal manipulation*. Amsterdam and Philadelphia: Benjamins.
Starke, Michal. 2009. Nanosyntax: A short primer to a new approach to language. *Nordlyd* 36-1.1–6.
Taraldsen, Knut Tarald. 2009. Lexicalizing number and gender in Lunigiana. *Nordlyd* 36-1.113–127.
Tatevosov, Sergei, and Lidija Kirpo. 2012. Deriving verb classes in Tatat. Ms., Moscow State University.
Travis, Lisa DeMena. 2010. *Inner aspect: The articulation of VP.* Dordrecht: Springer.
von Stechow, Arnim. 1996. The different readings of *wieder* 'again': A structural account. *Journal of Semantics* 13.87–138.
Yang, In-Seok. 1976. Semantics of Korean causation. *Foundations of Language* 14.55–87.
Zubizarreta, Maria L., and Eunjeong Oh. 2007. *On the syntactic composition of manner and motion*. Cambridge, MA: MIT Press.